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Risk Management by Entrepreneurial and Non-Entrepreneurial Micro and Small-Scale Firms in the Agriculture Food-Processing Sector in Sri Lanka: A Mixed- Method Approach

A thesis presented in partial fulfilment of the requirements for the degree of

Doctor in Philosophy in Agribusiness

at Massey University, Manawatu,
New Zealand



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2022

To Dinuqa & Sayeli

DECLARATION

The thesis entitles " Risk Management by Entrepreneurial and Non-Entrepreneurial Micro and Small-Scale Firms in the Agriculture Food-Processing Sector in Sri Lanka: A Mixed-Method Approach" is submitted to Massey University for the degree of Doctor of Philosophy. I, Ganegoda Hewage Ishara Anjalee, declare that this thesis is the outcome of my own research work. The materials used from other resources are acknowledged. I also certify that the work contained in the thesis, or any part thereof, has not been previously submitted for a degree, diploma or other qualifications.



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ABSTRACT

Risk, risk-taking, and risk management have been identified as integral components of entrepreneurship since the inception of the concept of entrepreneurship. However, the relationship between these components still puzzles scholars as different scholars have presented often contrasting theoretical notions and empirical findings regarding how entrepreneurial firms take and manage risk. Despite the importance of risk in entrepreneurship, the attention given to risk management and the adoption of specific risk management strategies is limited in the research literature.

The firms operating in the MSME sector play a vital role in economic development in developing countries, particularly in Sri Lanka. The term entrepreneurship is frequently associated and investigated along with the term MSMEs where many researchers have used these two terms synonymously or alternatively. Literature supports the notion that entrepreneurial firms and small businesses are related but they are two different entities with distinctive features. However, the lack of specific criteria to differentiate between the two firm groups is identified as a major hindrance in the sector that negatively affects the development of beneficial policies and scholarly work.

With the above questions identified, the overarching research question of this study is; “Do the entrepreneurial micro and small-scale (MSE) firms in the agriculture food processing sector in Sri Lanka manage the risks they face any differently from other MSEs operating in the sector?”. To address this question first it was necessary to assure the existence of such entrepreneurial firms within the sector. For that, the study devised a method to differentiate entrepreneurial firms from their non-entrepreneurial counterparts. Moreover, the study also aimed to investigate the factors that determine the differing risk management behaviour of these MSEs operating in the agriculture food processing sector in Sri Lanka.

The research process began with a preliminary study to investigate the context of agriculture food processing MSEs in Sri Lanka. With the support of the findings of the preliminary study and the literature, the five-dimensional Entrepreneurial Orientation approach (i.e. innovativeness, proactiveness, risk-taking, competitive aggressiveness, and autonomy) was identified as the best-fitting method to differentiate between the two firm groups. Upon confirming the existence of entrepreneurial and non-entrepreneurial firms in the sector, the study adopted an exploratory sequential mixed-method approach consisting of two phases; a qualitative phase with selected case firms to explore the nature of their EO followed by a quantitative phase with survey data to investigate the risk management behaviour of a population of these firms. The qualitative phase was conducted with four selected case firms; two entrepreneurial and two non-entrepreneurial to explore the level

and nature of EO. The quantitative data were gathered from a sample of 206 MSEs using a structured, researcher-administered questionnaire.

The results confirmed that entrepreneurial firms do exist in the agriculture food processing sector in Sri Lanka. Proactiveness, innovativeness, risk-taking, and competitive aggressiveness were identified as the more suitable EO dimensions that can be used to identify and differentiate between entrepreneurial and non-entrepreneurial firms in the Sri Lankan context, with autonomy being identified as not strongly contributing to this differentiation.

The study agrees with the existing body of literature on “entrepreneurs are risk takers”, yet goes much beyond of this common notion to prove that they are not only they are risk takers, but also better risk managers compared to their non-entrepreneurial counterparts. The uniqueness of this study is that it has not only investigated the risk management behaviour of entrepreneurial small firms but also compared it with a group of non-entrepreneurial firms. Quantitative study found significant differences between entrepreneurial and non-entrepreneurial firms in terms of their adoption of risk management strategies. More entrepreneurial firms adopted knowledge-related, strategic, and product price-related market risk management strategies compared to non-entrepreneurial firms. This was also found in the qualitative phase where the entrepreneurial firms were more proactive and showed a notable orientation toward adopting strategic, and knowledge-related, risk management strategies. The two firm groups showed clear differences in their propensities to risk, with two categories of risk propensities identified as entrepreneurial risk (seeking) propensity attributes and non-entrepreneurial risk (averting) propensity attributes. The entrepreneurial risk (seeking) attributes were found to strongly contribute to the differentiation between entrepreneurial and non-entrepreneurial MSEs while the adoption of strategic and knowledge-related risk management strategies was negatively affected by the non-entrepreneurial risk (averting) propensity. Investigating how sources of risk are perceived, both as opportunities and threats, for both entrepreneurial and non-entrepreneurial firms was another important contribution of this study. The results highlighted that the entrepreneurial group perceived more opportunities arising from the sources of risk than the non-entrepreneurial group, with both groups perceiving the threats in a similar manner.

Having a proper identification of entrepreneurial and non-entrepreneurial firms is useful for policymakers to devise their policies more strategically. Finally, this study expands the current understanding of entrepreneurial/non-entrepreneurial firms, especially in terms of strategic planning and knowledge-orientation of entrepreneurial firms in managing risks, risk propensity, and perceiving different sources of risks based on the strong foundation of their proactive and opportunity-oriented nature.

ACKNOWLEDGEMENTS

This PhD would not have been possible without the support, guidance, and kindness of many people.

First and foremost, I would like to express my sincere gratitude to my primary supervisor, Professor Nicola M. Shadbolt for her kindness and patience in tolerating my mistakes during these five years. I am truly grateful to Prof Nicola for accepting my request for supervision and continuously guiding me throughout my PhD journey by nourishing me with your immense knowledge of both entrepreneurial risk management and research methods. I also thank you for proposing Dr. David Gray and Prof. Christine Woods to the supervision team.

Working with you three supervisors was the best experience I ever had in my life. As a young academician, I have earned so many things from you. Your unique way of supervision was always an inspiration for me. Thank you all for your effective supervision, understanding, patience, encouragement, constructive criticisms, and for all the advice. Your thorough critiques immensely contributed to developing my confidence as an emerging researcher. I would like to thank especially Dr. Dave for reading and commenting on all my work. I was truly amazed by your knowledge of research methods and your dedication towards supervising me. Prof. Chris also deserves my heartfelt gratitude for your contribution of expert knowledge on entrepreneurship and small business management.

I am thankful to Dr. Jonathan Godfrey for assisting me during my statistical analysis. Thank you for kindly helping me to clarify the statistical techniques and identify the best analytical tools and interpretations. I am also thankful to Dr. Thiagarajah Ramilan for his kindness and guidance in various ways. Your encouragement and kind words meant a lot to me during my stay at Massey.

Next, I would like to acknowledge the government of New Zealand for funding my study through the New Zealand Commonwealth Scholarships programme. Without it, my presence in a country like New Zealand would have been impossible. Thank you for supporting me and my family throughout our stay in New Zealand. I must also thank the Sri Lankan government for nominating me for the scholarship programme and letting me bring new knowledge back to my home country.

I am enormously thankful to Massey University for offering me a studentship at this world-ranked university. The friendly staff at International Student Support Office, Jamie, Saba, Logan, and others were always behind me to help me whenever I needed it. Massey University provided me with the best facilities and resources to carry out my study smoothly. I must thank the university administration and the staff for that.

I am truly grateful to those who believed in me and encouraged me along the way. My beloved husband Anuradha and my precious little boy Dinuka were the biggest emotional strengths behind my PhD journey. Thank you for accompanying me to New Zealand and for holding me tight without letting me fall during those challenging times. I am thankful for my parents who were always being the greatest blessing of my life. Thank you for being with me every second and supporting me to achieve many things in my life.

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LIST OF ABBREVIATIONS

ASI	Annual Survey of Industries
CBSL	Central Bank of Sri Lanka
DCS	Department of Census and Statistics
EC	European Commission
EO	Entrepreneurial Orientation
FBI	Family Business Institute
LKR	Sri Lanka Rupees
MIC	Ministry of Industry and Commerce
MSE	Micro and small-scale enterprises
MSME	Micro, small and medium-scale enterprises
NE	Non-entrepreneurial
OECD	Organisation for Economic Co-operation and Development
PCA	Principal Component Analysis
RPA	Risk propensity attribute
SLIR	Sri Lanka Inland Revenue
SME	Small and Medium-scale enterprises
SR	Source of risk
WB	World Bank

Chapter 1 Introduction

1.1 Introduction

This study investigates the entrepreneurial risk management by the micro and small-scale (MSE) firms in the agriculture food processing sector in Sri Lanka along with an investigation into the factors that influence the adoption of different risk management strategies by these MSEs. More specifically, the study intends to understand whether entrepreneurial firms manage the risks they face any differently than non-entrepreneurial firms by comparing the adoption of risk management strategies between two firm groups. This first chapter provides an introduction to the thesis including the rationale for the thesis, a brief context of Sri Lanka and its MSME sector, important concepts, the research questions, objectives, and the research design. The significance of the thesis is explained and the thesis structure is outlined and illustrated.

1.2 Background of the study

1.2.1 The role of MSMEs in the Sri Lankan economy

Micro, small and medium-scale enterprises (MSMEs) play a vital role in economic development and income growth in developing countries, particularly in Sri Lanka. According to MIC (2016), more than 90% of the business establishments in the country fall under the MSME category while providing 45% of the employment in the country. As per the Department of Census and Statistics (DCS) Economic Census 2013/14, the number of establishments in the MSME sector is 1.017 million providing livelihood to nearly 2.25 million persons (MIC, 2016). These percentages clearly indicate the significance of the MSME sector in Sri Lankan economy. Moreover, due to their significant benefits, in recent years MSMEs have increasingly become the focus of policy-makers and as well as scholars in academic disciplines including strategic management and entrepreneurship (Shaker A Zahra, 2007).

The National policy framework for SME development in Sri Lanka (MIC, 2016) identifies and defines manufacturing and service sector MSMEs based on their annual income and number of people employed. According to the data provided by the Annual Survey of Industries (ASI, 2015), manufacturing is the largest economic sector in Sri Lanka and is comprised of twenty-three sub-sectors. Among these 23 sub-sectors of the manufacturing sector, agricultural food processing firms play an important role contributing 6% to the GDP of the country (DCS, 2019). There are 2,971 firms in the manufacturing and processing of agricultural food products sector where the majority are identified as micro and small-scale firms. Despite these significant contributions towards the Sri Lankan economy, studies conducted on manufacturing MSMEs were found to be significantly limited.

The term entrepreneurship is frequently associated and investigated in relation to the term MSMEs where many researchers have used these two terms synonymously or alternatively (Lucky & Olusegun,

2012; Olusegun, 2012). While MSMEs are identified as the backbone of economic development, entrepreneurship is referred to as a driver of economic growth (Ribeiro-Soriano, 2017). Karadağ (2016) acknowledged SMEs as the drivers of socio-economic development due to their important role in GDP growth, new job creation, and entrepreneurship. Most of these studies that investigated MSMEs and entrepreneurs did not use a clear criterion to differentiate between the two hence, resulting in ambiguous findings that mislead policymakers when setting and implementing strategies. In contrast to the above views, certain researchers understood that not all MSMEs are entrepreneurs and that there are apparent differences between entrepreneurial and non-entrepreneurial MSMEs (Carland, Hoy, Boulton, & Carland, 1984; Chan & Lau, 1993; Covin, 1991). However, none of the MSME or entrepreneurship-related studies carried out under the Sri Lankan context were found to make significant attempts to understand the entrepreneurial/ non-entrepreneurial nature of their respondent firms. Accordingly, for the purpose of this study, the first step was to identify the best fitting criterion to distinguish between entrepreneurial and non-entrepreneurial MSE firms in the agricultural food processing sector in Sri Lanka and to use that criterion to distinguish between the MSEs under concern.

1.2.2 Entrepreneurial and non-entrepreneurial MSMEs

Even though the entrepreneurial/ non-entrepreneurial differences were not studied or considered in Sri Lankan context, several international scholars attempted to differentiate between these two groups based on characteristics that are unique to each group. Carland et al. (1984) were one of the first set of scholars who investigated the differences between entrepreneurial firms and small businesses. These scholars conceptualised two definitions for entrepreneurial firms and small business ventures. According to Carland et al. (1984) “an entrepreneurial venture is one that engages in at least one of Schumpeter's four categories of behaviour: that is, the principal goals of an entrepreneurial venture are profitability and growth and the business is characterized by innovative strategic practices whereas a small business venture is any business that is independently owned and operated, not dominant in its field, and does not engage in any new marketing or innovative practices” (p. 358). Among other scholars D. Miller (1983)'s work on identifying entrepreneurship among different firm types contributed significantly to the body of knowledge. D. Miller (1983) defined an entrepreneurial firm as a “one that engages in product-market innovation, undertakes somewhat risky ventures, and is first to come up with "proactive" innovations, beating competitors to the punch” (p. 771). On the other hand, the author explained a non-entrepreneurial firm as a one that innovates very little, is highly risk-averse, and imitates the moves of competitors instead of leading the way. He proposed entrepreneurship as a composite weighting of innovation, risk-taking and proactiveness and supported it with empirical findings from a sample of 52 large diverse Canadian firms. Despite this

research being conducted decades ago, D. Miller (1983)'s definition of entrepreneurial firms still guide many scholars who differentiate entrepreneurial firms from their non-entrepreneurial counterparts. This definition later guided the origination of the concept of entrepreneurial orientation (EO) as described in the following text.

Entrepreneurial orientation is the process that provides organizations with a basis for entrepreneurial decisions and actions (Lumpkin & Dess, 1996; J. Wiklund & Shepherd, 2003). Followed by the contribution of D. Miller (1983), Covin and Slevin (1989) made the next remarkable contribution for the building of the concept of EO by proposing the operationalization of the EO construct as comprising a firm's innovativeness, risk-taking and proactiveness. Lumpkin and Dess (1996) later proposed a five-dimensional model by adding two additional dimensions that are critical to describe an entrepreneurial firm: autonomy and competitive aggressiveness. Hence, a firm's EO refers to its propensity to act autonomously, engage in innovation, perform risk-taking activities, and react proactively and aggressively to outperform competitors in the marketplace (Lumpkin & Dess, 1996).

This strategic entrepreneurial orientation of a firm is recognized as a robust method by which to distinguish between entrepreneurial and non-entrepreneurial firms. Scholars have used this approach to better understand firms' strategies (how they learn, assume, refine and redefine their key business decisions) and processes (how they implement strategy), place them on the entrepreneurial orientation continuum (e.g.: from non-entrepreneurial/conservative to entrepreneurial firms) (Barringer & Bluedorn, 1999; Covin, Green, & Slevin, 2006; Entrialgo, Fernandez, & Vazquez, 2000). Argument among researchers exist about the extent to which EO dimensions need to be present for a firm to be considered entrepreneurial. D. Miller (1983) suggested that only firms that possess all EO dimensions to a similar extent should be considered as entrepreneurial. In contrast, Lumpkin and Dess (1996) argued that any firms that engage in an effective combination of EO dimensions can be considered as entrepreneurial. This implies that to become an entrepreneurial firm, it is not necessary for all five EO dimensions to coexist (Chow, 2006).

Even though this EO approach has been used by scholars in Western and developed countries to distinguish between entrepreneurial and non-entrepreneurial firms, its applicability has not been adequately tested under Asian and developing countries' contexts. Therefore, applying such an approach to Sri Lankan food processing MSEs will help to broaden the understanding of the concept of EO in another context whilst distinguishing entrepreneurial firms within the sector.

1.2.3 Risk management in entrepreneurial MSMEs

Risk, risk-taking, and risk management are considered integral components of entrepreneurship since the inception of the entrepreneurship concept. The well-known scholar Cantillon (1734), defining the

term “entrepreneurship” for the first time in history stated an entrepreneur was a bearer of uncertainty. Thereafter, many scholars associated the terms risk and risk-taking to define entrepreneurship and investigated the relationship between risk, risk-taking, and entrepreneurship. However, among these risk-related aspects, risk management appears to be under-investigated compared to the studies on the risk-taking behaviour of entrepreneurs and entrepreneurial firms. Even though the relationship between entrepreneurship and risk has been investigated throughout history the results still puzzle the researchers (Stewart Jr & Roth, 2001). Some studies claimed entrepreneurs as active risk-takers (Hvide & Panos, 2014; Stewart Jr & Roth, 2001; Stewart, Watson, Carland, & Carland, 1999) while others claimed entrepreneurs being more ambivalent risk takers, who are either risk-averse or neutral compared to non-entrepreneurial managers and general populations (Brockhaus, 1976, 1980; Kamalanabhan, Sunder, & Manshor, 2006). The results also vary among different economies, contexts, industries, and among different firm types. Among these, the idea of entrepreneurs being risk takers is one of the most resulting outcomes from the research conducted. Previous theoretical, as well as empirical research (Caliendo, Fossen, & Kritikos, 2009; Ekelund, Johansson, Järvelin, & Lichtermann, 2005; Hvide & Panos, 2014; Stewart et al., 1999), supports this conventional wisdom that being an entrepreneur means making risky decisions and that hence, more risk-seeking individuals are more likely to become entrepreneurs.

As noted above, despite the importance of risk in entrepreneurship, the attention given to risk management and the adoption of risk management strategies is limited in the research literature. Moreover, the vulnerability of MSMEs, due to their lack of resources to respond promptly to internal and external threats, increases their need to adopt risk management strategies and avoid losses that could threaten their survival (Verbano & Venturini, 2013). According to (Vargas-Hernández, 2011), MSMEs need to adopt risk management strategies in order to protect their innovative projects, which are fundamental to gain competitive advantage and success in the market, but that involve risky decisions and activities. This is particularly important for food manufacturing firms that are involved with frequent product and process innovation activities. Therefore, among the risk-related aspects that are associated with entrepreneurial behaviour, the focus of this study is on the adoption of risk management strategies by these small firms.

Risk management (RM) is the process of identifying risks, assessing the probability and the possible impact of events, and treating risks, eliminating or reducing their effects with the minimum investment of resources (Ekwere, 2016, p. 23). The risk management process involves several different actions including; acceptance, reduction, avoidance, mitigation or elimination depending on the nature of the source of risk identified. According to the definition of risk given by Chapman and Cooper (1983a), risk is viewed as the possibility of economic or financial losses or gains, as a consequence of

the uncertainty associated with pursuing a course of action. Therefore, as opposed to the common notion of viewing risk as something negative (Henschel, 2006), this study considers both positive and negative (i.e. gains and losses) outcomes of responding to the risks involved. Therefore, risk management is not necessarily just mitigating or reducing risks but also accepting and responding to them to get the best possible outcome for the firm.

The adoption of risk management strategies by any firm is dependent upon several factors. The literature identifies two types of factors that mainly influence the adoption of risk management strategies; (1) firm and firm owner specific factors and (2) risk-related variables. MSE owners play a significant role in the risk management processes of their firms, as they often fill different roles at all levels in their businesses, starting from owner/managers to the labourers and factory workers. Therefore, the socio-demographic parameters related to both firm owner and firm including; gender, education level, age and/or experience of firm owner as well as firm characteristics such as firm size, number of employees and firm type play a role in a firm's adoption of risk management strategies (Acar & Göç, 2011; Y. Kim & Vonortas, 2014; Watson & Newby, 2005). Although there are several risk-related variables discussed in the literature that may influence the risk management decisions of firms, this thesis narrows its focus to two variables most researched under different contexts and identified as most influential on risk management decisions. Risk propensity and the firm's perception of sources of risks were identified as the most important two risk-related variables that influence the adoption of risk management strategies (Ahsan, 2011; Iqbal et al., 2020; Pinochet Chateau, 2005; Sitkin & Pablo, 1992; Sitkin & Weingart, 1995; van Winsen et al., 2016).

1.2.3.1 Risk propensity

Risk propensity has been generally conceptualised as the risk-taking tendencies of individuals or firms. Many scholars used risk propensity as a measure of the "willingness to take risk" of their respective respondents (Farmer, 1993; MacCrimmon & Wehrung, 1990). In the context of entrepreneurship, risk-taking refers to "a willingness to commit resources to projects, ideas, or processes whose outcomes are uncertain and for which the cost of failure would be high" (Covin & Wales, 2012, p. 694). For the purpose of this study, risk propensity is further defined, based on Sitkin and Pablo (1992), as the tendency of a decision-maker either to embrace or to avoid risk. This definition expands on that of Covin and Wales (2012) by identifying that the returns of success could also be high, hence it considers tendencies to both embrace and avoid risks.

The assumption that entrepreneurs have a high propensity to risk relative to the general population is commonplace in the strategic management literature (Lago, Delgado, & Castelo Branco, 2018; Xu & Ruef, 2004). Various comparative studies have investigated the risk propensity differences between different respondent groups, entrepreneurs, small business owners, managers and other non-

business professionals. They present conflicting findings indicating instances of entrepreneurs having both high and low propensity to risk compared to other populations tested. For example, Brockhaus (1980) compared the risk propensity of entrepreneurs against managers and reported that risk propensity of entrepreneurs was no different than that of managers. In contrast, Carland III, Carland Jr, Carland, and Pearce (1995) found significant differences between entrepreneurs and small business owners in terms of their risk propensity. According to their study, entrepreneurial firms had the highest risk propensity followed by small business owners and managers. Based on these contradictory findings, it appears that risk propensity differences between entrepreneurial firms and non-entrepreneurial small businesses is unresolved. Most importantly, the impact of risk propensity of these firms on the adoption of risk management strategies by the respective groups is barely investigated under any economic or industrial context.

1.2.3.2 Perceived sources of risk

Risks can be categorised under different sources based on their origin. However, the classifications used by different scholars was found vary based on their context, the industry studied and the type of business. Categories may include, direct and indirect risks (Henschel, 2008), upside (opportunity) and down-side (threat) risks (Shadbolt, Olubode-Awosola, Gray, & Dooley, 2010), and internal and external risks (Kaplan & Mikes, 2012). For example, COSO (2004) noted that risks can be caused by external factors (economic, environmental, social, political) or by internal factors (human resources, processes, technology). The interest of this study is mainly on the sources of risks encountered by the small-scale, manufacturing firms in developing economies. The most common types of sources of risks in the literature include, financial risks, operational risks, market risks, strategic risks, political risks, regulatory and institutional risks, HR risks, technological risks, and environmental and hazardous risks (Table 1).

Table 1-1. Different sources of risks and their respective categories

Risk category	Sources of risks
Financial risks	Interest rate changes, Exchange rate changes, Access to finance, Capital availability, Credit availability
Operational risks	Raw material availability, Seasonality of crops, Perishability, Storage facilities
Market risks	Competition, Product price, Input costs, Changes in consumer demand; Dependence on distributors
Strategic risks	Changes in company structure, Decision making styles
Political risks	Change in leadership that revises economic and trade policies, Corruption
Regulatory and institutional risks	Reporting and compliance, Environmental and health regulations, Quality standards, Labour laws, Health & safety
HR risks	Labour costs, Use of family labour, Availability of skilled labour, Worker unions

Technological risks	Process automation, Process complexity, availability of advanced technology, R & D
Environmental and hazard risks	Unexpected weather conditions, Fire, Accidents, Theft

Source: (Falkner & Hiebl, 2015; A. Miller, Dobbins, Pritchett, Boehlje, & Ehmke, 2004; Shadbolt et al., 2010)

As noted under section 1.2.3. above, this study not only considers risk as a threat to a business firm that results in losses but also as an opportunity that can result in benefits. This idea is further confirmed by Leitch (2010) as they defined risk as a potential that a certain action will lead to an undesirable effect, positive or negative. The risk perception differs according to whether the risk is viewed as an opportunity or a threat. Early literature often only considered the threats, for example, Harwood (1999) explained risk as uncertainty that may involve the probability of losing money, possible harm to human health, repercussions that affect resources, and other types of events that affect a person's welfare. More recently scholars also noted that risks that result from changes in the business environment can also be viewed as opportunities that impose positive impacts on ventures (Detre, Briggeman, Boehlje, & Gray, 2006; Shadbolt et al., 2010; Talavera, 2004). Thereby, the perceived risk is understood as to how entrepreneurs evaluate available ideas (i.e. positively or negatively) and make decisions in risk-related situations.

According to scholars such as Sitkin and Pablo (1992), Sitkin and Weingart (1995) and van Winsen et al. (2016), perceived risk is a strong determinant of risk behaviour. However, there is little known about the relationship between perceived risk and the adoption of risk management strategies. Most importantly, few of these studies have considered the impact of perceived risks as opportunities or threats on the adoption of risk management strategies. Moreover, most of the studies that investigated the above relationships are from farm management literature where studies that investigated small businesses and manufacturing industries are nearly non-existent.

1.3 Problem statement

Risk is a fundamental element of entrepreneurship literature since the inception of the concept. An extensive body of literature is available on the risk and risk management-related aspects of entrepreneurial firms under different contexts. Moreover, certain scholars have made attempts to compare and contrast these risk-related aspects between different respondent groups including entrepreneurial firms, small businesses, and corporate managers. However, the techniques that are being used to distinguish between these groups, especially among entrepreneurial firms and small businesses are inconsistent. In fact, no proper attempts were made to clearly define and understand behaviour and the nature of entrepreneurial and non-entrepreneurial firms that are investigated. Moreover, no studies have attempted to investigate and differentiate these two firm groups operating

in developing economies. These misclassifications and misinterpretations have led to contradictory findings among scholars resulting in incorrect policy implications. Therefore, it is important to explore and identify a criterion that can be used to differentiate between entrepreneurial and non-entrepreneurial firms, especially one that can be applied to MSEs operating in developing economies.

As mentioned above, risk management and adoption of risk management strategies are one of the least explored risk-related aspects in the entrepreneurship literature compared to the attention given to the risk-taking behaviour of entrepreneurs and firms. The literature also argues the fact that; entrepreneurs are not necessarily risk-takers but risk managers who adopt different risk management strategies other than risk-taking such as avoiding, transferring, sharing and accepting. The prevailing literature that explored the risk management aspects is mostly limited to farm management literature and studies from developed economies. Most importantly, none of these studies have attempted to compare and contrast the adoption of risk management strategies by entrepreneurial and non-entrepreneurial firms. Therefore, there is a gap in the entrepreneurship literature on both differentiating entrepreneurial and non-entrepreneurial firms as well as understanding what influences and how differently these firms manage the risks that they face especially under developing country contexts.

1.4 Research questions

The overarching research question of this study is; “Do the entrepreneurial MSE firms in the agriculture food processing sector in Sri Lanka manage the risks they face any differently from other MSEs operating in the sector?” (Are they different?)

In order to answer this question, first, it was needed to assure the existence of such entrepreneurial firms within the sector. (Do they exist?)

Having confirmed their existence, the next question was:

What factors determine the risk management behaviour of these MSEs operating in the agriculture food processing sector in Sri Lanka?

1.5 Research objectives

In this light, the specific objectives of this research study can be stated as follows:

- To devise a method to differentiate entrepreneurial firms from their non-entrepreneurial counterparts and use it to distinguish between the entrepreneurial and non-entrepreneurial firms among the MSEs operating in the agriculture food processing sector in Sri Lanka
- To explore how differently these entrepreneurial and non-entrepreneurial firms manage the risks they face by adopting different risk management strategies

- To identify the factors that influence the risk management behaviour of these entrepreneurial and non-entrepreneurial firms. This involved three sub-objectives;
 - To identify the differences in risk propensity attributes between entrepreneurial and non-entrepreneurial firms
 - To explore how the different sources of risks were perceived by entrepreneurial and non-entrepreneurial firms
 - To explore the extent to which the risk propensity attributes and perceived sources of risks influence the adoption of risk management strategies within these MSEs

1.6 Research approach and method: The process model

As stipulated in the problem statement, research questions, and objectives, the first step of this study is to identify and devise a criterion to distinguish between the entrepreneurial and non-entrepreneurial MSEs in the agricultural food processing sector in Sri Lanka. After an extensive survey of literature followed by a preliminary study, the five-dimensional EO approach was identified as the best fitting method to differentiate between the two firm groups (Figure 1.1). As a result, an EO screening questionnaire was developed from the literature that can be used as a test to measure the level of EO of MSEs.

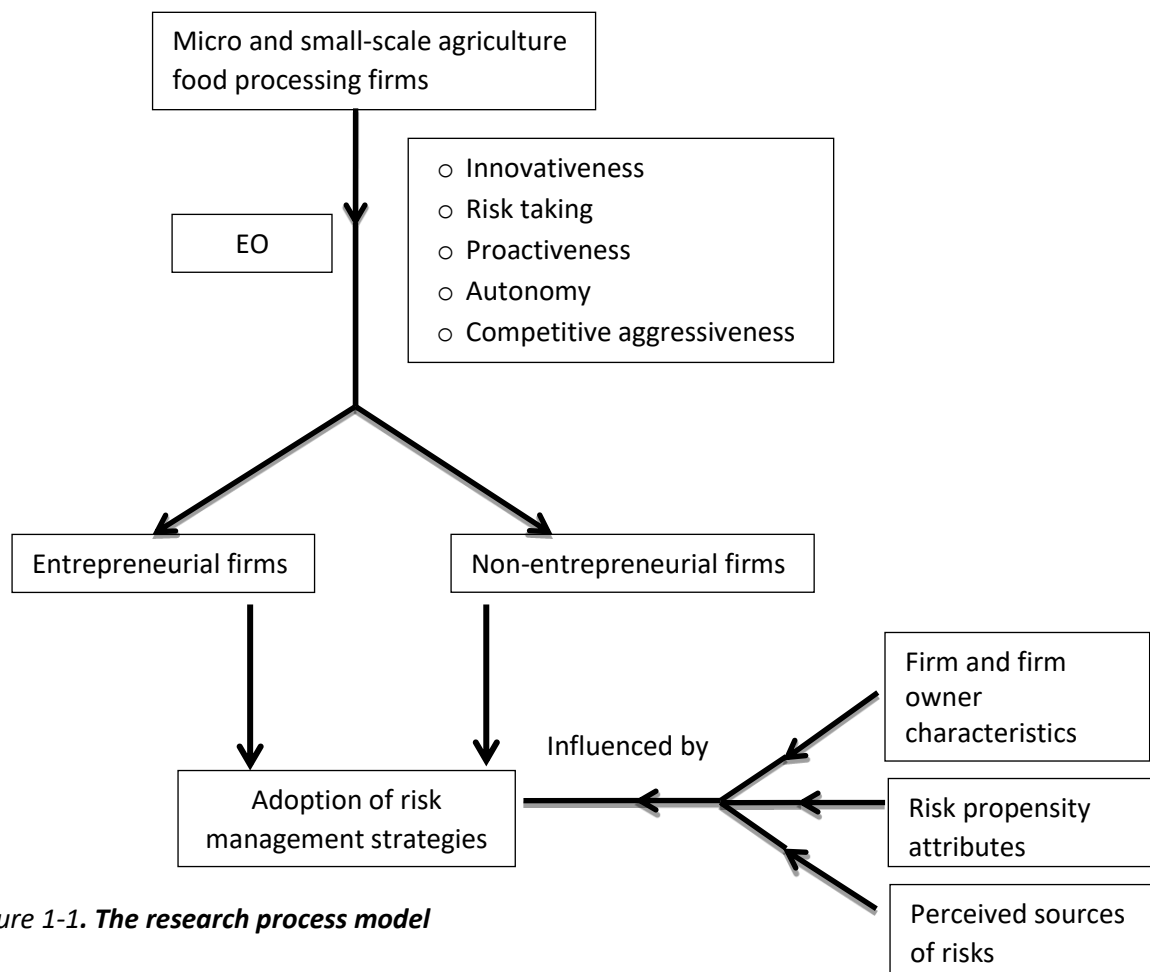


Figure 1-1. *The research process model*

This preliminary study along with the literature survey highlighted that there is little known about the entrepreneurial and non-entrepreneurial differences in Sri Lankan manufacturing MSMEs. Therefore, the study was planned to be conducted by adhering to the exploratory sequential mixed-method approach consisting of two phases; a qualitative phase with selected case firms followed by a quantitative phase with survey data. The aim of using this mixed-method approach is to achieve the best results in addressing the research questions.

Thereby, the first qualitative phase of the study was conducted with four selected case firms; two entrepreneurial and two non-entrepreneurial. Four in-depth, semi-structured interviews were conducted with firm owners to explore their proactive, innovative, risk-taking, competitively aggressive and autonomous behaviour. Data were also gathered about their risk propensities, perception of sources of risk and risk management strategies adopted, in order to facilitate the development of a survey instrument for the quantitative phase of the study. Qualitative data were analysed following qualitative data analysis techniques namely; within-case and cross-case analysis between entrepreneurial and non-entrepreneurial firms. Once their entrepreneurial and non-entrepreneurial natures were explored then the study focused on risk management aspects of these two firm groups.

The survey instrument was developed with the aid of both literature and inputs from the qualitative phase. The data were gathered from a sample of 206 MSEs using a structured, researcher-administered questionnaire. The respondents were first subjected to the EO screening test to determine their level of EO and then their risk-related data were gathered. The data were gathered on their demographic parameters, risk propensity, perceived sources of risks and adoption of risk management strategies. The data were analysed using data reduction techniques (i.e. principal component analysis), and different regression models.

1.7 Significance of the research

The findings of the study contribute to many levels of empirical literature while also expanding the applicability of entrepreneurship concepts to new contexts. First, this study used the concept of EO differently than it is being commonly used by many other scholars in the entrepreneurship literature. Most of the scholars used the concept of EO to measure firms' strategic orientation and thereby attempted to investigate its impact on different other measurements such as firm performances. In contrast, this study used the concept of EO to measure firms' level of overall entrepreneurial orientation and used it as a criterion to distinguish between entrepreneurial and non-entrepreneurial firms. According to the literature, a few scholars have also adopted the EO concept to achieve the same purpose. However, they have only used the three-dimensional approach to distinguish between

entrepreneurial and conservative firms (i.e. as they refer) where this study adopted a five-dimensional approach. Moreover, the empirical contributions of this study are significant in relation to the study context. The concept of EO is being investigated under developing economies as well as under the Sri Lankan context by quite a few scholars. However, as noted above their purpose of using the EO concept differ from this study. They used the EO concept to measure firms' strategic orientation and measured its impact on firm performances. Therefore, this is the first study to use the concept of EO to differentiate entrepreneurial firms from their non-entrepreneurial counterparts in a developing economy and most specifically under the Sri Lankan context.

This identification of a proper criterion to differentiate between two firm groups contributes towards the policy implications in relation to the MSME sector in Sri Lanka. As noted under the problem statement, the policies are made for the entire sector of MSMEs without paying attention to their nature of entrepreneurial orientation. According to the findings of this study, a significant portion of MSMEs in Sri Lanka depicts entrepreneurial characteristics despite the majority showing non-entrepreneurial characteristics. In terms of policy implications, this study provides an effective foundation for Sri Lankan policymakers to understand the exact entrepreneurial nature of the firms operating in the sector and to develop policies that are matched with those different entrepreneurial levels.

As noted under the risk-related variables, the attention received for entrepreneurial risk management is considerably limited in the literature despite the importance received by risk in entrepreneurship. This study not only investigates the risk management by entrepreneurial firms but also compares it with a group of non-entrepreneurial firms. This is the most significant contribution of this study as it compares the adoption of risk management strategies by entrepreneurial and non-entrepreneurial firms along with other risk-related variables namely risk propensity and perceived sources of risks. Hence, the findings of this study contribute to the entrepreneurial literature by broadening its understanding of how entrepreneurial firms manage the risks they face in comparison to non-entrepreneurial firms. As noted, even those studies that investigated risk management of entrepreneurial firms are mostly from farm management literature of developed countries. Therefore, the findings of this study are important as they are based on a sample of manufacturing firms in a developing country background.

1.8 Organisation of the thesis

This thesis is organised into eight chapters. This "Introduction" chapter outlines the background of the study, the problem statement, the research questions that are addressed in the study and the research objectives and presents the significance of conducting the study.

Chapter 2 discusses the context of Sri Lankan MSMEs. It defines them and describes their importance, particularly in the Sri Lankan economy. It then presents an overview of the agricultural food processing sector along with the geographical distribution of firms and different firm types that are found in the sector.

Chapter 3 is the literature review which begins with a critically review of the existing theoretical concepts of entrepreneurship, entrepreneurial orientation, entrepreneurial risk and risk management. A review of both normative and empirical literature on the use of EO as a criterion to distinguish between entrepreneurial and non-entrepreneurial firms is also presented. The chapter then focused on the risk-related aspects of entrepreneurial and non-entrepreneurial firms. Empirical literature on the adoption of risk management strategies and factors that influence these adoption decisions are also reviewed. Special attention is given to risk propensity and perception of sources of risk and their impact on adopting risk management strategies.

Chapter 4 presents the rationale for the research methodology chosen for this study. It begins with a discussion of different research paradigms and strategies. Based on the requirements of the study and the nature of research questions, the chapter then provides a justification to apply a mixed-methods approach, particularly the exploratory sequential method in this study. It then discusses a research design that consists of two phases; qualitative phase followed by a quantitative phase. The chapter also explains designing of interview protocols and survey instruments, sampling techniques, data collection and data analysis procedures for each phase.

Chapter 5 presents the results of the qualitative phase. The chapter begins with a descriptive comparison of the four case firms studied and then is extended towards comparing the five EO dimensions. The comparison highlights the differences between entrepreneurial and non-entrepreneurial case firms in terms of their approaches to proactiveness, innovativeness, risk-taking, competitive aggressiveness and autonomy.

Chapter 6 provides the results of the quantitative phase. The chapter first provides the results of the descriptive analysis and then progresses towards the results of the analysis of risk-related data. The results related to adoption of risk management strategies, risk propensity and perceived sources of risks are included with comparisons between entrepreneurial and non-entrepreneurial firms. The results of regression models that show the factors influencing the adoption of risk management strategies are then presented.

Chapter 7 integrates the overall findings of qualitative and quantitative analysis to address the research questions of the study. First it compares and contrasts the adoption of risk management

strategies between the two firm types and progresses towards other risk-related aspects. The quantitative findings are supported by the findings of the qualitative phase where relevant.

Chapter 8 presents a conclusion based on the findings of this study. This chapter also discusses the contributions of the study and acknowledges its limitations. The chapter then offers recommendations for those who might be conducting similar research in the future.

Chapter 2 Research context

2.1 Introduction

The context of the research provides the reader with a picture of the "where", "who", "what" and possibly "when" of the research. Thereby, this chapter provides contextual information for the research that will be useful for interpreting the research results. Moreover, it is important to deliver information about the research context in order to provide the reader with an understanding of the country, the specific industry, and the firm types that are studied and to assist future researchers who wish to adopt this research strategy in a different context. This chapter is structured to provide an overview of Sri Lanka, which is where the research is conducted, an overview of the MSME sector, and more specifically a description of the agriculture food processing sector in Sri Lanka. The chapter also includes explanations and justifications for selecting specific geographical locations, firm sizes, and firm types for the study.

2.2 A brief overview of Sri Lanka

Sri Lanka is an island nation in South Asia, surrounded by the Indian Ocean with a total land area of 65,610 sq. km (CBSL, 2019). From an economic point of view, Sri Lanka is a lower-middle-income country with a Gross Domestic Product (GDP) per capita of USD 3,852 and a total population of 21.8 million (CBSL, 2019). The GDP at the current market price was USD 84 billion in 2019 (CBSL, 2019). The official languages of Sri Lanka are Sinhala and Tamil, and the currency is the Sri Lankan rupee (LKR). From an administrative point of view, the country is divided into nine provinces namely; Western, North-Western, Northern, North-Central, Central, Eastern, Uva, Sabaragamuwa and Southern (Figure 2.1). The country is further sub-divided into 25 administrative districts, while the districts are again divided into divisional secretariat (DS) divisions. The DS divisions are sub-divided into the smallest administrative units, the *grama niladhari* (GN) divisions where there are 14,022 GN divisions across the country (MOHA, 2017).

Out of the nine provinces, the Western province is the most densely populated province in the country and is home to the legislative capital Sri Jayawardenepura Kotte as well to Colombo, the nation's administrative and business center (Statistics, 2012). The central province is the second most populated province followed by southern and north-western provinces. Other than population, the education system in Sri Lanka is an important demographic parameter that is relevant for this study. According to CBSL (2019), the literacy rate of Sri Lanka was above 92% where, in 2012 the urban sector recorded a literacy rate of over 97% compared to 95% in the rural sector (Statistics, 2012). The male literacy rate (93.4%) was higher than the female literacy rate (91.6%) (CBSL, 2019). Among the nine provinces, the western province reported the highest rate of literacy. This high literacy rate can be

attributed to the free education system in Sri Lanka that is composed of three main stages; primary, secondary, and tertiary. The primary level is from grade one to five, the secondary level from grade six to grade eleven or thirteen with two key examinations General Certificate of Education (GCE) ordinary level at grade eleven and GCE advanced level at grade thirteen. Tertiary education includes higher education to obtain university degrees or diplomas (MOE, 2018).

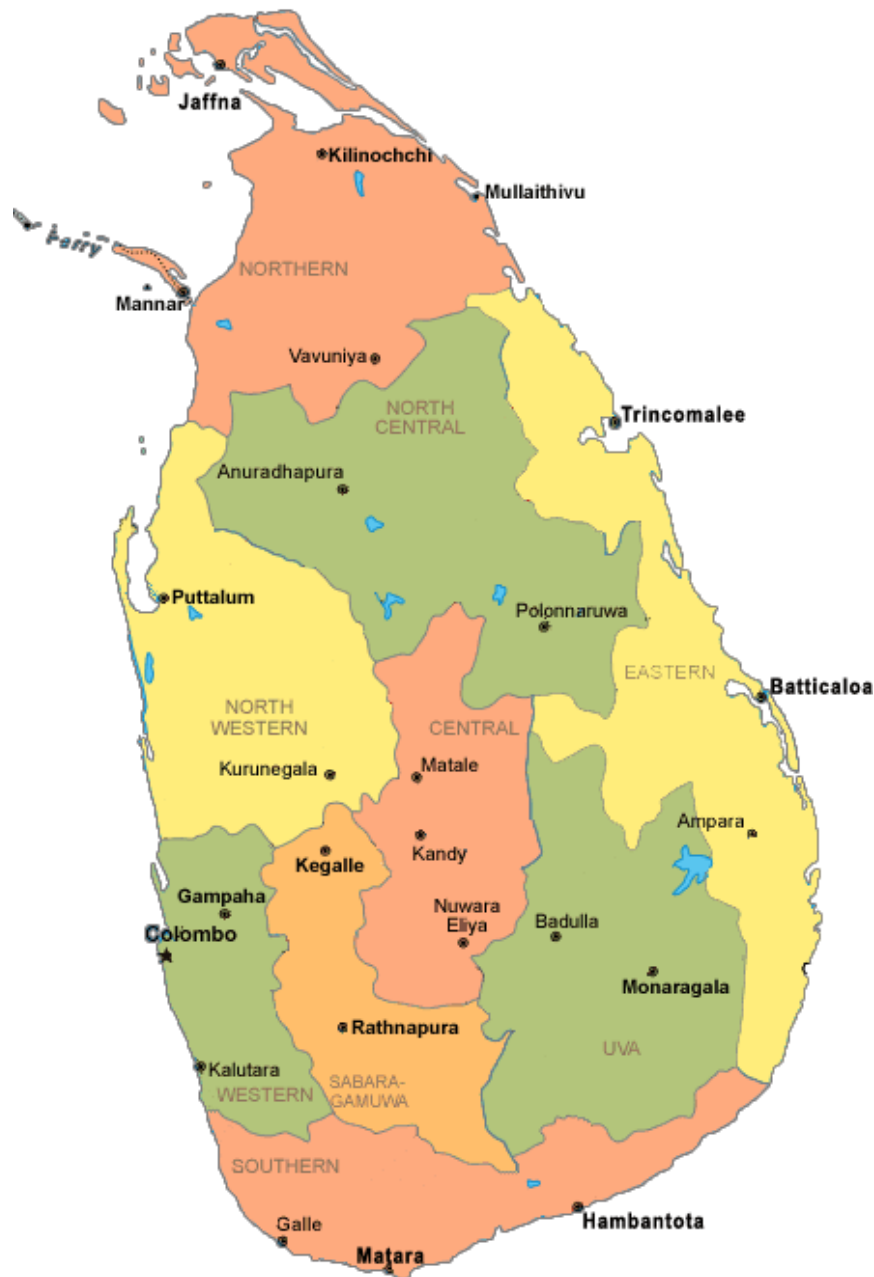


Figure 2-1. Map of administrative divisions of Sri Lanka
 (Source: Department of Survey, Sri Lanka).

The country's developing mixed economy comprises three major industry sectors namely; agriculture, industry, and the service sector contributing 7.0, 26.4, and 57.4 percent to the overall GDP respectively (CBSL, 2019). Further, according to CBSL (2019), the percentage contribution to total employment by

these three sectors was 25.3, 27.6, and 47.1 respectively. In consideration of the agriculture sector, the country's economy is mostly dependent upon three main export commodities; tea, rubber, and coconut which contribute 0.7, 0.2, and 0.7 percent to the overall GDP (CBSL, 2019). Besides these three major crops; paddy, fruit, and vegetables, minor export crops (i.e. cinnamon, pepper, cardamom, clove, cocoa, etc.), other field crops (i.e. maize, millet, onion, chili, etc.), fisheries and livestock also play an important role in the agriculture sector in Sri Lanka. The industrial sector of the economy is a composite mixture of different industries including; manufacturing, mining and quarrying, electricity, water supply, and construction where the most important segment for this study - the manufacturing segment contributes 16.3 percent of the total GDP (CBSL, 2019). Based on the Index of Industrial Production, manufacturing is considered the biggest sub-sector accounting for 60% of the total industry sector (CBSL, 2019). The service sector, being the largest contributor to both GDP and employment generation comprises several important sub-sectors including; wholesale and retail, transportation and storage, information and communication, accommodation and food services, defense, education, and health.

In terms of geography and climate; Sri Lanka lies on the Indian plate, surrounded by the Indian Ocean and separated from the Indian subcontinent by the Gulf of Mannar and Palk Strait. Due to its specific location just above the equator, the climate in Sri Lanka is generally characterized as tropical. According to the Department of Meteorology, Sri Lanka, the rainfall of Sri Lanka has multiple origins including monsoonal, convectional, and depressional rain. The mean annual rainfall varies from under 900 mm in the driest parts (i.e. southeastern and northwestern) to over 5000mm in the wettest parts (i.e. western slopes of the central highlands) (Meteorology, 2019). Sri Lanka's climate is divided into four seasons based on the occurrence of different monsoons. The four seasons are the first inter-monsoon season (March-April), the Southwest monsoon season (May – September), the Second inter-monsoon season (October-November), and the Northeast monsoon season (December-February). The mean temperatures of the country differ depending on the seasonal movement of the sun, with some modified influence caused by rainfall. Accordingly, the mean annual temperature varies from 27°C in the coastal lowlands to 16°C in the central highlands (Meteorology, 2019). The next section of this chapter focused on describing the MSME sector in Sri Lanka with special reference to the industry sector and the manufacturing sub-sector.

2.3 An overview of the MSME sector in Sri Lanka

The Micro, Small, and Medium Enterprise (MSME) sector has been identified as an important strategic sector in the overall policy objectives of the government of Sri Lanka and it is seen as a driver of change for inclusive economic growth, regional development, employment generation, and poverty reduction (Nishantha, 2018). The government of Sri Lanka recognizes MSMEs as the backbone of its economy,

as it accounts for more than 85% of the total number of enterprises, provide 45% of the employment, and contributes to 52% of the Gross Domestic Production (MIC, 2015). MSMEs promote broad equitable development and provide more opportunities for women and youth participation in the economic development of the country (MIC, 2016).

Even though the MSME sector receives priority in economic development, there is still no exact definition available to define these MSMEs within the country. Different institutions regulated by the government of Sri Lanka have provided different definitions while international donor agencies such as the World Bank or the Asian Development Bank have also defined Sri Lankan MSMEs in their own way. The definition given by the National Policy Framework for SME development will be used for this study as it has clearly differentiated the three segments; micro, small, and medium with the use of two parameters; annual turnover of the firm and the number of employees engaged. This definition is more applicable to the context and provides a clear separation between the manufacturing and service sectors (Table 2.1). This study used the criteria of the number of employees to define and identify micro and small-scale firms because most of these firms had poor financial records and it was difficult to assess their annual turnover.

Table 2-1. SME definition by the National Policy Framework for SME Development

Sector	Criteria	Medium	Small	Micro
Manufacturing sector	Annual turnover	USD 1.5 – 5 million	USD 0.1 – 1.5 million	Less than USD 0.1 million
	No. of employees	51 – 300	11 - 50	Less than 10
Service sector	Annual turnover	USD 1.5 – 5 million	USD 0.1 – 1.5 million	Less than USD 0.1 million
	No. of employees	51 – 200	11 - 50	Less than 10

Source: MIC (2015, p. 4)

According to the National Human Resources and Employment Policy, Sri Lanka, MSMEs are found in all sectors of the economy; agriculture, industry, and the service sector and they provide employment for people with different skill sets (skilled, semi-skilled, and unskilled) (DOME, 2017). MSMEs are an essential source of employment opportunities and are estimated to contribute about 45 percent of total employment (MIC, 2015). According to Samantha (2018), these MSMEs play an important role in the employment provision of local communities, not only in terms of the number of jobs, but in the type of employees, they hire. MSMEs are likely to engage less ‘employable’ workers with lower levels of education, and social protection, and often belong to particularly vulnerable groups. Even in developed countries, MSMEs were identified as providing employment to those who are less likely to find a job in a larger company, such as older or previously unemployed workers (De Kok et al., 2011). This observation is common for the MSMEs in Sri Lanka where the majority are family businesses

employing their own family members. The next section of this chapter is expected to broaden the understanding of the reader on different aspects of MSMEs in Sri Lanka including different types of legal business structures. A fair understanding of these legal business structures of MSMEs is important as it gives an idea about the most commonly available types of MSMEs to the reader.

2.4 Types of legal business structures in the MSME sector

A business must be registered under the Government of Sri Lanka in order to operate as a legal entity. Sole-proprietorships, partnerships, and companies are the most commonly found business structures within the MSME sector in Sri Lanka (Gunawardana, 2020). Companies must be registered under the Registrar of Companies, Sri Lanka while the other two types of business structure can be registered at the relevant Provincial Council where the business is to be established (CBSL, 2021). However, sole proprietorships are the most commonly found type of business structure among MSMEs (Pushpakumari & Watanabe, 2009). This may be because the establishment and registration procedures of this ownership structure are the most straightforward and simplest to organise. Sole-proprietorships and partnerships are managed as family businesses with family involvement in every aspect of the business including decision-making and the provision of unpaid labour (Kuruppuge, Ekanayakage, & Nedelea, 2018).

The next section of this chapter provides another important set of context-related information that is essential to understanding the findings of this study. The MSE firms that were studied in this study were selected from the agriculture food processing sector in Sri Lanka. Therefore, an in-depth look into this industry sector is essential before reading into the next chapters of this thesis. This section will provide the reader with an understanding of the composition of the agriculture food processing sector including its main sub-sectors, number of establishments, and different firm types.

2.5 The agriculture food processing sector

As noted under the country profile, the economy of Sri Lanka is dependent on three main sectors; agriculture, industry, and the service sector. The industry sector is the focus of this study, and it is divided into several sub-sectors. The Annual Survey of Industries (ASI) (ASI, 2015) conducted by the Department of Census and Statistics, Sri Lanka classifies the industry sector under four main categories; (a) Manufacturing, (b) Mining and quarrying, (c) Water supply, sewerage waste management, and remediation activities and (d) Electricity, gas, steam, and air conditioning supply, where the manufacturing sector is the most important in terms of the number of establishments and the number of employment opportunities generated (Table 2.2).

Table 2-2. The numbers of establishments and persons engaged by industry sector – 2014

Industry sector	Establishments		Persons engaged	
	Number	Percentage	Number	Percentage
Manufacturing	16,385	82.5	1,063,086	94.7
Mining and quarrying	3,162	15.6	27,311	2.4
Water supply, sewerage waste management, and remediation activities	196	1.0	12,134	1.1
Electricity, gas, steam, and air conditioning supply	133	0.7	20,180	1.8
Total	20,326	100.0	1,122,711	100.0

Note: Data are given for the establishments with 05 or more persons engaged

Source: ASI (2015)

According to the data, the manufacturing sector is the largest industry sector in the country and it includes twenty-three sub-sectors including; the manufacture of food products, the manufacture of beverages, the manufacture of apparel, the manufacture of paper products, the manufacture of chemicals, the manufacture of electrical equipment, and many more. Among these sub-sectors, the manufacture of food products and the manufacture of apparel are the largest industry sub-sectors having an output of over one trillion rupees and with the highest number of establishments (ASI, 2015). Table 2.3 depicts key statistics on selected sub-sectors of the manufacturing sector including the number of establishments, persons engaged, and the value of the output by industry division.

Table 2-3. Key statistics of manufacturing sub-sector – 2014

Industry sub-sector	No. of establishments	Persons engaged (No.)	Value of output (Rs. Bn)
Manufacture of food products	2,971	212,162	1,159.1
Manufacture of beverages	123	6,084	64.5
Manufacture of wearing apparel	3,514	485,637	958.9
Manufacture of paper products	107	7,144	35.4
Manufacture of chemicals	409	39,181	166.1
Manufacture of rubber and plastic products	486	39,295	160.3
Manufacture of electrical equipment	30	10,266	60.9

Source: ASI (2015)

The focus of the study is on the agriculture processing sector, which can be identified as a combination of the manufacturers of food products and the manufacturers of beverages. However, only the manufacturers of food products were chosen for this study due to their dominance in the sector and due to the limited number of micro and small-scale establishments among the manufacturers of beverage products (ASI, 2015). The Annual Survey of Industries has further categorized the

manufacturers of food products into seven sub-categories (i.e. firm types) based on the type of product produced by the firm (ASI, 2015) (Figure 2.2).

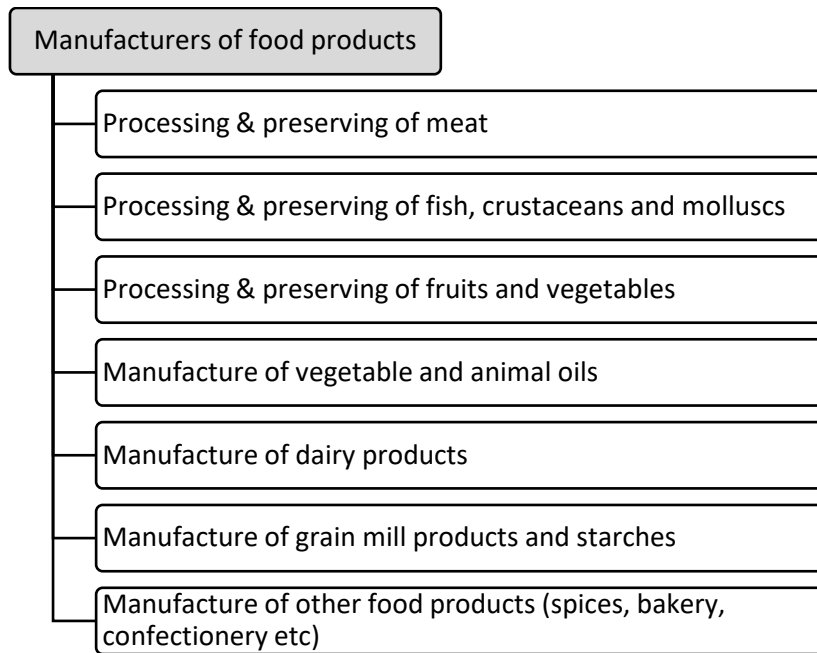


Figure 2-2. Firm types in the food processing sub-sector

Source: ASI (2015)

Out of the seven firm types that manufacture food products (Figure 2.2), five firm types were selected for this study. The firm types that were disregarded were the firms that are processing and preserving meat products and the firms that are processing and preserving fish, crustaceans, and molluscs. These two firm types were excluded from the study because the number of establishments was very limited compared to the other firm types (Table 2.4). Most importantly, the focus of this study was on micro and small-scale firms. However, operating in the meat or seafood processing sectors usually requires a large capital investment and it is difficult for family-based MSEs to fund this. Most of the firms in this category were medium to large-scale well-established brands in Sri Lanka. Therefore, the remaining five types of food manufacturers were included in this study and collectively identified and referred to as “agriculture food processing firms”.

Table 2-4. Number of firms of different firm types in the food processing sub-sector

No	Firm type	Number of firms
1	Processing and preserving of meat	5
2	Processing and preserving of fish, crustaceans, and molluscs	7
3	Processing & preserving of fruits and vegetables	82
4	Manufacture of vegetable and animal oils	53
5	Manufacture of dairy products	15
6	Manufacture of grain mill products and starches	70
7	Manufacture of other food products (spices, bakery, confectionery, etc)	1185

Source: ASI (2015) - Establishments with 25 or more persons engaged

Out of five types of agriculture food processing firms, the first category includes the firms that process fruit and vegetables. The firms in this category are specialised in the manufacturing and processing of fruit and vegetables into different value-added products such as; pulp, juice, dehydrated products, pickles, frozen products, etc. Sri Lanka is a tropical county with a range of temperate, tropical, and sub-tropical fruit and vegetables that can provide local inputs for these firms all year around. These products have flavours and textures that are unique to the country. The products are packed in cans, bottles, pouches, and cartons for the retail market, while they are also offered in bulk form for food connoisseurs, hoteliers, and others in the food trade. Frozen and chilled forms are also marketed on the international market. According to the Export Development Board, Sri Lanka (EDB, 2020) the most popular varieties of fruit that are processed are pineapple, mango, papaya, melons, and guavas; along with other seasonal fruit such as rambutan (*Nephelium lappaceum*), mangosteen (*Garcinia mangostana*), etc. Vegetables are mostly processed as chilled, frozen, brined, pureed, or dehydrated products. The most commonly processed vegetables include gherkin, okra, drumsticks, manioc, tomato, different types of gourds, and young jack. Processed coconut products except coconut oil are also identified under this category. Coconut water, milk, cream, powder, and desiccated products are marketed both locally and internationally. According to the Export Development Board, Sri Lankan desiccated coconut is well known in the international market (EDB, 2020). This firm type consists of firms of all sizes that range from large-scale well-reputed brand names to micro-scale home-based entities.

The second firm type manufacture vegetable and animal oils. These firms produce coconut oil, virgin coconut oil, palm oil, margarine, hydrogenated oils, stearic acid, and fish oil (CID, 2016). These products are marketed both locally and internationally. However, the majority of firms in this category are medium to large-scale firms because micro and small-scale firms do not have enough capacity in relation to funding, knowledge, and technology to operate such businesses. However, small-scale

coconut oil processors can be found in areas where coconut cultivations are abundant. Dairy food processing is the fourth type of firm used in the study and firms in this category range from large-scale multinational companies to micro-scale home-based producers. The micro and small-scale firms usually produce products such as; raw milk, ice cream, yogurt (plain or flavoured), drinking yogurt, curd, ghee, and various milk-based deserts (Hitihamu, Lurdu, & Bamunuarachchi, 2021). Due to the poor shelf life of dairy products, most are marketed locally through local supermarket chains or retail shops.

The fifth firm type considered in the study is the manufacturers of grain mill products and starches (Table 2.4). Rice is the staple food of Sri Lanka and as such paddy is one of the most commonly grown crops in Sri Lanka. This explains why there is such a large number of grain mills established across the country (ASI, 2015). While rice and rice flour are the most commonly processed products at these mills, grains such as millets, maize, and wheat are also processed in reasonable quantities (Wijesooriya & Priyadarshana, 2013). This firm type also has multiple firm sizes ranging from large-scale operations to small home-based micro-scale firms. The products are marketed both locally and internationally. According to the Export Development Board, Sri Lanka (EDB, 2020) Sri Lanka exports rice, cereals, and grain mill products to different regions of the world including, Europe, UAE, and different countries in Asia. Moreover, these firms process traditional health rice varieties such as; *suwadal*, *alhal*, *heenati* and *kuruluthuda* that have a high demand in both local and international markets.

The final and the largest category contains the firms that belong to the group of “other processed food”. The number of firms in this category is high because of the variety of firms included in the category (Table 2.4). The types of firms include; spice processors, essential oil processors, producers of bakery and confectionery items, etc. Firm size varies from large-scale to micro-scale operations. Due to the unique nature of Sri Lankan cuisine, spices and essential oils are in high demand from the local community. There is a large number of micro and small-scale spice processing firms, and these can be found all over the country. Sri Lankan spice products, especially Ceylon cinnamon, have an excellent reputation on the international market. According to EDB (2020), Ceylon Cinnamon, Ceylon Pepper, Ceylon Cloves, Ceylon Nutmeg, and Ceylon Cardamom, are all branded under the unique identity of Ceylon Spices due to their unique aroma and flavour shaped by the terroir of the country.

2.5.1 The geographical distribution of agriculture food processing firms

The geographical distribution of these agriculture processing firms is also identified as important contextual information for this study. This section is intended to justify the selection of the study area for this study and to provide an overview of the distribution of these firms across the country. As noted under the country profile, Sri Lanka is divided into nine provinces and twenty-five districts for

administration purposes. The percentage distribution of food manufacturing firms across the country is illustrated in Figure 2.3 (ASI, 2015).

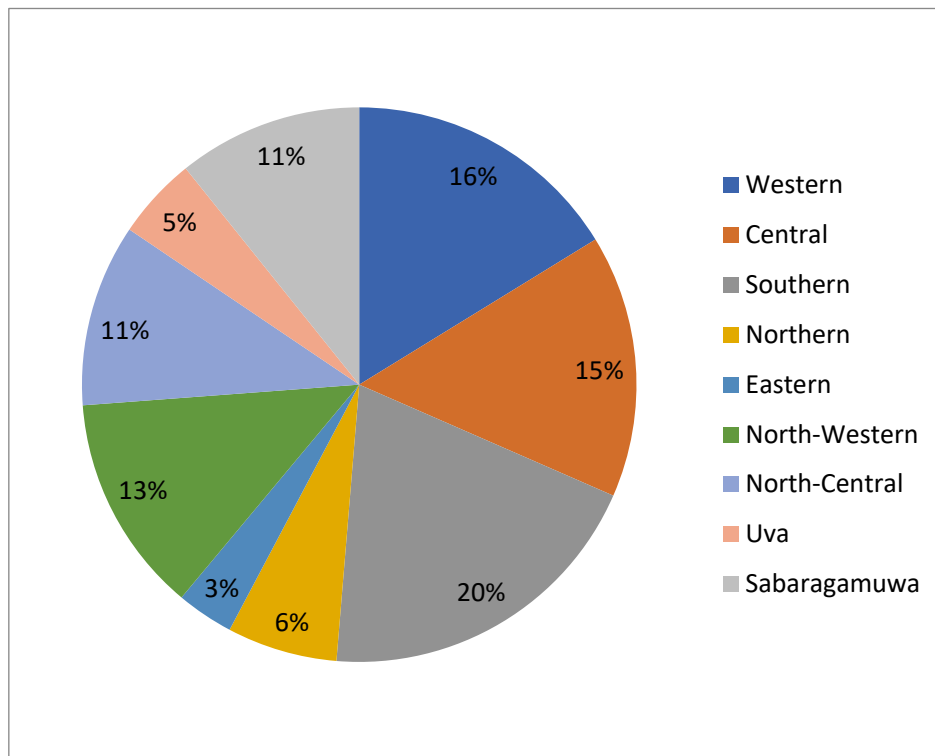


Figure 2-3. The percentage distribution of food manufacturing firms across the country (Establishments with 5 or more persons engaged)

Source: ASI (2015)

According to the figures from the nine provinces, the Southern province has the highest number of food manufacturing firms. The Western, Central and North-Western provinces recorded the second, third, and fourth highest percentage of firms respectively accounting for 44% of the total firms in the country. Therefore, considering the higher number of establishments and the feasibility of the data collection process these three provinces were selected for the study. In terms of the districts, the Western province is divided into three districts; Colombo, Gampaha, and Kalutara; the North-Western province is divided into two; Kurunegala and Puttalam, and the Central province is divided into three; Kandy, Matale, and Nuwara-Eliya districts. All these districts are further sub-divided into a number of DS divisions.

2.6 Summary

The chapter provided context-related information that promotes the understanding and interpreting the research outcomes as well as assists any future researchers who wish to replicate this study in other economic or country contexts. The MSME sector in Sri Lanka is comprised of a variety of industry sectors that significantly contributes to the economic development of the country. The agriculture

food processing sector is one of the key industry sub-sectors in Sri Lanka that constitute seven firm types including meat products, fish products, fruit and vegetable products, dairy products, grain mill, and starch products, oil products, and other processed products such as spices, confectionary, and bakery items. These agriculture food processing firms are located in all nine provinces across the country where the majority of the firms are located in the Southern, Western, Central, and North-Western provinces. The selection of firm types of relevant geographical locations is explained in the methods chapter.

Chapter 3 Literature Review

3.1 Introduction

This study set out to answer the overarching research question “Do the entrepreneurial firms in the agriculture food processing sector in Sri Lanka manage the risks they face any differently from other non-entrepreneurial micro and small-scale firms operating in the sector?” along with two other research questions “Do entrepreneurial MSEs operate in the agriculture food processing sector in Sri Lanka?” and “What factors influence the adoption of risk management strategies by entrepreneurial and non-entrepreneurial MSEs in the agriculture food processing sector in Sri Lanka?”. As such this chapter aims to discuss the literature related to the risk management behaviour of micro and small-scale firms in the agriculture food processing sector in Sri Lanka. The chapter covers literature related to two main areas; characterising the entrepreneurial firms and how they are different from non-entrepreneurial firms based on the theory and the risk behaviour of these small firms while focusing on what entrepreneurial firms do differently in managing the risks they face. In order to address the first research question, the first part of the chapter will review the theory related to the concepts of entrepreneurship. It will also review the concept of “entrepreneurial orientation” and discuss the applicability of this concept to differentiate entrepreneurial firms from their non-entrepreneurial counterparts. While addressing the second research question, the second part of the chapter will review the normative and empirical literature on the risks faced by firms and the risk management approaches used by these MSEs to manage risk. The chapter will provide a comprehensive review of different risk-related aspects (i.e. risk propensity, risk perception etc.) and how these aspects influence the risk management behaviour of these small firms. The final section will describe a conceptual framework of the problem domain that was developed from the literature.

3.2 The importance of entrepreneurship

Several authors (Anokhin, Grichnik, & Hisrich, 2008; Dejardin, 2000; Henderson, 2002; Naudé, 2010; Reynolds et al., 2004; Schumpeter, 1934) have claimed that entrepreneurship is a vital component of economic growth and development. Given its importance to the economy, Anokhin et al. (2008) claimed that “entrepreneurship is the main vehicle of economic development” (p. 117), while Dejardin (2000) noted that “an increase in the number of entrepreneurs leads to an increase in economic growth” (p. 2). At the national level, entrepreneurship contributes toward GDP growth where it accounts for one-third of the difference in the economic growth rates between countries (Reynolds et al., 2004). At the community level, entrepreneurs create new jobs, increase local incomes and wealth, and connect the community to the larger, national and global economies (Henderson, 2002, p. 1). Other than providing job opportunities, entrepreneurship offers a variety of consumer goods and services and improves overall national prosperity and competitiveness (Covin & Slevin, 1991;

Dejardin, 2000; Henderson, 2002). Numerous scholars have been attracted to investigate different aspects of entrepreneurship under different contexts, as its activity contributes not only to macroeconomic outcomes but also to the development of the micro, small and medium-scale business sectors. The following section reviews the definitions of entrepreneurship in the literature.

3.2.1 Defining the concepts of entrepreneur and entrepreneurship

Even though the studies into entrepreneurship have grown exponentially during the past two decades, the topic has been widely discussed since the early 1900s. The term “entrepreneurship” covers a wide range of concepts starting from new venture creation and small-business management and extending towards the notions of owner-management and self-employment (Gibb, 1996). Hence, it is extremely difficult to find a universally accepted definition for the term “entrepreneurship” or “entrepreneur”.

The term “entrepreneur” (*entre’prendre* in French means “to undertake”) was first mentioned and elaborated on by a French economist called Richard Cantillon in 1734 (Cantillon, 1734). He defined entrepreneurship as self-employment of any sort, and entrepreneurs as risk-takers, in the sense that they purchased goods at certain prices in the present to sell at uncertain prices in the future (Ahmad & Seymour, 2008). Gutterman (2014) referring to the definition given by Cantillon (1734) stated that the earliest definitions of entrepreneurship focused on merchants who were willing to assume the risks of purchasing items at certain prices while there was uncertainty about the prices at which those items could eventually be resold. He compared this to later definitions that began to focus on the risks associated with combining various resources to generate outputs that would be made available for sale in constantly changing markets (p. 1).

The view of entrepreneurship was said to have changed with the definition given by Schumpeter (1934) where he incorporated the concept of innovativeness. Schumpeter (1934) was one of the first to declare entrepreneurship as an entity worthy of study, distinct from business owners and managers, and as a segment that is fundamental to economic development. J. Schumpeter, in his book, *The Theory of Economic Development*, suggests that an entrepreneur, as innovator, creates profit opportunities by devising a new product, a new production process, or a new marketing strategy (Tülüce & Yurtkur, 2015). This definition is considered the foundation for most modern concepts associated with entrepreneurship and it contributed towards the concept of equating innovation and entrepreneurship.

Rather than emphasising risk-taking and innovation, some authors have related entrepreneurship with opportunity-seeking behaviour. For example, the Austrian theorist Israel Kirzner who contributed a lot towards the development of concepts related to innovation and entrepreneurship defined entrepreneurship somewhat differently from Schumpeter (1934). Kirzner (1979)’s emphasis was

mainly on the entrepreneur's ability to take advantage of imperfections in information to make innovations. He argued that the entrepreneur has the ability to use superior information to introduce innovation and earn a profit (Kirzner, 1979). Moreover, Stevenson and Jarillo (2007) defined entrepreneurship as “a process by which individuals, either on their own or inside organizations, pursue opportunities without regard to the resources they currently control” (p. 23).

The above definitions show the evolution of the concept of entrepreneurship as scholars gradually began to broaden their understanding of the nature of entrepreneurs and entrepreneurship. In considering these previous definitions, Venkataraman (1997) noted that the definition of entrepreneurship should be a nexus of two phenomena; the presence of lucrative opportunities and the presence of enterprising individuals. Accordingly, Venkataraman (1997) defined entrepreneurship as how, by whom, and with what effects, opportunities to create future goods and services are discovered, evaluated, and exploited. Thereby, the definition involves a search for opportunities; a process of discovery, evaluation, and exploitation of opportunities; and an individual who discovers, evaluate, and exploit them (Shane & Venkataraman, 2000, p. 218). The concepts included mainly; risk-taking behaviour, innovativeness, and the opportunity-seeking nature of these individuals or firms. Therefore, it can be assumed that the essence of entrepreneurship is the ability to identify an opportunity in the marketplace, along with the willingness to pursue and exploit it by carrying out innovation by assuming risks to obtain higher rewards.

The recent literature on entrepreneurship was also reviewed to explore the recent developments in these major themes and definitions of entrepreneurship. However, it appeared that most of the scholars used these original definitions in their studies and adapted them according to their contexts and research aims. Not many scholars attempted to redefine or extend these definitions by conceptualising new theories of entrepreneurship. Hence, drawing on key definitions given by famous scholars such as Kirzner (1979); (Schumpeter, 1934; Shane & Venkataraman, 2000; Venkataraman, 1997) seemed sensible even though those definitions are perceived as somewhat outdated to the reader.

Based on this concept of entrepreneurship, one of the key objectives of this study was to distinguish between entrepreneurial and non-entrepreneurial firms. Therefore, the next section of this chapter reviews the literature on how previous scholars have differentiated these two groups including what tools were proposed for such differentiation and what tools have proved effective for differentiating the two groups. This section aims to identify the approach that is best suited for differentiating entrepreneurial and non-entrepreneurial firms operating in the agricultural food processing sector in Sri Lanka.

3.2.2 Entrepreneurial and non-entrepreneurial firms: the approaches used in differentiation
The differentiation of entrepreneurial firms from their non-entrepreneurial counterparts is an important element of this study. However, it is important to note that the terms used to describe entrepreneurial and non-entrepreneurial firms are not consistent across scholars. Various authors have referred to non-entrepreneurial firms as conservative firms (D. Miller & Friesen, 1982), or small businesses (Covin & Slevin, 1989).

Carland et al. (1984) wrote one of the first papers that conceptualised the difference between entrepreneurial firms and small businesses. The authors reviewed the existing literature and highlighted the importance of both entrepreneurial ventures and small businesses in relation to economic development. They agreed that there is considerable overlap between small businesses and entrepreneurship, but the concepts are not the same. In response to this, Carland et al. (1984) proposed two different definitions for entrepreneurial firms and small businesses. Entrepreneurial firms were defined as “a one that engages in at least one of Schumpeter's four categories of behaviour: that is, the principal goals of an entrepreneurial venture are profitability and growth and the business is characterized by innovative strategic practices” while small businesses were defined as “any business that is independently owned and operated, not dominant in its field, and does not engage in any new marketing or innovative practices” (Carland et al., 1984, p. 358). This definition of entrepreneurial firms and small businesses was later used in many other empirical investigations that compared the two groups.

Stewart et al. (1999) employed this definition of Carland et al. (1984) to separate entrepreneurial firms from their sample of small business owners. Their sample consisted of 767 owner-managers and based on the definition of Carland et al. (1984) the sample was sub-divided into 101 entrepreneurs, 324 small business owners and the rest were identified as corporate managers. They used this classification to investigate the proclivity for entrepreneurship among entrepreneurs, small business owners and corporate managers using three parameters: achievement motivation, risk-taking propensity, and preference for innovation. Using a sample of US-based 767 owner-managers and corporate managers in different industry sectors including wholesale, manufacturing, service and retails, the authors found that entrepreneurs were higher in achievement motivation, risk-taking propensity, and preference for innovation than were both the corporate managers and the small business owners. At the end of the analysis, Stewart et al. (1999) highlighted the importance of understanding more about ‘entrepreneurs’ and noted that it is a necessary condition for the development of a refined understanding of the process of entrepreneurship. Therefore, focusing only on their innovativeness or growth orientations may be not be sufficient for a meaningful distinction between entrepreneurial firms and small businesses.

The study conducted by D. Miller and Friesen (1982) is one of the earliest studies that compared entrepreneurial firms against their non-entrepreneurial counterparts. In their comparison, they used two dimensions: innovative and risk-taking to distinguish between the two groups. They developed a five-item, 7 point Likert-scale questionnaire and split their sample into two sub-groups based on the respondents scores using a cut-off value. They referred to the two sub-groups as conservative and entrepreneurial managers. D. Miller and Friesen (1982) wrote that “firms whose scores on innovation and risk-taking averaged less than or equal to 3.5 on the 7 point scales were classified as conservative and firms whose score on innovation and risk-taking averaged greater than or equal to 4.5 on the 7 point scales were classified as entrepreneurial” (pp. 8-9). Firms scored between 3.5 to 4.5 were excluded from the study as they may depict a combination of characteristics of both firm types. Using a sample of 52 large-scale Canadian firms from a diverse set of industries, D. Miller and Friesen (1982) postulated and tested two different innovation models. Their conservative model of innovation assumed that innovation is performed reluctantly, mainly in response to serious challenges while the entrepreneurial model assumed that innovation is always aggressively pursued and will be very high unless decision-makers are warned to slow down.

Later scholars such as Jennings and Hindle (2009) also used the approach used by D. Miller and Friesen (1982) to differentiate between entrepreneurial and non-entrepreneurial firms as they investigated performance differences between entrepreneurial and non-entrepreneurial electrical distribution firms in the US. Jennings and Hindle (2009) used the term ‘non-entrepreneurial’ instead of ‘conservative’ firms. However, this approach seemed to be incomplete as only two dimensions were used to differentiate the firm types whereas many scholars argued that entrepreneurship is a multi-dimensional concept comprised of many other dimensions including proactiveness, competitive aggressiveness, autonomy and so-on (Hongyun et al., 2014; Lumpkin & Dess, 1996).

A study conducted by D. Miller (1983) has also made significant contributions to the literature that conceptualized and investigated the differences between entrepreneurial and non-entrepreneurial firms. Miller (1983) conducted this study to discover the key determinants of entrepreneurship, the process by which organizations renew themselves and their markets by pioneering, innovation, and risk-taking. The key contribution made by D. Miller (1983) in this study was his definition of an entrepreneurial firm. The study defined an entrepreneurial firm as a “one that engages in product-market innovation, undertakes somewhat risky ventures, and is first to come up with "proactive" innovations, beating competitors to the punch” (D. Miller, 1983, p. 771). On the other hand, the author defined a non-entrepreneurial firm as one that innovates very little, is highly risk-averse, and imitates the moves of competitors instead of leading the way. He proposed that entrepreneurship is a composite weighting of innovation, risk-taking and proactiveness and supported this perspective with

empirical findings from a sample of 52 large diverse Canadian firms. This definition later guided the development of the concept of entrepreneurial orientation.

Covin and Slevin (1989) study on the “strategic management of small firms in hostile and benign environments” is identified as another milestone in the literature related to entrepreneurial and non-entrepreneurial firms. They investigated the effective strategic responses to environmental hostility among small manufacturing firms using a sample of 161 small manufacturers in the USA. The authors viewed the concept of strategic posture as a firm’s placement along a continuum ranging from conservative to entrepreneurial. The authors found that firms with conservative strategic postures were risk-averse, non-innovative, and reactive while firms with entrepreneurial strategic postures were risk-taking, innovative, and proactive (Covin & Slevin, 1989). From this work, they developed a nine-item, seven-point scale to measure the strategic posture of the firms which was later used by numerous researchers to differentiate between entrepreneurial and non-entrepreneurial or conservative firms. Covin (1991), used this 9-item, 7-point strategic posture scale to measure the strategic posture of firms using three dimensions that assess a firm’s tendency toward product innovation, proactiveness *vis-à-vis* competitors, and risk-taking. He differentiated the sample into two groups: entrepreneurial and conservative firms. Mean scores of these items were used as a firm’s strategic posture score while, the higher the score, the more entrepreneurial the firm’s strategic posture. The cut-off points to distinguish the firms were similar to the criteria used by D. Miller and Friesen (1982). This 9-item scale covered three important strategic dimensions; product innovations, proactiveness against competitors and risk-taking.

By this stage of the evolution of the concept of entrepreneurship, scholars understood that the measurement of strategic posture or strategic orientation is the best way to discriminate between entrepreneurial and non-entrepreneurial firms. This three-dimensional approach that was used to measure strategic posture was later termed a measure of a firm’s “entrepreneurial orientation” (EO) by Lumpkin and Dess (1996) (more details on this are discussed in the next section). Scholars used this approach to understand firms’ strategies (i.e. how they learn, assume, refine and redefine their key business decisions) and processes that represent strategizing activities and place them on the entrepreneurial orientation continuum (e.g.: from conservative to entrepreneurial firms) (Barringer & Bluedorn, 1999; Covin et al., 2006; Entrialgo et al., 2000). Most scholars have assumed that all firms possess different degrees of entrepreneurship and that all firms fall along a conceptual continuum that ranges from highly conservative to highly entrepreneurial (Barringer & Bluedorn, 1999).

In a recent study, Baker, Grinstein, and Harmancioglu (2016) also used the three-dimensional EO approach developed by Covin and Slevin (1989) to distinguish between conservative and

entrepreneurial firms to compare their innovation performances from a sample of 1978 US firms. Firms with lower EO scores were considered conservative and risk-averse while firms with higher EO scores were termed proactive and risk-seeking. Baker et al. (2016) used different multi-item scales to measure this degree of EO and the resulting scores were either summed or averaged to derive an overall score. The higher the score, the more the firm demonstrates an EO and *vice versa* (Baker et al., 2016; Barringer & Bluedorn, 1999; Covin et al., 2006).

Based on the above review of literature, it is clear that the strategic or entrepreneurial orientation of firms has been shown to provide a good basis for differentiating entrepreneurial and non-entrepreneurial firms. However, this approach has been mainly tested within Western and developed country contexts. Limited research has been undertaken in an Asian or developing country context. Applying this approach to distinguish between entrepreneurial and non-entrepreneurial firms in a developing country context could provide new insights into the body of literature on entrepreneurial orientation. As such, the next section of this chapter is dedicated to introducing, defining, and elaborating on the concept of EO in order to broaden the understanding and applicability of its different dimensions.

3.2.3 Entrepreneurial orientation – A five-dimensional approach

Research on the topic of entrepreneurial orientation (EO) has been undertaken over the last decade in relation to both strategic management and entrepreneurship. It has been used to investigate different contexts, different industries, and different organizational structures (Alegre & Chiva, 2013; Aloulou & Fayolle, 2005; Basso, Fayolle, & Bouchard, 2009; Covin & Lumpkin, 2011; Craig, Pohjola, Kraus, & Jensen, 2014; D. Miller, 2011). Considering its wide applicability, Covin and Lumpkin (2011) stated that investigations of EO have targeted organizations' orientation toward entrepreneurial activity irrespective of whether they are young or old, small or large, public or private, and so on. The majority of EO-related studies have emerged from the assumption that EO represents a set of variables upon which all organizations can be positioned or placed. This assumption contributes to the understanding that all organizations fall somewhere along a conceptual continuum ranging from conservative to entrepreneurial (Barringer & Bluedorn, 1999; Covin, 1991). EO was also identified as a dimension of strategy-making and management that has been found to have significant implications for improved firm performance in terms of sales growth, profit, or employee growth (Covin & Wales, 2012; D. Miller, 2011). In fact, Rauch, Wiklund, Lumpkin, and Frese (2009), claim that EO is a significant predictor of firm performance has further highlighted the importance of this concept in the scholarly community. The next section of this chapter sets out the evolution of the concept of EO and how different scholars have defined it since the inception.

3.2.3.1 *Defining Entrepreneurial orientation – Evolution of the concept*

Most researchers credit D. Miller (1983) with introducing the concept of EO to the scholarly literature, although he never really used the term EO in his initial writings on this topic (Covin & Lumpkin, 2011). D. Miller (1983) in his article on “The correlates of entrepreneurship in three types of firms” stated that “an entrepreneurial firm is one that engages in product market innovation, undertakes somewhat risky ventures, and is first to come up with “proactive” innovations, beating competitors to the punch” (D. Miller, 1983, p. 771). As previously noted, this definition of entrepreneurial firms was the foundation of the concept of EO with three dimensions; risk taking, innovation, and proactiveness.

Covin and Slevin (1989) extended Miller’s (1983) concept and developed a scale to measure the strategic posture of small firms operating in hostile and benign environments. These scales measured the strategic orientation or the posture of these firms through the same three dimensions; risk-taking, innovation and protectiveness. These measurements were later used by many scholars in order to measure the level of EO of their respondents (Alegre & Chiva, 2013; Covin et al., 2006; Green, Covin, & Slevin, 2008; Pearce, Fritz, & Davis, 2010) and to compare between entrepreneurial and conservative firms. This three-dimensional concept was again extended to a five-dimensional approach by Lumpkin and Dess (1996) and they also changed the term from “strategic orientation” or “the posture of a firm” to the term “entrepreneurial orientation”. Lumpkin and Dess (1996) introduced two new dimensions; competitive aggressiveness and autonomy to Miller’s (1983) three dimensional concept. In order to answer the question “What makes firms entrepreneurial?” Lumpkin and Dess (1996) defined EO as the entrepreneurial process that reflects “the methods, practices and decision-making styles managers use to act entrepreneurially” (p. 136). When introducing two new dimensions, Lumpkin and Dess (1996) stated that the dimension of “competitive aggressiveness” is vital for an entrepreneurial firm which captures the distinct idea of “beating competitors to the punch” as suggested by D. Miller (1983)’s definition of the entrepreneurial firm. It represents how a firm responds to market threats, not only how it seizes opportunities as indicated by Miller’s (1983) definition. Lumpkin and Dess (1996) further argued about the importance of independence and autonomous action in entrepreneurship within both start-ups and established organizations. They further stated that autonomy is a key dimension in EO as it plays a key role in decisions with regard to exercising creativity, promoting a novel idea, and even risk-taking and management. To become a successful venture, a firm requires autonomous behaviour from strong leaders without restrictions being imposed by the firm’s bureaucracy.

3.2.3.2 *Dimensions of entrepreneurial orientation*

As explained earlier, Lumpkin and Dess (1996) extended the three-dimensional concept introduced by D. Miller (1983) into a five-dimensional concept. The five dimensions are; proactiveness,

innovativeness, risk-taking, competitive aggressiveness and autonomy. Scholars have used both these three (Alegre & Chiva, 2013; Aloulou & Fayolle, 2005; Fairoz, Hirobumi, & Tanaka, 2010) and five-dimensional approaches (Hongyun et al., 2014; Hughes & Morgan, 2007; Pearce et al., 2010; Johan Wiklund & Shepherd, 2005) to measure and understand the level of entrepreneurial orientation of their respondent firms. Lumpkin and Dess (1996) have also noted that these EO dimensions may act independently of each other in a given context even though they are related. This hypothesis of independence indicates that a firm can show high levels of EO in some of its dimensions, but not necessarily in all (Casillas, Moreno, & Barbero, 2010). Lumpkin and Dess (1996) predicted the occurrence of future empirical findings where some dimensions of EO are always present, while others vary depending on the context. However, because EO is explained as a multidimensional concept, the researchers employing the EO construct have commonly operationalized it using an aggregated measure that includes all sub-dimensions (Kreiser, Marino, & Weaver, 2002).

The dimensionality of EO has been the subject of great debate in the EO literature, with two predominant conceptualizations emerging, being the Covin and Slevin (1989) three-dimensional approach of EO and the Lumpkin and Dess (1996) five-dimensional approach of EO. Recent theorizing suggests that these two predominant conceptualizations can co-exist in the literature with each approach providing unique insights (Covin & Lumpkin, 2011; Covin & Wales, 2012). Moreover, George and Marino (2011), suggest that it is important to emphasise that for knowledge accumulation to occur, future research seeking to add to the knowledge base on EO should include the three core dimensions of EO offered by Covin and Slevin (1989) and incorporated within the work of Lumpkin and Dess (1996).

There by, the five-dimensional EO approach has been chosen to implement for this study as it allows the researcher to explore more the entrepreneurial behaviour of the targeted small firms. The dearth of studies conducted in the Sri Lankan context on this aspect highlights the importance of using five-dimensional approach rather than adopting the three-dimensional approach. Moreover, despite being present for almost two decades and gaining a large number of citations, empirical studies to examine the Lumpkin and Dess (1996) conceptualization of EO have been few and rare especially in developing country contexts. Almost all the recent literature reviews on EO (e.g. Wales, Gupta, and Mousa (2013), Wales (2016)) confirms this notion. Hongyun et al. (2014) also noted that scholars have commonly employed the three-dimensional approach by using the measurement scale devised by Covin and Slevin (1989). Yet, the importance of the use of the five-dimensional approach cannot be underestimated and it has not been widely tested in emerging economies (Hongyun et al., 2014).

Therefore, the use of five-dimensional EO for the Sri Lankan context is deemed suitable. The latest definitions of the five dimensions of EO by Dess and Lumpkin (2005) are shown in Table 3.1 and explained in detail in the section below. These definitions were essentially useful during the qualitative phase of this study in order to identify and understand EO-related activities and behaviours of case firms (more details are given in the methods chapter).

Table 3-1. Definitions of entrepreneurial orientation
(adapted from Dess and Lumpkin (2005, p. 148))

Dimension	Definition
Proactiveness	A forward-looking perspective characteristic of a marketplace leader that has the foresight to seize opportunities in anticipation of future demand
Innovativeness	A willingness to introduce newness and novelty through experimentation and creative processes aimed at developing new products and services, as well as new processes
Risk-taking	Making decisions and taking action without certain knowledge of probable outcomes; some undertakings may also involve making substantial resource commitments in the process of venturing forward
Competitive aggressiveness	An intense effort to outperform industry rivals. It is characterized by a combative posture or an aggressive response aimed at improving position or overcoming a threat in a competitive marketplace
Autonomy	Independent action by an individual or team aimed at bringing forth a business concept or vision and carrying it through to completion

3.2.3.2.1 Proactiveness

Economics scholars since Schumpeter (1934) have emphasized the importance of demonstrating initiative in the process of entrepreneurship. The concept of proactiveness was prominent even in the early strategic management literature where Venkatraman (1989, p. 140) stated that proactiveness is expected to be manifested in terms of “seeking new opportunities which may or may not be related to the present line of operations, the introduction of new products and brands ahead of the competition, strategically eliminating operations which are in the mature or declining stages of the life cycle” (p. 949). Since then, different scholars have given different definitions to this concept of proactiveness. This study has drawn on the definition given by Lumpkin and Dess (2001), “proactiveness as an opportunity-seeking, forward-looking perspective that involves the introduction of new products or services ahead of the competition and acting in anticipation of future demand to create change and shape the environment” (p. 431).

A firm’s proactiveness is demonstrated by its awareness of and responsiveness to market signals and opportunities (Hughes & Morgan, 2007). Moreover, according to Lumpkin and Dess (1996) a proactive

firm is a leader rather than a follower, as it has the will and foresight to seize new opportunities, even if it is not always the first to do so. The authors further stated that a firm can be novel, forward-thinking, and fast without always being first. This idea contradicts a key proactiveness feature included in D. Miller (1983) definition of the entrepreneurial firm. According to D. Miller (1983), an entrepreneurial firm is one that is "first to come up with 'proactive' innovations". However, as noted earlier, Lumpkin and Dess (1996) clarified that the idea of acting in anticipation of future demand is an essential component of entrepreneurship, but the idea of being 'first' to a market that is narrowly constructed is not encouraged. Instead, they suggested proactive firms needed to be 'fast' but not always 'first' always.

The notion of attaining first-mover advantage (Lieberman & Montgomery, 1988) was found to be contradicting to the above idea presented by Lumpkin and Dess (1996). Being a proactive firm may yield first-mover advantages, allowing high profits from new products in new markets in the absence of competing products (Frishammar & Andersson, 2009). The close association between this opportunity-seeking, forward-looking perspective and being first and/or fast in market environments brings out a close linkage between two EO dimensions; proactiveness and competitive aggressiveness. Lumpkin and Dess (2001) highlighted that both of these were the least investigated among the five EO dimensions while researchers have often treated proactiveness and competitive aggressiveness as if they were interchangeable. According to the authors, these are two distinct concepts yet their presence at the firm level may influence one another. Scholars argued that competitive aggressiveness and also innovativeness and risk-taking dimensions show strong links to proactive behaviour at the firm level (Kickul & Gundry, 2002; Lumpkin & Dess, 2001).

A review of the entrepreneurship literature suggests that a firm's level of proactiveness is positively related to its ability to collect more information relevant to the resources and opportunities available in the market (Cant & Ligthelm, 2002; Craig et al., 2014; Kreiser & Davis, 2010; Linton, 2019). Thus, proactive firms can scan the environment more thoroughly to recognise opportunities in their external business environments. Accordingly, these firms are likely to be more knowledgeable regarding the acquisition of information and resources than less-proactive firms, and in turn, these characteristics allow them to perform better than their less-proactive counterparts (Tang, Kreiser, Marino, & Weaver, 2010). The next section provides the theoretical and empirical viewpoints of the second EO dimension, innovativeness.

3.2.3.2.2 Innovativeness

Schumpeter (1934) was one of the first scholars to emphasise the role of firm innovativeness in the entrepreneurial process. He considered entrepreneurship as a creative process and the entrepreneur

as an innovator who carries out new combinations in the field of men, money, material, machine, and management. According to the author, an entrepreneur is an economic man who tries to maximise his profits by making innovations in any one of the following fields: (1) new products; (2) new production methods; (3) new markets; or (4) new forms of organization. As such, Schumpeter (1934) considered all four types of innovations when assessing the EO of an organisation. In contrast, Lumpkin and Dess (1996) focused mainly on product and process innovations. This thesis understood and classified firm innovations based on the definition given by Lumpkin and Dess (1996, p. 142), “innovativeness reflects a firm's tendency to engage in and support new ideas, novelty, experimentation, and creative processes that may result in new products, services, or technological processes” but extended to include market and organizational innovations as stated at Schumpeter (1934). Overall, innovativeness refers to a firm's efforts to find new opportunities and novel solutions (Dess & Lumpkin, 2005).

As was noted, firm innovativeness comes in different forms. Technological innovativeness primarily focuses on research and engineering efforts aimed at developing new products and processes while product-market innovativeness includes market research, product design, and innovations in advertising and promotion (Dess & Lumpkin, 2005). On the other hand, management and administrative innovativeness refer to novelty in management systems, control techniques, and organizational structure (Hamel, 1997). In consideration of these different types of innovations, Karlsson and Tavassoli (2016) carried out an empirical study to investigate the different innovation strategies of firms using a sample of Swedish organisations. The authors studied sixteen different innovation strategies and among the other findings, Karlsson and Tavassoli (2016) highlighted that product and process innovations were the most common innovation processes used by the firms in the study. Moreover, Klepper (1996) noted that these two types of innovations occur more or less simultaneously in firms as the innovative process usually results in innovative products. However, in modern business environment, innovations decisions are recognised as one of the most fundamental strategic decisions for any firm, as it lead to increase current market shares, and to strengthen the competitive edge (Gunday, Ulusoy, Kilic, & Alpan, 2011).

As with proactiveness, firm innovativeness may also occur along a continuum from the simple willingness to either try a new product line, to the passionate commitment to introduce the latest new products or technological advances (Lumpkin & Dess, 1996). Scholars used different models to measure these differences and the differences were used as parameters to distinguish between entrepreneurial and non-entrepreneurial firms and individuals. D. Miller and Friesen (1982) were one of the first studies to use innovation as a parameter to distinguish between entrepreneurial and conservative firms. Using a sample of 52 Canadian firms, the authors developed two models;

conservative and entrepreneurial, for innovation that evaluated the factors that influence the product innovation of the two types of firms. The conservative model assumed that innovation is performed reluctantly, mainly in response to serious challenges while the entrepreneurial model supposed that innovation is always aggressively pursued and will be very high unless decision-makers are warned to slow down.

A study conducted by Pérez-Luño, Wiklund, and Cabrera (2011) on innovation generation and innovation adoption by firms also provided sound empirical evidence on innovation differences between different firm types. Based on the concept of EO, Pérez-Luño et al. (2011) proposed two models; innovation generation and adoption and investigated how proactiveness and risk-taking influenced these models. Using a sample of 400 Spanish firms, they found that more than half of their sample adopt the innovations of other firms while only a small percentage actually generate innovations by themselves. The authors also found a positive relationship between proactiveness and risk-taking with the number of internally generated innovations. These examples show innovativeness plays an important role in the entrepreneurial behaviour of firms and that it has positive links with other EO dimensions.

3.2.3.2.3 Risk-taking

The concept of risk-taking has long and strong ties with the concept of entrepreneurship since the beginning. Cantillon (1734), the scholar who was the first to formally use the term entrepreneurship, argued that the principal factor that separated entrepreneurs from hired employees was the uncertainty and riskiness of self-employment. Dess and Lumpkin (2005) defined risk-taking as “a firm's willingness to seize a venture opportunity even though it does not know whether the venture will be successful and to act boldly without knowing the consequences” (p. 152). Risk-taking has always been connected with higher returns while Drucker (1985) stated that to obtain high financial returns, firms take risks such as assuming high levels of debt, committing large amounts of firm resources, introducing new products into new markets, and investing in unexplored technologies. It also shows that risk-taking all business activities involves a certain degree of risk. Whether they are being innovative, proactive or competitively aggressive all firms must act knowing the potential outcomes of their behaviour (Dess & Lumpkin, 2005).

The meaning and composition of risk can be vary depending on the context that it is been applied. For example, in the context of strategy, (Baird & Thomas, 1985) identified three types of strategic risk: venturing into the unknown, committing a relatively large portion of assets, and borrowing heavily. In addition, entrepreneurship literature also addresses uncertainties such as personal, emotional and psychological risks (H. R. Gamage, 2013; Lumpkin & Dess, 1996). Financial risk is also considered as

one of the most important types of risk in the context of EO while it mainly focused on the trade-off between risk and return where it refers specifically to the probability of a loss or negative outcome. Lumpkin and Dess (1996) also referred to D. Miller and Friesen (1982)'s definition of risk-taking "the degree to which managers are willing to make large and risky resource commitment" and stated that firms with an EO are usually characterised by risk-taking behaviour, such as incurring heavy debt or making large resource commitments, in the interest of obtaining high returns by seizing opportunities in the marketplace (p. 144).

Similar to other EO dimensions, risk-taking also range in a continuum which extends from some nominal level "safe" risks, (i.e. depositing money in a bank) to highly risky actions, (i.e. heavy borrowing, investing in unexplored technologies, or bringing new products into new markets) (Lumpkin & Dess, 1996). Even though risk-taking involves taking chances, it is far from 'gambling'. Thus, Dess and Lumpkin (2005) suggested business owners first carefully analyse risk factors and then adopt suitable techniques to manage them as only carefully managed risks can lead a firm towards competitive advantages.

As risk and risk management is the main theme of this study, the next main section of this chapter will discuss the risk-taking behaviour of entrepreneurial and non-entrepreneurial small firms in detail. However, it is important to note that despite the theoretical importance of risk-taking within the concept of entrepreneurship, scholars also noted that risk-taking is not a strong determinant for distinguishing entrepreneurs from their non-entrepreneurial counterparts. The empirical findings in this context are controversial where Brockhaus (1980) empirically found that risk-taking may not be a distinguishing characteristic of entrepreneurs while Carland III et al. (1995) found that entrepreneurs have a higher risk-taking tendency compared to small business owners and corporate managers. Not only in the early literature, but these differences are also still puzzling modern-day researchers as well especially when findings are specific to different industries, economies, and contexts.

3.2.3.2.4 Competitive aggressiveness

Competitive aggressiveness captures the distinct idea of "beating competitors to the punch" suggested by D. Miller (1983)'s definition of an entrepreneurial firm. According to Lumpkin and Dess (2001), competitive aggressiveness reflects the intensity of a firm's efforts to outperform industry rivals, characterised by a combative posture and a forceful response to competitor's actions (p. 3). In many research studies in both normative and empirical literature, the notion of competitive aggressiveness either has been ignored, given lesser importance, or omitted by treating it as identical to proactiveness. However, Lumpkin and Dess (1996) highlighted competitive aggressiveness as an important EO dimension that is distinct from proactiveness. To elaborate, proactiveness refers to how

a firm responds to market opportunities, so it is to influence trends and even create demand while competitive aggressiveness refers to how firms responds to their competitors.

Acting aggressively against rivalry may lead the firm to take initiatives such as cutting prices, adopting aggressive marketing strategies or increasing the product capabilities while a firm can also engage in competitive aggressiveness when they cut down the prices radically to increase the market penetration, or just to create a monopoly nature of the product (Rahman, Civelek, & Kozubíková, 2016). In a study understand the effect of EO on small firm performance using a sample of 335 small Icelandic firms, Lechner & Gudmundsson (2014) argue that small firms are more vulnerable to the changes in the market competition and, as a result, they have to be more aggressive to beat the market competition to create a safety net for their survival. Kozubíková and Zoubková (2016) conducted an empirical study to understand entrepreneurs' attitudes towards competitive aggressiveness in relation to their socio-demographic factors using a sample of 740 micro-enterprises in the Czech Republic. Their results showed that these micro-enterprises perceived competitive aggressiveness as an important EO dimension while they tried to exploit anticipated changes in the market and seized the initiative in order to get ahead of the competition (Kozubíková & Zoubková, 2016).

As was noted, both normative and empirical studies conducted on this dimension of EO are relatively less than that of the dimensions discussed previously. Especially, no significant amount of empirical evidence was found that compared competitive aggressiveness of entrepreneurs with managers, or SME owners like in other dimensions. One recent empirical study conducted by Kozubíková, Sopková, Krajčík, and Tyll (2017) in the Czech Republic with a sample of 1141 SMEs managed to find significant differences in competitive aggressiveness between the entrepreneurs motivated by money and those motivated by mission. The study also included other two EO dimensions: innovativeness and proactiveness. Kozubíková et al. (2017) reported that regardless of the entrepreneurial motives the vast majority of the surveyed entrepreneurs considered innovativeness and proactiveness to be important for their companies while on the other hand, most of them do not realise aggressive activities against the competition they are facing.

3.2.3.2.5 Autonomy

Similar to competitive aggressive, autonomy is also an EO dimension comparatively less explored in different contexts. Lumpkin and Dess (1996) first introduced the concept of autonomy as a dimension of EO and defined it in relation to entrepreneurial behaviour. According to Lumpkin and Dess (1996) autonomy refers to the independent action of an individual or a team in bringing forth an idea or a vision and carrying it through to completion. This lack of inclusion of autonomy as an EO dimension

was attributed for two reasons: (1) autonomy is not one of the “original” dimensions of EO identified by D. Miller (1983) or explained by Covin and Slevin (1989) and (2) some scholars suggested that autonomy is an antecedent of entrepreneurial behaviour rather than one of its essential components (Lumpkin, Cogliser, & Schneider, 2009). However, Lumpkin et al. (2009) argued and reemphasised the central role of autonomy in a firm’s EO.

For entrepreneurial firms, autonomy emphasis on their self-directed nature to pursue opportunities. Previous scholars posited that, within business entities, autonomy encourages innovation, promotes the launching of entrepreneurial ventures, and increases the competitiveness and effectiveness of firms (Brock, 2003; Burgelman, 2020). In contrary, firms that are excessively dependent on collectiveness in decision-making and require consensus to be reached before launching entrepreneurial initiatives may suffer financially (Covin et al., 2006). Burgelman (2020) stated that the independent spirit and freedom of action that is necessary to advance new venture development is one of the key driving forces of entrepreneurial value creation. Ireland, Hitt, and Sirmon (2003) proposed that in the context of strategic entrepreneurship, autonomy enables both opportunity-seeking and advantage-seeking behaviours in small businesses.

As the majority of the target group of this study are family-based small businesses, it is important to explore the role autonomy plays in family business management. As small family firms are characterised for their collective decision-making style, it is important to understand how autonomous decision making are incorporated into that. The family business literature provides two facets of autonomy and family business relationships. On one hand, family businesses provide a strong base for autonomy partially because, as employers, they provide a setting that is enriched with loyalty and trust, leading to higher levels of autonomous decision making on the part of their employees (Neckebrouck, Schulze, & Zellweger, 2018; Pittino, Visintin, Lenger, & Sternad, 2016). On the other hand, close working relationships among family members in the collaboration can create dependencies and constraints that limit autonomous action, thereby creating the tensions typical of family firms (Ingram, Lewis, Barton, & Gartner, 2016).

Marco Van Gelderen published a series of articles on the importance of autonomy as a start-up motive for entrepreneurs and small business owners (Gelderen, 2016; Van Gelderen, 2010; Van Gelderen & Jansen, 2006). These studies empirically supported the idea of autonomy being one of the key motives of entrepreneurship and self-employment. However, the authors also noted that entrepreneurs not only seek decision making freedom by being autonomous but there are needs such as to get away from difficult bosses or unpleasant rules or their desired work in accordance with one's goals, values, and attitudes (Van Gelderen & Jansen, 2006). However, it was difficult to find literature to support the

contribution of the autonomy dimension to differentiate between entrepreneurial firms from their non-entrepreneurial counterparts.

The next section of this chapter provides a summary of existing EO literature from both developing and developed country contexts. The purpose of this section is to get a brief idea about what has been already explored empirically in these contexts and to identify the gaps in the literature.

3.2.4 Summary of EO literature

Entrepreneurial orientation (EO) is one of the most widely accepted firm-level constructs in the literature which has been studied in both developed and developing country contexts. However, recent reviews published on EO (Wales, 2016; Wales et al., 2013) revealed that the number of studies conducted in developing contexts outnumber the studies conducted in developed contexts. Most importantly, even the EO concept has originated in developed countries where D. Miller (1983) and Covin and Slevin (1989) conducted their studies with respondents from Canada and the USA respectively. The majority of the empirical studies conducted in the EO domain examined the relationship between the EO of firms and their performances in both country contexts (De Massis, Kotlar, Campopiano, & Cassia, 2015; Dess, Lumpkin, & Covin, 1997; Dung, Bonney, Adhikari, & Miles, 2020; F. M. Fairoz, T. Hirobumi, & Y. Tanaka, 2010). Some scholars couple entrepreneurial orientation with other firm-specific orientations such as market orientation (Kaya & Patton, 2011; Li, Zhao, Tan, & Liu, 2008; Lukas & Ferrell, 2000) and learning orientation (Ma'atoofi & Tajeddini, 2010; Real, Roldán, & Leal, 2014; Styles, Kropp, Lindsay, & Shoham, 2006).

Since this study was conducted in a developing country context, it is important to have a comprehensive understanding of the extent of EO-related studies conducted in other developing countries. This will aid to understand the gaps available in the literature specific to developing countries. However, as noted above the majority of these studies investigated the relationship between EO and firm performance while limited attempts have been made to use the EO approach as a tool to filter the entrepreneurial firms. Studies that investigated EO and performance relationships are readily available even in the Sri Lankan context. Studies conducted by (Chandrakumara, De Zoysa, & Manawaduge, 2011); F. M. Fairoz et al. (2010); (Kumarpeli & Semasinghe, 2015; Shameem & Hilal, 2021; Wickramaratne, Kiminami, & Yagi, 2014; Wijethunge & Pushpakumari, 2013; Wijethunge & Pushpakumari, 2014) are examples for such EO and performance relationship studies conducted in Sri Lanka. The majority of these studies used SMEs as their respondent groups and mostly found a positive association between EO and firm performance. Similar types of studies were found in other Asian developing countries like Bangladesh (Hossain & Al Asheq, 2019), Indonesia (Herlinawati, Ahman, & Machmud, 2019), Nepal (Chitrakar, 2019), and Malaysia (Arshad, Rasli, Arshad, & Zain, 2014). Similar studies that employed same type of firm types and that received similar results were found in

developing countries located in other geographical areas including middle-east, Africa and America. Being an emerging concept, it is difficult to provide a comprehensive summary of all the literature available around the world concerning all developing countries. However, by looking at most of this literature it was evident that EO has mainly been used as a tool to uplift the strategic posture of firms in terms of their innovativeness, proactiveness, and risk-taking. The majority of the scholars attempted to investigate this relationship without considering the potential of this approach to use as a tool to explore more on the entrepreneurial nature of the firms.

3.3 Entrepreneurial risk and risk management

The very understanding of entrepreneurial behaviour suggests that risk, risk-taking, and risk management are integral components of the entrepreneur's psyche. As was noted, the term risk was used as a key dimension when the entrepreneur was first defined by Cantillon (1734). Then, when the father of modern entrepreneurship Schumpeter defined entrepreneurship, as he brought up the concept of innovativeness with five types of innovations including (1) introduction of new goods, (2) induction of new production processes, (3) opening of new markets, (4) opening of new sources of supply and (5) industrial reorganization (Schumpeter, 1934). Even though the risk is not explicitly incorporated into the definition, all these innovative behaviours are significant associated with risk (Carland III et al., 1995). Especially the first four types of innovations that deal with new things have a high chance of failure. According to Carland III et al. (1995), individuals or firms that show a high degree of innovativeness are high risk-takers too. Therefore, according to these previous scholars, there are strong links between risk and entrepreneurship even if they were defined based on other entrepreneurial traits such as innovativeness and proactiveness.

One of the well-known early entrepreneurial scholars Brockhaus (1980) suggested that in becoming an entrepreneur an individual risks their financial well-being, career opportunities, family relations, and emotional well-being. While explaining entrepreneurial risk, the author described that these personal financial obligations that the entrepreneur makes to an unsuccessful enterprise can result in major losses to the entrepreneur which also can lead to severe emotional losses to the person. This situation is much common in relation to small-scale new ventures that are usually prone to fail during their early start-up period. Thereby, the entrepreneurs are expected to carefully analyse the risks associated with the specific business idea and then to determine whether he is willing to pursue them (Brockhaus, 1980). The author also highlighted that this decision depends on the way risk is perceived by the entrepreneur.

3.3.1 Definition of risk

The term risk is most often defined by considering its' downside consequences by disregarding the possibility of risk behaviour resulting in an upside outcome. This pattern of definitions can be found in both early and recent normative literature. For example, Blomkvist (1987, p. 89) defined risk as "the possible loss of something of value" while A. Miller et al. (2004) definition for risk is "the probability of an adverse outcome, the potential size of an adverse outcome, or the expected value of a potential loss which is a combination of the first two". However, none of these new or old definitions are universally accepted. Douglas (1992) pointed out 'risk' as the probability of an event combined with the magnitude of the losses and gains that it will entail. However, from a complex attempt to reduce uncertainty it has become a decorative flourish on the word 'danger'. These definitions show that there is a bias in the literature relates to whether a risk is seen as a positive or negative influence on the business. While many scholars were biased on the downside impacts of risks, some were managed to define risk in a more neutral manner. For example, Chavas (2004) stated that risk represents any situation where some events are not known with certainty while Robison and Barry (1987, p. 13) stated that "uncertain events are important when their outcomes alter a decision maker's material or social well-being". However, as this study mainly focused on entrepreneurial risk management, it is important to adopt a definition that is not biased towards the downside consequences of the risks involved. The definition of risk by Chapman and Cooper (1983b), "the possibility of economic or financial losses or gains, as a consequence of the uncertainty associated with pursuing a course of action" shows that risks can provide not only losses but also gains. Even though this definition is from early literature, it addresses both downside and upside perspectives of risks and provides an overall explanation of the concept.

3.3.2 Risk management by entrepreneurial and non-entrepreneurial MSMEs

As noted in the introduction chapter, micro, small and medium scale enterprises play an important role in most economies worldwide, especially in developing countries (Ayyagari, Demirgüç-Kunt, & Beck, 2003; de Araújo Lima, Crema, & Verbano, 2020; A. Gamage, 2003). Compared to their large-scale counterparts, MSMEs are usually seen as having simpler internal organization and, thus, as being more flexible and faster at responding and adapting to changes and risks (Lavia López & Hiebl, 2015). However, at the same time having higher flexibility, MSMEs are frequently confronted with major challenges compared to large-scale enterprises. This situation is much more common in countries with developing economies where MSMEs face continuous issues due to deregulated economic conditions. According to Lavia López and Hiebl (2015), MSMEs profit less often from economies of scale, and fewer have access to a wide resource base. As a result, MSMEs are relatively vulnerable to external events compared to large-scale enterprises (Falkner & Hiebl, 2015). This simply illustrates that not only large-

scale firms face various risks but also MSMEs, whose survival is more easily threatened because of their smaller set of – both financial and non-financial – resources.

Moreover, in the current business arena, manufacturing industries are under tremendous pressure due to the free market economies, rapid technological development and continuous changes in customer demands. Irrespective of the availability of modern technology and techniques, most manufacturing companies still face undesirable events and unwanted setbacks such as machine breakdown, material shortage, accidents and absenteeism that make the system unreliable and inconsistent (Mital & Pennathur, 2004; Toulouse, 2002). As noted above, this scenario is more obvious in micro, small and medium-sized manufacturing enterprises because of the nature of their business. and limited infrastructure (Ariful, Tedford, & Haemmerle, 2006). According to the authors, numerous research studies have been done on risk and risk management while most of them, however, have focused on particular industrial contexts such as medical sciences, construction and transportation where the magnitude of risk and respective consequences are more severe. In contrast to this, lower priority has been given to the management of risk in the manufacturing MSME sector where the risks are considered to be less catastrophic. Thereby, there is a gap in the literature for empirical studies that are focused on risk management by micro and small-scale manufacturing firms especially operating in developing economies. In a recent review article on risk management of SMEs Ekwere (2016) noted that it has only been a few years since business management literature started to show an interest in applying risk management in SMEs, and therefore many areas are still understudied (p. 24).

Risk management may help MSME owner-managers to identify significant risks that could threaten the success or existence of the company in time to efficiently cope with them (K. D. Miller, 1992). According to Hollman and Mohammad-Zadeh (1984), failing to recognize risks can create disastrous consequences, ranging from customer loss to damaging liability, environmental damage and possibly, even bankruptcy. Yet, in many situations, risk can be predicted on the basis of experience and managed effectively (Verbano & Venturini, 2013). However, many MSMEs do not or not adequately apply risk management practices, mostly because they cannot afford to rededicate resources because of their constraints (Marcelino-Sádaba, Pérez-Ezcurdia, Lazcano, & Villanueva, 2014).

Risk management (RM) is the process of identifying risks, measuring the probability and the possible impact of events, and treating risks, eliminating or reducing their effects with the minimum investment of resources (Ekwere, 2016, p. 23). Once risks have been identified, a number of techniques and actions can be selected to address them. This can either be acceptance, reduction, avoidance, mitigation or elimination depending on the nature of the source of risk identified (i.e.

sources of risks are explained later in the chapter). Ekwere (2016) also noted the same idea expressed by other scholars that compared to large-scale organizations MSMEs are required to adopt risk management strategies, because they lack the resources to respond promptly to internal and external threats, leading to potentially huge losses that seriously threaten their survival. In a different perspective, Vargas-Hernández (2011) suggested that innovation is another motive for MSMEs to adopt risk management strategies as innovations are fundamental to gain competitive advantage and succeed in the market, but necessarily involve risky decisions and activities. This is particularly true for entrepreneurial firms that are aggressively seeking opportunities in the market and introduce innovations frequently. For example, based on a survey of 311 Austrian SMEs, Brustbauer (2016) reported that those with a proactive (rather than passive) approach to risk management show a higher propensity to expand to new markets and invest in new products and process technologies.

3.3.2.1 Risk management process in MSMEs

The risk management process explained in the conceptual paper by Hollman and Mohammad-Zadeh (1984) on risk management in small business is one of the most widely used approaches in SME risk management. This process involved five major steps; identify risks, analyse risks, select techniques, implement strategy, and control. The same steps of risk management were introduced by the most recent publication by the International Organisation of Standardisation ISO:31000 (2018) on risk management guidelines (Figure 3.1). In the literature, certain scholars reported evidence on SMEs that follow more informal risk management processes (Gao, Sung, & Zhang, 2013; Poba-Nzaou, Raymond, & Fabi, 2014) while some reported examples of SMEs that take a more formalised and proactive approach to risk management (Brustbauer, 2016). The section below provides a brief outline of the risk management process in MSMEs by Hollman and Mohammad-Zadeh (1984).

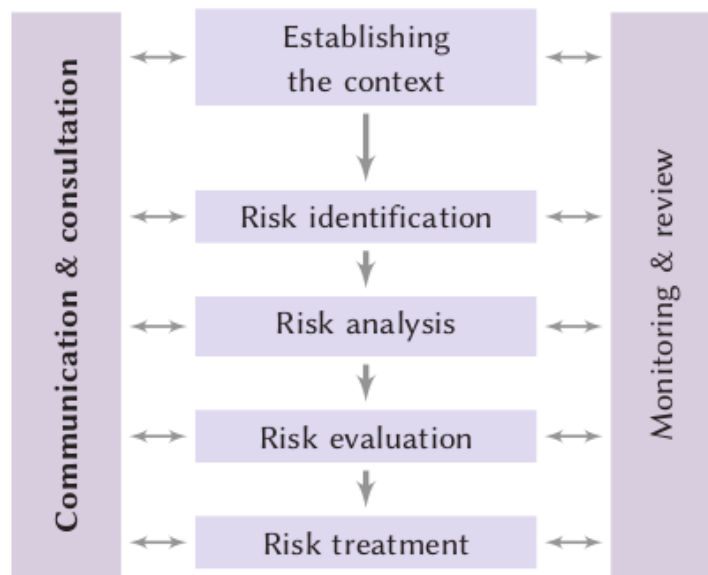


Figure 3-1. Risk management process

(Source: ISO:31000 (2018))

In addition to the five-step process proposed by Hollman and Mohammad-Zadeh (1984), ISO:31000 (2018) recommend establishing the context prior to risk management process to establish boundaries within which the risk management process will apply. The context is determined considering both internal and external business environments and then to set specific risk management goals (Ekwere, 2016).

3.3.2.1.1 Risk identification

Risk identification is the first step of the risk management process that involved systematically identifying possible sources of risk (Hollman & Mohammad-Zadeh, 1984). During this process, different classifications of risks and different categories of sources of risks are identified by the firm. Studies conducted by, A. Miller et al. (2004), Ariful et al. (2006), Falkner and Hiebl (2015); Henschel (2008), and Verbano and Venturini (2013) provided different classifications of risks and identified different ways of classifying sources of risks encountered by SMEs. It is also important to identify whether these sources of risks act as opportunities or threats to the given business entity. This differentiation is also captured by the risk management process model by ISO:31000 (2018). A detailed description of sources of risks provided under the section x.x. This step of risk identification is crucial for effective risk management at SMEs. However, the case study by Gao et al. (2013) highlighted that efficient risk identification in SMEs may be hindered by SME employees' limited knowledge of risk management.

3.3.2.1.2 Risk analysis

Risk analysis, the second step of the risk management process involves measuring or estimating the potential frequency of losses and the potential impact of a risk on the firm's operation (Hollman & Mohammad-Zadeh, 1984). At this stage, the authors suggested ranking individual sources of risks according to their priority to the small business. Hollman and Mohammad-Zadeh (1984) argued that this step helps to establish risk management priorities and provides a starting point for selecting appropriate risk management strategies for each source of risk.

3.3.2.1.3 Selection of techniques

Once the risks are being identified and analysed, the next step is to handle them accordingly. According to Henschel (2008), four main strategies are available to manage and control risks at SMEs. The selection of the strategy should be based on the risk analysis, whether the risk poses a threat or an opportunity to the firm. The four strategies are: avoiding the risk, reducing the risk, transferring or the risk or the risk can be borne by the firm itself. Ekwere (2016) also noted four ways of treating risk including risk avoidance, changing the consequences, risk-sharing (i.e. transferring) and risk retaining or accepting the risk.

This selection and implementation of risk management strategies is the prime focus of this study. Literature lists down various risk management strategies adopted by MSMEs under different contexts to avoid, reduce, accept, transfer or eliminate the risks they face. As was noted, the selection of strategies is solely depending on the specific source of risks and whether it's being perceived as an opportunity or a threat. A. Miller et al. (2004) in their publication on risk management for farmers, identified two major categories of risk: operational and strategic and proposed a range of risk management strategies for each category. According to A. Miller et al. (2004), owner-managers have a variety of mechanisms for managing risk and best methods of managing risk depends upon the nature of the risk involved. Similar to other scholars noted above A. Miller et al. (2004) also noted four general procedures for managing risk; avoidance, reduction, assumption/retention and transfer. Accordingly, avoidance is the process of structuring the firm so that certain types of risk are non-existent, the reduction in the process of lowering the risks associated with the business venture, assumption/retention is the process of retaining or accepting risks with the objective that assuming this increased risk is to maintain control and/or enhance overall profitability and transfer is the process when one party lowers their risk by shifting that risk to someone else, often for a fee.

Falkner and Hiebl (2015) listed and elaborated on some of the most commonly used risk management strategies by SMEs and insurance is regarded as the first option. According to a qualitative study by Cioccio and Michael (2007) of 11 small businesses in Australia showed that for most of the

respondents, insurance is the primary tool for risk management. However, the authors also noted that SMEs were aware that insurance is sometimes associated with considerable cost, and that insurance basically covers unexpected events (i.e. hazards, weather derivatives and accidents etc) in most cases. According to both Falkner and Hiebl (2015) and A. Miller et al. (2004) insurance is a risk transfer strategy where firm owners shift their risks to another party with a known cost. Other than insurance; strategic, market, financial and operational risk management strategies were found as commonly adopted risk management strategies by most of the small business and farming households (Ariful et al., 2006; Ekwere, 2016; Falkner & Hiebl, 2015; Henschel, 2008; A. Miller et al., 2004; Pinochet-Chateau, Shadbolt, Holmes, & Lopez-Villalobos, 2005).

Among these different types of risk management strategies, strategic risk considered as one of the important categories for MSMEs. According to A. Miller et al. (2004), strategic risks are multidimensional and less predictable can be more catastrophic than other risk categories. Hence, the management strategies must involve planning, decision making, implementation, and control processes. Short-term and long-term planning to achieve strategic flexibility is identified as the foundation for strategic risk management. Ekwere (2016) also highlighted business planning as the most essential strategic risk management strategy for small businesses. Among the others, diversification strategies such as diversification across enterprises and product diversification are commonly found as strategic risk management tools that can 'reduce' the strategic risks (A. Miller et al., 2004). In addition, market risk management strategies such as monitoring customer satisfaction, competitor management, networking, supplier relationship management are also identified as important and relevant for SMEs operating in manufacturing industries (C. Ellegaard, 2008; Gilmore, Carson, & O'Donnell, 2004). Moreover, production and operating risk management also found to play a key role, especially in manufacturing SMEs. Thun, Drücke, and Hoenig (2011) showed that maintaining buffer stocks, excess capacity in production and excess capacity in the warehouses can prevent interruptions in production and delivery problems, are more often present in SMEs than in large-scale firms. However, in contrast to the above view, C. Ellegaard (2008) empirically showed that only a small proportion of small firms in their study could actually maintain buffer stocks as SMEs may struggle with limited financial reserves.

In addition to the above studies, literature related to farm risk management was also referred to as agriculture food processing firms may adopt the same risk management strategies as farming households due to their closeness in the supply chain. Studies conducted by Iqbal et al. (2020), Ratas and Nurmet (2017), Shadbolt and Olubode-Awosola (2013), Ahsan (2011), and Pinochet-Chateau et al. (2005) provides sound empirical findings on the most commonly adopted risk management strategies by farmers under different contexts. However, these strategies were also not found to be

notably different from the strategies adopted by manufacturing SMEs discussed earlier. Most common strategies included, diversification (i.e. crop/animal/enterprise), secondary sources of income, managing and keeping debt low, forward contracts, futures markets, pricing strategies, labour management, keeping stocks (i.e. feed, inputs etc), insurance, and networking.

3.3.2.1.4 Strategy implementation and control

After the risks are being identified, analysed and decisions are made on what strategies to adopt to avoid, reduce, retain or transfer them, the final steps are to actually implement the chosen method and review frequently to ensure that they meet the current requirements (Hollman & Mohammad-Zadeh, 1984). According to the literature review conducted by Falkner and Hiebl (2015), no empirical studies were conducted to investigate firms at strategy implementation or control stages. However, they have highlighted the need to empower employees with knowledge of risk management to ensure the effectiveness of the process.

Based on the articles reviewed, it is clear that multiple factors are influencing the adoption of risk management strategies by MSMEs. A number of authors claimed that characteristics of SME owners play a noticeable role in risk management of these firms (Acar & Göç, 2011; Gao et al., 2013; Y. Kim & Vonortas, 2014; Watson & Newby, 2005). This is especially true as owners of MSMEs play multiple roles other than ownership and management. As the owner-managers are the key decision-makers of the firm, their personal characteristics do play a role in their risk management decisions. The most contributing owner-manager characteristics identified through the literature are gender, age, education and their years of experience in business/farming (Acar & Göç, 2011; Watson & Newby, 2005). In addition to these personal and demographic characteristics of the firm owners, there are certain risk-related variables were also identified that influence the risk management of these small businesses. Risk perception, risk propensity, risk attitude, risk appetite and risk preferences are the most commonly researched terms in the risk management literature (Acar & Göç, 2011; Ahsan, 2011; Bentley & Sparrow, 1997; Shadbolt & Olubode-Awosola, 2013; Sitkin & Pablo, 1992). Among them, risk perception and risk propensity are identified as the most influential risk-related factors that influence the risk management of small businesses. Other terms such as risk attitude, risk appetite, and risk preferences are used as alternative terms to refer to risk propensity in most instances (i.e. discussed later in the chapter). Thereby, the next section of this chapter is focused on reviewing literature related to these two risk-related variables that contribute towards the risk management of micro and small-scale firms.

3.3.3 Determinants of entrepreneurial risk management

Upon defining and discussing entrepreneurial risk and risk management, the next objective of the study is to explore the factors that influence the adoption of risk management strategies by these small firms operating in the agricultural processing sector in Sri Lanka. The literature on entrepreneurship, agribusiness, and risk management investigated factors influencing risk behaviour and risk management of entrepreneurs and small business owners. As explained above, these factors were identified under two main folds: (1) demographic parameters and, (2) risk-related variables. Again, according to the literature two risk-related variables including risk propensity and risk perception were identified as factors that could influence the risk management by these small firms (Ahsan, 2011; Iqbal et al., 2020; Pinochet Chateau, 2005; Sitkin & Pablo, 1992; Sitkin & Weingart, 1995; van Winsen et al., 2016). The next section of this chapter focused on elaborating on these two risk-related variables based on normative and empirical literature and delivers how they connect with the concept of the study.

3.3.3.1 *Risk propensity*

Risk propensity is the first risk-related variable that was identified as a determinant of the adoption of risk management strategies by micro and small-scale food processing firms in Sri Lanka. This review considers literature related to two aspects of risk propensity; (1) how previous scholars assumed and investigated the risk propensity differences between entrepreneurial and non-entrepreneurial firms (i.e. conservative firms or SMEs where appropriate) and (2) what relationships were been found between risk propensity and risk management. Due to the lack of specific literature on developing economies, the review will include literature from different economic and industrial contexts.

Risk-taking behaviour is recognised as one of the key determinants of entrepreneurship since Cantillon (1734)'s definition of an entrepreneur. Since then, many scholars both proposed and confirmed this positive relationship between risk-taking and entrepreneurship both theoretically and empirically (Carland III et al., 1995; Miner & Raju, 2004; Stewart Jr & Roth, 2001; Xu & Ruef, 2004). However, this concept also started to get challenged by early entrepreneurship scholars where Brockhaus (1980) empirically showed that risk-taking propensity might not be a distinguishing character for entrepreneurs. Thereby, the relationship between risk-taking and entrepreneurial behaviour has been investigated under different contexts, different industry sectors using different firm types resulting in contradicting findings.

Risk propensity has been generally conceptualised as risk-taking tendencies of individuals or firms. Many scholars used risk propensity as a measure of "willingness to take risk" of their respective respondents (Farmer, 1993; MacCrimmon & Wehrung, 1990) yet as was noted, there have been

disagreements about the nature of this trait and the impact it has on risk-related decision-making (Brockhaus, 1980; Keil, Wallace, Turk, Dixon-Randall, & Nulden, 2000). This study defined the term “risk propensity” based on Sitkin and Pablo (1992, p. 5), as the tendency of a decision-maker either to take or to avoid risk. Sitkin and Pablo (1992) used this definition as they attempted to investigate the impact of risk propensity and risk perception towards risk behaviour. This definition distinguishes risk perception (i.e. discussed under the next sub-heading) from risk propensity as well as addresses both risk taking and avoiding. It is important to focus on both ends of risk propensity (i.e. risk-seeking and risk averse) as the study investigates with two groups of firms: entrepreneurial and non-entrepreneurial. van Winsen et al. (2016) also noted that risk propensity can vary from very unwilling to take risk (risk averse) to very willing to take risk (risk seeking). During this literature review, it was also revealed that scholars have used different terms such as risk attitude (Sepúlveda & Bonilla, 2011, 2014), risk preference (Asravor, 2019; Meraner & Finger, 2017, 2019), risk-taking or risk-aversion (Moschini & Hennessy, 2001) as alternative terms to risk propensity.

Since risk-taking is a major pillar in entrepreneurship, studies conducted to investigate risk propensity differences between entrepreneurs, small business owners and managers are not quite uncommon in the literature. However, it is also important to note that the definitions used by different scholars to define these groups vary to a greater degree. These comparison studies could be found from early entrepreneurship literature starting from Brockhaus (1980), who compared risk propensity between three groups of respondents; business owners who started their businesses three months prior to the study and two groups of managers who changed their position or their employer three months prior to the study. Opposing the widely reported notion of entrepreneurs are being high risk takers, Brockhaus (1980) found out the risk propensity of entrepreneurs was no different than that of managers. They further claimed that both entrepreneurs and managers they studied are as moderate risk takers. Following the lead of Brockhaus (1980), Carland III et al. (1995) also carried out a study to investigate risk propensity differences between entrepreneurs, small business owners and managers using a sample of 848 respondents in the USA. The authors distinguished small business owners and entrepreneurs based on the definition given by Carland et al. (1984, p. 358). Contrary to the findings of Brockhaus (1980), Carland III et al. (1995) found significant differences between entrepreneurs and small business owners in terms of their risk propensity. According to their study, entrepreneurial firms had the highest risk propensity followed by small business owners and managers. Entrepreneurs were higher than the other two groups while risk propensity of small business owners was not significantly different from managers. Another similar study conducted by Stewart et al. (1999) to investigate the proclivity for entrepreneurship by entrepreneurs, small business owners and managers using a sample of 767 small business owner-managers in the USA also found out that risk taking propensity of

entrepreneurs is higher than that of the other two groups. With these contradictory findings, it appears that risk propensity differences between entrepreneurial firms and non-entrepreneurial small businesses has been left unresolved and puzzled.

As a result of contradicting findings of early entrepreneurship studies, recent scholars have also made attempts to investigate and broaden the understanding of risk propensity differences between entrepreneurial and non-entrepreneurial groups. Accordingly, Stewart Jr and Roth (2001) carried out a meta-analysis to review literature related to risk propensity differences and confirmed that entrepreneurs do have a higher risk propensity than managers and small business owners. Yet, they have also suggested that the risk propensity of entrepreneurs may vary based on their primary goal being profit making or contributing to the family income. Taking this suggestion into consideration Miner and Raju (2004) investigated risk propensity differences between managers and entrepreneurs and between low- and high-growth entrepreneurs. This study again yielded contradictory findings as authors reported that entrepreneurs (and those with a growth orientation) are more risk avoidant. Hence, the relationship between entrepreneurship and risk propensity remained unresolved and upheld. Moreover, the majority of these studies were carried out in the USA or other developed country contexts and left a gap in the literature for studies in developing economies. Further, the parameters that these studies used to define and differentiate entrepreneurs and small business owners seemed outdated and may not be justifiable to all contexts. Therefore, it is important to investigate the contribution of risk propensity as a factor that can differentiate entrepreneurial firms from non-entrepreneurial firms under varying economic and industry contexts.

The next focus of this literature review is to explore studies that investigated the influence of firm owners' risk propensity on a firm's risk management. Scholars studied the impact of risk propensity on both risk behaviour (Sitkin & Pablo, 1992; Sitkin & Weingart, 1995) and risk management responses (Asravor, 2019; Chimwai & Munyanyi, 2019; Keil et al., 2000; Meraner & Finger, 2017, 2019; van Winsen et al., 2016). Sitkin and Pablo (1992) defined risk behaviour as 'individuals' decision-making behaviour in risky contexts' and identified risk propensity as one of the three key individual-specific factors that influence this risk behaviour. The authors conceptualised that risk propensity dominates both the actual and perceived characteristics of the risk situation as a dominant determinant of risk behaviour. Sitkin and Weingart (1995) studied this conceptualisation further and proposed a model that shows the mediating effect of risk propensity in risk behaviour of individuals. Both these studies complied with the concept of risk propensity being an important determinant of risk behaviour either as a direct variable or as a mediating variable (Sitkin & Pablo, 1992; Sitkin & Weingart, 1995).

van Winsen et al. (2016) conducted an empirical study to investigate the determinants of risk behaviour, specifically to explore the effect of risk attitude (i.e. risk propensity) and risk perception on the adoption of risk management strategies by using a sample of 500 farmers from Flanders region in Belgium. They hypothesised that the more willing the farmers are to take a risk, i.e. the higher their risk attitudes, the less inclined they are to implement any risk-reducing strategy, an inverse relationship. Following a series of data analysis techniques, the authors found two major risk management approaches in relation to risk attitude. Accordingly, risk-averse farmers were identified as passively deal with risk, by keeping a buffer, or ensuring an off-farm income while farmers who are more willing to accept risk take a proactive approach towards risk, using external risk management, or diversify production and income sources. van Winsen et al. (2016) related this counter-intuitive finding to the literature describing differences between managers and entrepreneurs, where entrepreneurs have a higher risk attitude compared to managers.

Majority of these studies that investigated the relationship between risk propensity, risk perception and adoption of risk management strategies were mostly found in the context of farm and farm management rather than MSME and business management. Risk attitudes, sources of risks and management strategies adopted by these farming groups can still be applied to the respondent group of this study to a certain degree as the respondents of this study (i.e. food processors) are quite close to farmers in the food supply chain. Hence, studies such as Meraner and Finger (2017); (Meraner & Finger, 2019; Shadbolt & Olubode-Awosola, 2013; van Winsen et al., 2016) are identified as similar empirical studies but conducted in a different context. Meraner and Finger (2017); (Meraner & Finger, 2019) are two research studies that investigated the relationship between risk propensity (i.e. risk preferences) and risk management strategies using a sample of 64 German Livestock farmers. They have measured farmer risk preferences using three approaches: contextualised multiple price list (MPL) approach, self-assessment and business statements.

3.3.3.2 Perceived sources of risk

According to the literature, perceived sources of risks is one of the key determinants of risk behaviour and management. Some scholars conceptualised different relationships (Sitkin & Pablo, 1992; Sitkin & Weingart, 1995) between these variables while some scholars attempted to examine the relationships through empirical approaches. However, before exploring the effects and relationships it is important to understand different sources of risks that can be found within and out of the business environment.

3.3.3.2.1 Sources of risks

Literature categorises these sources of risks into different categories based on their nature. This section includes literature on sources of risks from both farm management and the food processing/manufacturing industry where appropriate as they can be related to the context of this study. The review article published by Falkner and Hiebl (2015) includes a range of sources of risks under different risk categories gathered from SME-orientated research from different parts of the world. Falkner and Hiebl (2015) reviewed 27 articles published from 1984 to 2014. Surprisingly, out of these 27 publications majority of studies examined SMEs in developed European countries while only two have empirically studied SMEs in countries that may be considered developing (i.e. Turkey and China). Falkner and Hiebl (2015) also noted that “it is regrettable because SMEs make up a large share of firms in developing countries and risk management may be a key factor in increasing their ability to survive, which, in turn, may also have an important impact on the economies of developing countries” (Falkner & Hiebl, 2015, p. 125).

Henschel (2008)’s book on “risk management practices of SMEs” provided a sound classification for sources of risks faced by SMEs (Figure 3.1). The information provided in this book is mostly related to German SMEs, yet some sources of risks can be generalised to SMEs operating in other countries too. The author identified internal environment risks as direct risks while external environment risks as indirect risks. This same classification was used by Jayathilake (2012) during his empirical study to investigate risk management practices in SMEs in Sri Lanka. However, Jayathilake (2012) only mentioned the broad risk categories while individual sources of risks under those categories were not disclosed properly.

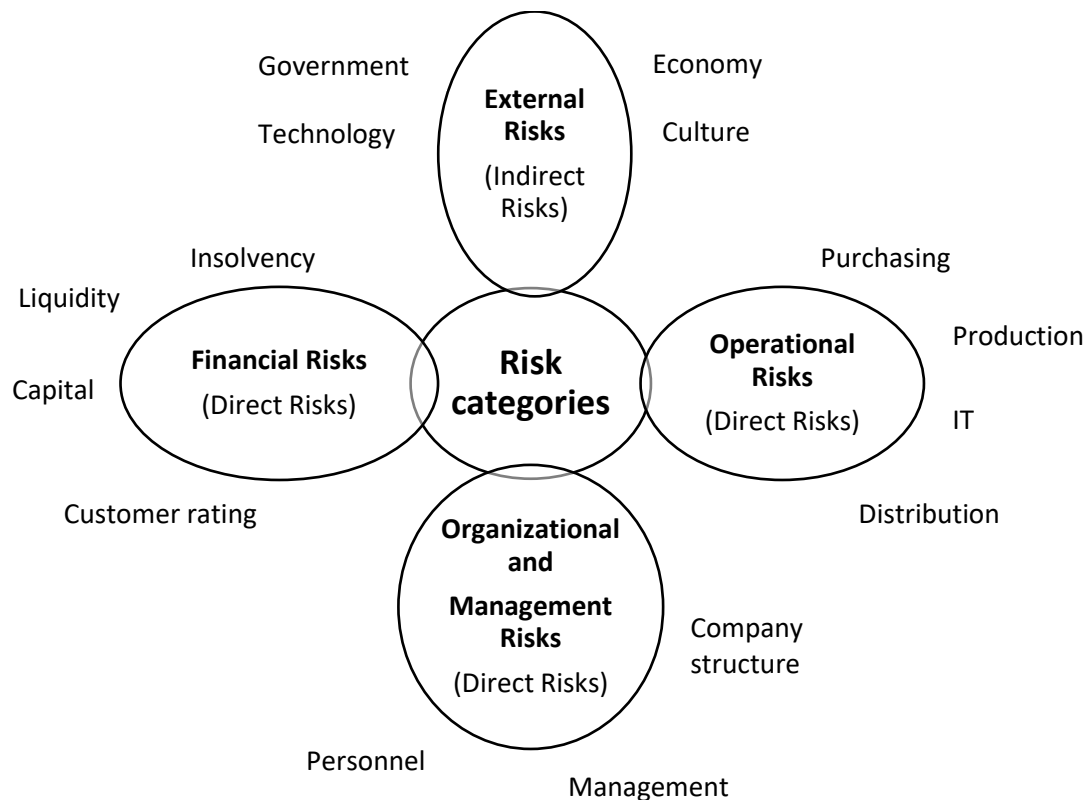


Figure 3-2. The enterprise risk categories
 (source: Henschel (2008, p. 8))

Interest rate risk is the most important source of risk identified by Falkner and Hiebl (2015) as according to the literature SMEs are highly dependent on external finance, where loans are usually the main source of financing available. Different facets of this same source of risk are referred to using different terms by different scholars. The most commonly used term is financial risks (Henschel, 2008; Jayathilake, 2012) where cash flow risk (Gilmore et al., 2004) or credit risk are also being used alternatively. The impact of financial risks can be vary depending on the stage of business where firms tend to face financial risks more at the start-up phase compared to growth and maturity phases (Gilmore et al., 2004). In addition, Sri Lankan SMEs face issues obtaining financial credit due to a lack of collateral and rigid banking procedures (H. R. Gamage, 2014).

Operational risks are another most commonly found source of risks among manufacturing SMEs. Apart from the board categories purchasing, production, distribution and IT noted by Henschel (2008) authors identified risk sources such as; availability of labour, technological changes, product prices, input prices and availability, supply chain risks (Gilmore et al., 2004; Pinochet-Chateau et al., 2005; Shadbolt et al., 2010). However, as noted earlier, notable differences were observed among different scholars in the ways that they have categorised these sources of irks into broad risk categories. For example, Pinochet-Chateau et al. (2005) categorised changes in product prices and input costs as

market risks while labour-related risks were identified under the human resource (HR) risks. Pinochet-Chateau et al. (2005) categorised rainfall variabilities, pest problems and weather variations into production risks while some authors identified them as hazard or nature risks (Henschel, 2008). Market-related risks are also an important category of source of risk for small firms operating especially in manufacturing sectors. Apart from input and product prices noted above competition, fluctuation of demand, customer satisfaction, the involvement of middle-men, market trends, reputation and brand image are some of the mostly researched sources of risks in relation to market changes (A. Miller et al., 2004; Pinochet Chateau, 2005; Shadbolt & Olubode-Awosola, 2013).

Political and regulations-related risks also appear to play an important role among the sources of risks encountered by SMEs in both developed and developing nations. Henschel (2008) identified these risks under the board category of 'government' for German SMEs while Pinochet-Chateau et al. (2005) listed, changes in government laws and policies, changes in local bodies laws and regulations and changes in producer board policies as regulation risks for New Zealand dairy farmers. H. R. Gamage (2014) in her study on the risk behaviour of Sri Lankan entrepreneurs identified political uncertainties and corruption as major risks faced. Apart from these risks, in the modern technological world firms encounter different sources of risks related to IT, information, knowledge and most importantly strategic risks. Out of these, strategic risks were found to be one of the most important while Jayathilake (2012) referred to it as a newly found category of risk. However, the term 'strategic risk' can be new but the concept and sources of strategic risk are not entirely new to the firms. These strategic risks are experienced at all stages of business from start-up to maturity. A. Miller et al. (2004) noted that even though most of the risk analysis in the agricultural sector has focused on the operational risks, they are easier to manage than strategic risk. The focus of strategic risk is the sensitivity of the strategic direction and the ultimate value of a company to uncertainties in the business climate (A. Miller et al., 2004). The strategic risks involve with planning, pursuing opportunities and key decision making of the firm in relation to various aspects of business (Gilmore et al., 2004). Falkner and Hiebl (2015) used the term 'growth risks' instead of strategic risks and stated that although firm growth is often considered a strategic goal in many large firms, some SMEs think differently and view growth as a risk rather than a strategic goal.

In summary, literature provides information on a variety of broader categories of risks and respective sources of risks that are encountered by SMEs. These broad categories mainly include strategic risk, market risk, operational risk, financial risk, HR risk, hazard risk and political and regulatory risks. Having identified different sources of risks, the next section of this chapter will review existing literature on how these sources of risks are perceived by entrepreneurial and non-entrepreneurial firms and then how the perceptions determine their adoption of risk management strategies.

3.3.3.2.2 Opportunities of threats of perceived sources of risks

The concept of risk is central within the field of entrepreneurship. In the context of entrepreneurship, risk could be viewed as the risk of the venture's failure or missing out an opportunity (Dickson & Giglierano, 1986). In contrast, Keh, Der Foo, and Lim (2002) considering opportunity recognition as the cornerstone of entrepreneurship explained risk as "the probability that an entrepreneur is able to successfully turn an idea into an opportunity" (p. 126). According to the authors, perceived risk is a significant aspect of how entrepreneurs evaluate available ideas and make decisions in risk-related situations. Thereby, the risks encountered in internal and external business environments could be perceived in two different ways: either as opportunities or threats or as both depending on the circumstances. The same source of risk may be perceived as an opportunity as they deliver advantages to the firm while it may be perceived as a threat if it delivers disadvantages to the firm.

However, past entrepreneurial risk studies were often biased towards the negative or the downside impact of risks as they failed to grasp the opportunities that risks can deliver. For example, some scholars (Chavas, 2004) provided neither a negative or positive bias in their definitions, some scholars defined risk with a more negative bias (Hardaker, Richardson, Lien, & Schumann, 2004; A. Miller et al., 2004; Moschini & Hennessy, 2001). As evaluating only the negative side of the risk depicts only one side of the risk perception of entrepreneurs, the researchers began to broaden their understating of the positive side of risk. Thereby the studies conducted by scholars such as Detre et al. (2006); (Pinochet-Chateau et al., 2005; Shadbolt et al., 2010; Talavera, 2004) managed to change the way the risk perceptions were understood. These studies were able to highlight that risks and uncertainties not only have downside explores but also upside potentials too. Moreover, as explained under the entrepreneurship section above, being proactive is one of the key dimensions that typify entrepreneurial firms. They seek to exploit opportunities (Keh et al., 2002; Lumpkin & Dess, 2001). Thereby, entrepreneurial firms should be cable of identifying the opportunities or the upside potentials of the sources of risks while they are also able to see the downside exposures or threats arise from them. However, the literature on the upside potential of the sources of risks is still evolving and no significant empirical studies were conducted with SMEs or SMEs in developing economies.

3.3.3.2.3 Relationship between perceived sources of risk and adoption of risk management strategies

The literature on perceived risk as a determinant of risk behaviour and risk management is not scarce compared to studies on its opportunity potential. Two studies conducted by Sitkin and Pablo (1992); (Sitkin & Weingart, 1995) are the most commonly cited normative literature to explain the impact of risk perception on risk behaviour. Sitkin and Pablo (1992) defined risk perception as a decision maker's assessment of the risk inherent in a situation. The authors proposed different relationships between risk propensity, risk perception and risk behaviour. First, they conceptualised risk propensity as a

determinant of risk perception, suggesting that “decision makers who have a risk-seeking propensity will perceive risks to be lower than decision makers who have a risk-averse propensity”. According to Sitkin and Pablo (1992, p. 19) a risk-seeking decision maker may attend to and weigh positive outcomes more highly and, thus, will tend to overestimate the probability of gain relative to the probability of loss and vice versa for risk-averse decision makers. Even though they have not clearly mentioned about upside and downside potentials of risks, the above statement hints their thoughts about entrepreneurs who seek risk weighing more on positive outcomes of risk. (Sitkin & Pablo, 1992) defined risk behaviour as individuals' decision-making behaviour in risky contexts and posited that risk behaviour is influenced by risk perception through risk propensity of decision makers. Their proposition was that when the risk perception is higher the association between risk propensity and risk behaviour is strong except that for risk-seeking decision makers this effect will reach a limit defined by their propensity (Sitkin & Pablo, 1992, p. 30). Sitkin and Weingart (1995) implemented two studies to test the risk behaviour model proposed by Sitkin and Pablo (1992). The authors hypothesised that the degree to which individuals make risky decisions is negatively associated with their level of perceived risk while the effect of risk propensity on risky decision-making behaviour is also mediated by risk perception. Using two samples of business administration undergraduate students Sitkin and Weingart (1995) empirically supported the notion of risk perception acting as a mediator of risk behaviour.

Apart from the above two dominant studies, several other scholars carried out empirical studies to investigate the impact of risk perception on the adoption of risk management strategies. However, it was interesting to note that most of these studies were based on farm management rather than business management by taking farming households as respondents. Deviating from the notion proposed by Sitkin and Pablo (1992) risk perception as mediating variable of the relationship between risk propensity and risk behaviour, van Winsen et al. (2016) proposed a direct relationship between risk perception and implementation of risk management strategies. Using data from 500, Belgium farmers they investigated attitudes towards farming, perceived past exposure to risk, socio-demographic characteristics, farm size, perceptions of the major sources of farm business risk, risk attitudes, and the intention to apply common risk management strategies. However, statistical analysis was failed to identify any significant association between risk perception and implementation of risk management strategies.

Two similar empirical studies Meraner and Finger (2017) and Meraner and Finger (2019) also investigated the relationship between risk perception and risk strategies using a small sample (n= 64 and n=52 respectively) of German farmers. Meraner and Finger (2019) defined risk perception considering only the downside of sources of risks and stated that risk perception is the combination

of the probability of an uncertain event happening and the incidental impact or negative consequence. However, they have considered both risk impact and occurrence of sources of risks to calculate the perceived risk scores for the analysis. Meraner and Finger (2019) found that high perception of market risks decreases the probability of farmers focus on on-farm agricultural risk management strategies compared to off-farm strategies (p. 132) while the higher perception of other risks (i.e. workforce, societal acceptance) increases the probability of farmers focusing on on-farm risk management strategies.

Ahsan (2011) and Iqbal et al. (2020) are two empirical studies found in the literature that investigated the relationship between perceived risk and risk management strategies in relation to the Asian and developing country context. However, these two studies have also considered farmers and farming households as their study groups. Based on the literature, Ahsan (2011) explained that risks can be perceived as both upside and downside and stated that it is a subjective feeling of uncertainty that a person could gain or lose from the transaction. However, both Ahsan (2011) and Iqbal et al. (2020) have only considered perceived threats of sources of risks during their investigation as most people typically place greater weight on the potential negative outcomes of risk (Botterill & Mazur, 2004). Iqbal et al. (2020) reported different relationships between different risk perceptions and risk management strategies. For example, farmers who perceived labour and market information risk to be important risk sources showed a willingness to adopt strategies such as capital management, information management, and diversification while production risk was associated with capital management and diversification strategies (Iqbal et al., 2020, p. 12).

The above compilation of literature sets the background for this study by exploring what previous studies explored the role of perceived risk in adopting risk management strategies. It also highlighted the gaps in literature where scholars considered only the downside of risks their respondents face. Further, the data on perceived risks were mostly gathered in terms of their impact but the probable occurrence of the respective risk sources was not considered. Moreover, similar to other risk aspects, the studies were mainly conducted in developing and Western-European countries and investigated risk perceptions of farmers and farming households. Hence, in relation to perceived sources of risks, there are gaps in the literature for empirical studies conducted in MSMEs operating in developing country contexts that consider both upside and downside perceptions of different sources of risks.

3.4 Summary

This chapter reviews applicable theories to the research problem along with necessary support and evidence from the empirical literature as appropriate. The chapter consisted of two main pillars of entrepreneurship literature including literature related to differentiating entrepreneurial and non-

entrepreneurial firms and entrepreneurial risk management. The chapter began with an introduction to the concept of entrepreneurship along with a review of the evolution of the concept. The review identified that scholars even in the early entrepreneurship literature attempted to differentiate between entrepreneurial and non-entrepreneurial firms using various criteria that they found suitable. Based on the literature, the concept of EO was identified as an appropriate criterion to differentiate between two firm groups, but there is limited empirical literature evidence especially from developing country contexts.

The literature review revealed the relationship between risk and entrepreneurship. Several different categories of risks and risk management strategies were identified. Demographic characteristics and risk-related variables are identified as the main factors that influence the risk management by MSMEs. According to the literature, two risk-related variables including risk propensity and risk perception were identified as the risk-related factors that could influence the risk management by these small firms.

Chapter 4 Method

4.1 Introduction

This chapter describes the research method employed in this study and sets out the way in which the research questions were addressed. The overarching research question of this study is; “Do the entrepreneurial micro and small-scale firms (MSEs) in the agriculture food processing sector in Sri Lanka manage the risks they face any differently from other non-entrepreneurial MSEs operating in the sector?” (Are they different?)

In order to answer this question, first, it had to be determined if such entrepreneurial firms existed within the sector. (Do they exist?). Having confirmed their existence, and established that there were differences in how the two firm types managed risk, the final question for this study was to identify the factors that determined the risk management behaviour of these MSEs operating in the agriculture food processing sector in Sri Lanka. (What factors influence their adoption of risk management strategies?).

In order to answer these questions, a preliminary study was first conducted to establish the existence of entrepreneurial firms among the agriculture food processing MSEs in Sri Lanka. The approach used for this study is described in section 4.2. To answer the other research questions, it was decided to use a mixed-method approach and the rationale for choosing this approach is described in section 4.3. Because there is a range of mixed methods approaches, a suitable approach had to be chosen that would answer the research questions. It was decided to use an exploratory sequential mixed methods approach and the rationale for this choice is provided in section 4.4 along with a description of the approach. The mixed-methods approach comprised a qualitative and a quantitative research phase. In section 4.5 the design of the qualitative research phase is described and justified. In this section, the sampling strategy, data collection protocol, and data analysis procedures will be described. In section 4.6, the quantitative phase is described. This section describes how the results from the first phase were used to inform the design of the survey used in the quantitative phase and why a survey approach was chosen. The survey approach is then described including the design and testing of the survey instrument, the sampling strategy, the data collection protocol, and a description of the statistical methods that were used to analyse the data. The chapter concludes with a summary.

4.2 The preliminary study

At the start of the study, it was important to establish that entrepreneurial firms exist in the agriculture food processing sector in Sri Lanka, before moving on to answer the overarching research question that was “Do the entrepreneurial micro and small-scale firms (MSEs) in the agricultural food processing sector in Sri Lanka manage the risks they face any differently from other non-

entrepreneurial MSEs operating in the sector?” As such, a preliminary study was undertaken to establish if entrepreneurial MSEs operated in the Sri Lankan agricultural food processing sector.

Based on the literature (Carland et al., 1984; Covin & Slevin, 1989; D. Miller, 1983; D. Miller & Friesen, 1982; Stewart et al., 1999), the level of entrepreneurial orientation (EO) of a firm was identified as the most suitable criteria to determine whether a firm is behaving in an entrepreneurial manner or not. Apart from determining if entrepreneurial firms exist in the agriculture food processing sector in Sri Lanka, this preliminary study was also designed to gather contextual data about the agricultural food processing sector in Sri Lanka. This included identifying the relevant organizations or individuals who could provide data on firms operating in this sector, the different types of firms that operated in the sector, the types of products they produced, and the different business structures they operated under.

To determine if entrepreneurial firms exist in the agricultural food processing sector in Sri Lanka, it was decided that a case study approach combined with the Entrepreneurial Orientation (EO) screening questionnaire would be the most suitable research strategy for answering this question. As the intention of the preliminary study was to explore the nature of entrepreneurial orientation and the context of the agriculture processing sector in Sri Lanka, using a combined approach was deemed appropriate. The case study interviews were mainly used to explore the context of these small firms while the EO screening questionnaire was used to determine their entrepreneurial/non-entrepreneurial status. However, a rigid qualitative or quantitative research design including a case study approach was not applied in this preliminary study as it was only intended to explore the context. The sampling, data collection, data analysis procedures, and ethical considerations are explained in the next sections of this chapter. It is important to reiterate that standard qualitative/quantitative data collection or analysis procedures were not adopted in this preliminary study while these standard qualitative and quantitative techniques are adopted and discussed in relation to the main study later.

The following sections will set out the sampling strategy used in the preliminary study, the data collection procedure, the data analysis procedure, and the ethical considerations.

4.2.1 Sampling strategy

To determine if entrepreneurial firms exist in the agriculture food processing sector in Sri Lanka it was important to identify suitable food processing firms or case studies. This was achieved through the support of the National Enterprise Development Authority (NEDA), which is a government organization that is committed to the development of the micro, small and medium-scale enterprise (MSME) sector in Sri Lanka. This organization works closely with MSME owners across the country and

supports them through various programmes. NEDA employs Development Officers attached to each Divisional Secretariat Division (i.e. an administrative division) and these officers are responsible for the MSMEs registered in their division. Development officers from selected districts were identified as the best mediators to identify suitable case firms for the preliminary study. Districts from the Western and North-Western provinces were selected to carry out this preliminary study considering the operational feasibility and accessibility. Hence convenience sampling technique was adopted (Taherdoost, 2016a). Colombo district was selected from the Western province while Kurunegala district was selected from the North-Western province. These districts were selected on the basis of operational feasibility (i.e. closer geographical proximity to the location of the researcher to ensure accessibility). These districts were also chosen because they had a high proportion of established food processing firms (ASI, 2015).

An Assistant Director from NEDA was contacted and permission was sought to obtain support from the organisation's development officers to select suitable MSE cases. NEDA was provided with a formal request explaining the background and objectives of the study. The development officers were then provided with the required parameters to select a firm to be used as a potential case for the preliminary study. The criteria included a firm that: (a) produced agriculture-based food products (eg: spices, processed fruit, and vegetables, coconut products, etc.), (b) employed less than 50 employees, and (c) had been continuously operating for at least three consecutive years. Using the criteria, the development officers provided a list of ten potential respondent firms. These respondents were contacted over the phone, and the background and objectives of the research were explained to them and then they were asked if they were willing to participate in the study. Based on the initial criteria, seven out of the ten firms were selected as suitable for the preliminary study. At this stage, all these firms were identified as potential MSE cases without knowing whether they were entrepreneurial or not.

It is also important to note that the researcher understood the risk of using this approach as there was a chance that none of these firms show any entrepreneurial characteristics. That was exactly the main purpose of doing this preliminary study at the early stage of the research process as it will allow the researcher to change the direction of the research if there are no entrepreneurial firms present in the sample selected. As this study involves a quantitative phase where it requires surveying a set of entrepreneurial and non-entrepreneurial firms, it was important to identify that there is a considerable proportion of entrepreneurial firms do exist in the agriculture food processing sector in Sri Lanka.

4.2.2 Data collection

The first step in the data collection process was to design the data collection protocol (Jacob & Furgerson, 2012). Semi-structured interviews were chosen as the main data collection technique (Eisenhardt & Graebner, 2007) because they enable the researcher to choose the sequence and way in which questions will be asked. However, a questionnaire was also used during the interview to determine the entrepreneurial orientation of the case firm. The concept of Entrepreneurial Orientation (EO) and its applicability in determining the entrepreneurial nature of a firm was discussed in the literature review chapter. First, based on the literature (Covin & Slevin, 1989) an EO questionnaire was developed to be used as a screening test to determine the entrepreneurial status of a case firm (See Appendix I). This EO test questionnaire included 32 five-point Likert scale statements (i.e. ranging from strongly agree to strongly disagree) adapted from the literature; that were categorized under five categories: 1) innovativeness, 2) risk-taking, 3) proactiveness, 4) autonomy, and, 5) competitive aggressiveness. The scale developed by Covin and Slevin (1989) to measure EO was used as the primary source of developing the EO measurements along with the aid of scales developed by Chang, Lin, Chang, and Chen (2007), Hongyun et al. (2014) and Hughes and Morgan (2007). This preliminary study was also designed to evaluate the suitability of this EO approach to differentiate between entrepreneurial and non-entrepreneurial firms. The questionnaire was originally prepared in English and later translated into the Sinhalese language. The EO test questionnaire was mainly used to characterise the entrepreneurial orientation of the respondents (Chang et al., 2007; Covin & Slevin, 1989; Hughes & Morgan, 2007). The data collection protocol was based on the literature and the main topic areas included the status of the business, the owner's background and personal profile, family involvement, the types of risk faced by the business, and the risk management strategies adopted by the owner.

The preliminary study of seven micro/small-scale agricultural processing firms was undertaken in early February 2018. Once the respondents were selected, they were contacted, and a time and date were made for the interview. The researcher interviewed the respondents at their place of work or home because it was believed that it would be less threatening to the respondent (Yin, 2009). Upon arrival, the researcher introduced herself and initiated a period of ice-breaking conversation with the respondent to build rapport (Schutt, 2019; Yin, 2009). The researcher then provided the respondent with an information sheet and explained the nature of the research and their involvement. The respondent was asked to sign a consent form and the researcher asked permission to tape the interview. The researcher then began the interview. In the early part of the interview, the respondent was asked about their background and profile and the nature of their business. These less threatening questions allowed the respondents to relax (Schutt, 2019). Then the respondent was presented with

the EO questionnaire and asked to fill it out. The researcher assisted the respondent to fill out the questionnaire by providing clarifications where necessary. Once, the questionnaire was completed, data were then collected on the types and sources of risk faced by the business, and the risk management strategies adopted by the owner (Schutt, 2019).

4.2.3 Ethical considerations

All research involving human and animal subjects, or biological tissues requires review by an independent committee to determine whether the proposed research poses inappropriate risks to either the subjects or the researchers. This process is generally carried out by the Human Research Ethics Committee (HREC) of the organisation that hosts the research (Williams, 2000). Even though the preliminary study was conducted as an exploration of the context of Sri Lankan agriculture food processing MSEs, it still involved interviewing and surveying people. Hence, following a strict code of ethics was important. Thereby, an ethical clearance application was made to the Human Ethics Committee of Massey University and the project has been assessed as low risk (see Appendix II).

In order to ensure the required ethical code of conduct, informed consent was obtained from all the respondents before the data collection. They were verbally informed about the objectives of the research and were briefed about the data collection process through the NEDA Development Officers. Their verbal consent was obtained before the researcher meets the respondents in person. Upon meeting the respondents, they were presented with an information sheet (see Appendix III) which outlined all the required information of the research including background, the objectives, information of the researcher, the ways and means of collecting the data, rights of the respondents and information disclosure agreements. This information was also explained verbally to each respondent to ensure their understanding of the research. They were made clear about their voluntary participation in the research, their right to remain silent on any question that they do not feel comfortable answering, their right to answer any questions for clarifications, and their right to withdraw from the research at any point. This step was important as the respondents were contacted by the government officers who guide and monitor their business activities. It was important to make sure that they feel no obligation to participate in the research or if they decide to withdraw from the research that will not affect their relationship with the government officer negatively. Finally, they were asked to read and sign the consent form (See Appendix IV) that confirmed their willingness to participate in the research and consent to tape-record the interviews. All these documents were originally prepared in English and later translated into the Sinhalese language for easy understanding of the respondents. The next section describes the data analysis and summarisation methods used to comprehend the data gathered through the preliminary study.

4.2.4 Data analysis

As noted at the beginning of the preliminary study section, standard procedures of qualitative or quantitative data analysis were not used to analyse the data gathered in this preliminary study. Simple analytical tools like mean calculations were used to analyse the quantitative (i.e. EO screening test) data while interview recordings were transcribed to get an understanding of the present context of agriculture food processing firms. Other than transcribing, no other qualitative data analysis tools were used. Moreover, the results of this preliminary study will not be discussed separately under the results and discussion chapter as this was done as a mere exploration of the context and availability of relevant firm groups.

After the interview, the quantitative data from the EO questionnaires were analysed descriptively by calculating mean values for each EO dimension (Dung et al., 2020; Merlo & Auh, 2009). The seven respondent firms were treated as individual cases and an overall EO score was generated for each case. The overall EO score was calculated by averaging all thirty-two EO statements. The overall score ranged from +1 to +5 based on the five-point Likert scale responses. Therefore, respondent firms that obtained an overall score of three or above out of a maximum potential score of five were classified as “entrepreneurial” and *vice versa* (Covin & Slevin, 1989; D. Miller & Friesen, 1982). Out of the seven respondents studied, four were identified as entrepreneurial with overall EO scores above 3.0 while three were identified as non-entrepreneurial. The aforementioned interviews that took place with these case firms confirmed that their overall EO scores were compatible with their respective entrepreneurial and non-entrepreneurial behaviour. Their behaviour and thinking patterns related to innovativeness, risk-taking, marketing, competitiveness, and overall firm performances were compatible with the literature.

As noted previously, the seven interview recordings were transcribed for documentation purposes. However, the data gathered through the interviews were not analysed qualitatively but used as information to understand the nature and context of these firms to develop the study further. Moreover, the findings of this preliminary study are not recorded in the results and discussion chapter.

4.2.5 The role of the preliminary study

The preliminary study determined the existence of entrepreneurial firms in the agriculture food processing sector in Sri Lanka. This was important because if such firms were found not to exist, then there was no point in continuing the study. The preliminary study was also important in helping the researcher understand the context surrounding micro and small-scale agricultural food processing firms in Sri Lanka. It provided insights into the types of firms operating in the industry, the main product categories that these firms produced, the business structures they used, the innovations adopted by such firms, and their marketing approaches. Most importantly, the case firms were useful

to obtain background information about their sources of risk, their perceptions of those sources of risks, and how they responded to those risks (i.e. their choice of management strategies). Moreover, the study helped to identify and build contacts with relevant government organizations that are responsible for MSME development. This information was useful for the development of the study especially for identifying the sampling frame for qualitative and quantitative data collection phases.

In a summary, the preliminary study answered the first research question by confirming the existence of entrepreneurial firms and the appropriateness of the EO test to differentiate between entrepreneurial and non-entrepreneurial firms. However, it also revealed that there is a lot to explore on the risk behaviour of these firms in-depth. Therefore, it was important to choose an appropriate research approach that can adequately address the overarching research question. The next section of this methodology chapter explains and justifies the selection of the most appropriate research design for the study.

4.3 The choice of the research design for the study

According to Creswell (2014b), “research designs are plans and the procedures for research that span the decisions from broad philosophical assumptions to detailed methods of data collection, analysis and interpretation” (p. 3). Creswell and Creswell (2017) identified three types of research designs: quantitative, qualitative, and mixed methods. They argued that the researcher should be able to select the design best suited for the study based on the research problem and the specific research questions. Creswell and Clark (2011) suggested that qualitative designs may be best for studies that aim to explore a problem, honour the voice of participants, or convey the multiple perspectives of participants. In contrast, they argued that quantitative designs may be selected where the researcher seeks to understand a relationship between variables or to generalize the findings to a larger population. Research problems that are best suited to a mixed-method approach are those in which one data source may be insufficient, results need to be explained, or a theoretical stance needs to be employed (Creswell & Clark, 2011). Accordingly, a mixed-method approach is useful in situations where both qualitative and quantitative data are needed to address the research questions or in situations where in-depth qualitative data are needed to explain the quantitative results. This is further elaborated by Driscoll, Appiah-Yeboah, Salib, and Rupert (2007) who suggested that mixed-methods designs can provide pragmatic advantages when exploring complex research questions where qualitative data provide a deep understanding of survey responses, and statistical analysis can provide a detailed assessment of the patterns of those responses.

In relation to this study, the literature review has already established the current knowledge on risk management aspects of MSEs including their attitudes towards risk, perceived sources of risks, and

the risk management strategies adopted by these firms. However, most of the scholars made no clear distinction about whether their studies investigated entrepreneurs, non-entrepreneurs, or MSE owners-managers in particular. Most of these studies have used these terms interchangeably or alternatively. This study aimed to understand the difference between entrepreneurial and non-entrepreneurial firms in terms of their risk propensities, perception of sources of risk, and their adoption of risk management strategies. Moreover, most of the studies reported in the literature were from a developed country context as opposed to a developing country context. Few studies were carried out in Sri Lanka or other similar Asian countries. Further, those studies that were specific to Sri Lanka or other similar Asian countries did not focus on the food processing sector in a developing country context.

Given the nature of the research problem, the uniqueness of the research context, and the study population, it was clear that this study required data from multiple perspectives. It needed in-depth qualitative data to understand the context and industry-specific risk behaviours, but it also needed quantitative data to generalise the findings to a larger population. By looking at the approaches used by previous scholars, this needs to obtain in-depth information on entrepreneurial behaviour, and using survey data to generalise the findings will make this study more complete. As a result, the study will be able to provide a more comprehensive set of information on the risk management aspects of both entrepreneurial and non-entrepreneurial small businesses in the food processing sector in Sri Lanka. Therefore, it was concluded that the adoption of a mixed-method design was best for this study.

4.3.1 The choice of the mixed-method design

Creswell and Clark (2011) in their book on *“Designing and Conducting Mixed Method Research”* stated that the earliest definition of a mixed-method approach came from Greene, Caracelli, and Graham (1989) who carried out their research work in the field of evaluation. Greene et al. (1989) emphasized the mixing of methods and the nature of the philosophy (i.e. paradigms) the users of such an approach must have by stating, “In this study, we defined mixed-method designs as those that include at least one quantitative method (designed to collect numbers) and one qualitative method (designed to collect words), where neither type of method is inherently linked to any particular inquiry paradigm” (p. 256). Ten years later, Tashakkori and Teddlie (1998) took this definition to the next level suggesting that a mixed-method is not just the mixing of two methods, but the mixing of all phases of the research process from identifying the research problem to drawing conclusions. Accordingly, Tashakkori and Teddlie (1998) defined mixed methods as “the combination of qualitative and quantitative approaches in the methodology of a study” (p. ix).

As one of the latest and most comprehensive explanations of the mixed-method approach, Creswell and Clark (2011) stated that “in mixed methods, the researcher collects and analyses both qualitative and quantitative data; mixes the two forms of data concurrently by combining them, sequentially by having one build on another, or embedding one within the other; gives priority to one or both forms of data; uses these procedures in a single study or in multiple phases of a study, and combines the procedures into specific research designs that direct the plan for conducting the study” (p. 5). This definition relies on the core characteristics of mixed-method research and in turn is quite comprehensive and can be applied to many fields of research.

Mixed method studies usually encompass at least one qualitative strand and one quantitative strand (Figure 4.1). Teddlie and Tashakkori (2009) define “strand” as a component of a study that encompasses the basic process of conducting quantitative or qualitative research: posing a question, collecting data, analysing data, and interpreting the results. According to Creswell and Clark (2011), there are four key decisions involved in choosing an appropriate mixed-method design to use in a study; (1) the level of interaction between the strands, (2) the relative priority of the strands, (3) the timing of the strands and (4) the procedure for mixing the strands.

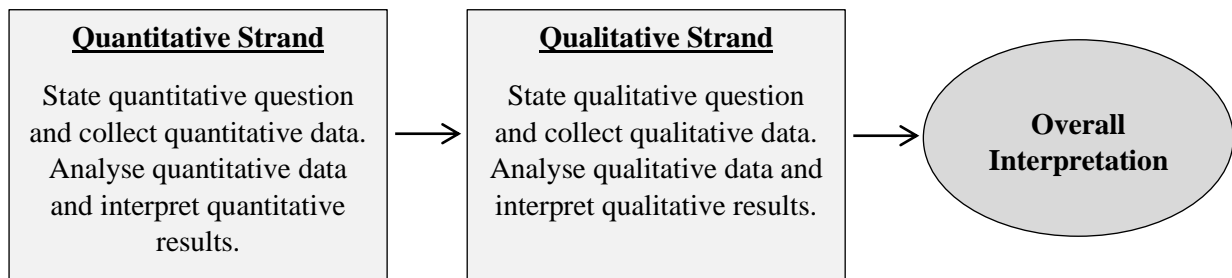


Figure 4-1. An example of quantitative and qualitative strands in a mixed-method study
 Source: Creswell and Clark (2011, p. 64)

Creswell and Clark (2011) suggest that the mixed-method researcher should consider these four decision points and select a design that reflects the interaction, priority, timing, and mixing that they desire in their study. They set out six major mixed-method designs that are commonly used in practice. The six designs are; convergent parallel design, explanatory sequential design, exploratory sequential design, embedded design, transformative design, and multiphase design. It is the responsibility of the researcher to select a design that best matches the research problem and reasons for mixing in order to make the study manageable and operationally feasible (Tashakkori & Teddlie, 2010).

The convergent parallel design is used when the researcher simultaneously implements both the quantitative and qualitative strands during the same phase of the research process, keeps the strands independent during the analysis, and then mixes the results during the overall interpretation. The explanatory sequential design occurs in two distinctive phases where it starts with the collection and

analysis of quantitative data, which has the priority for addressing the research questions. This phase is followed by the subsequent collection and analysis of qualitative data where the researcher interprets how the qualitative results help to explain the initial quantitative results (Creswell & Clark, 2011; Leech & Onwuegbuzie, 2009).

Creswell and Clark (2011) explain that in contrast to the explanatory design, the exploratory design starts with the collection and analysis of qualitative data as the first phase and building upon the qualitative results. The researcher conducts the second, quantitative phase to test or generalize the initial findings. The researcher usually develops a quantitative instrument based on the qualitative results and uses it to assess the prevalence of those variables in a large group of respondents. Moreover, the researcher may use the initial qualitative results to interpret the quantitative results (Leech & Onwuegbuzie, 2009). The embedded design is explained where the researcher collects and analyses both quantitative and qualitative data within a traditional quantitative or qualitative design as an experiment or as a case study (Creswell & Clark, 2011).

The transformative design is a mixed-method design where the researcher shapes the research process within a transformative theoretical framework. The key decisions for this design related to the interaction, priority, timing, and mixing are made within the context of the transformative framework (Creswell & Clark, 2011). As stated by Creswell and Clark (2011), the final category is the multiphase design which combines both sequential and concurrent strands over a period of time. As noted earlier, the researcher must select an appropriate design based on the nature of the study and the questions that need to be answered.

Out of these six design types identified by Creswell and Clark (2011), the exploratory sequential mixed method design was selected as the most suitable approach for this study. The primary purpose of the exploratory design is to explore and provide better insights into the research problem and the phenomena of study (Creswell & Clark, 2007). It is also intended to generalize qualitative findings based on a few individuals from the first phase to a larger sample gathered during the second phase (Creswell & Clark, 2011; Morse, 1991). In this design, the researcher develops an instrument as an intermediate step between the phases that build on the qualitative results and is used in the subsequent quantitative data collection. Thus, this design is also referred to as the instrument development design (Creswell, Fetters, & Ivankova, 2004) or the quantitative follow-up design (D. L. Morgan, 1998).

Creswell and Clark (2011) stated that when a researcher has insufficient information about a) the questions that need to be asked in a survey, b) the variables that need to be measured, and/or c) the theories that may guide the study, it is best to first explore the phenomena qualitatively to learn what

questions, variables, and theories can answer the research questions. This design is also useful when the researcher needs to develop and test an instrument because such an instrument is not available (Creswell, 2014a). Even though the preliminary study did confirm the existence of entrepreneurial and non-entrepreneurial firms in the agriculture food processing sector in Sri Lanka there is no source to get an in-depth understanding of the entrepreneurial nature of these firms. It is not only important to understand their numerical level of EO but also the strategies they adopt to reflect on their entrepreneurial and non-entrepreneurial nature. This exploration was expected to support the discussion of risk management by these MSE firms as their entrepreneurial/non-entrepreneurial nature plays an important role in the process of risk management (Karagozoglu & Brown, 1988).

Moreover, little is known about the existing risk behaviour and management of micro and small-scale business owners in the agriculture food processing sector in Sri Lanka including the sources of risk that they face and the respective risk management strategies that they use, it is difficult to develop a suitable survey instrument to explore this area effectively. Further, there is limited literature about the risk management aspects of MSEs, especially in a developing country context. Thus, a qualitative phase is required to gather information about the micro and small-scale business owners' risk propensity, perceived sources of risk, and adoption of risk management strategies (Figure 4.2). This information was used to design a suitable survey instrument to identify and understand the risk management aspects of food processing MSEs in Sri Lanka in the second phase of the research. This instrument was then administered among a large group of MSE owners in order to gather the required quantitative data with the purpose of generalizing the findings. The qualitative findings related to both EO and risk aspects were also used to interpret the outcome from the quantitative phase of the study (Figure 2).

The next section of this chapter discusses the research methods adopted in the first phase (i.e. qualitative phase) of the exploratory sequential mixed-method design. The section starts with an elaboration of the objectives of the qualitative phase and then covers the choice of research strategy, sampling strategy, development of data collection protocols, interview procedures, ethical considerations, and the qualitative data analysis techniques adopted in the study.

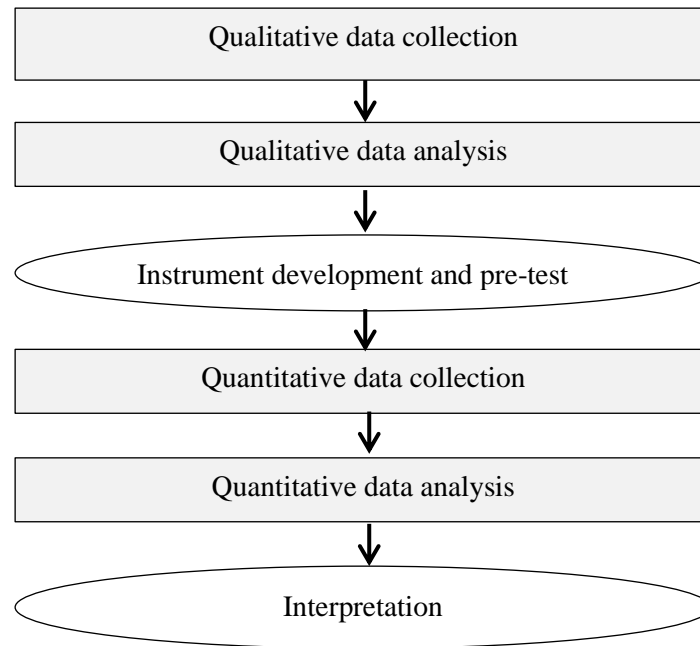


Figure 4-2. The exploratory sequential design procedure

4.4 The qualitative phase

The primary objective of the qualitative phase was to explore and understand the nature of entrepreneurial and non-entrepreneurial MSEs in the agricultural food processing sector in Sri Lanka. This phase was designed to learn more about the nature of entrepreneurial orientation of these firms in terms of their innovativeness, risk-taking, proactiveness, competitive aggressiveness, and autonomy. The specific objectives of the research during the qualitative phase in relation to each case firm were:

1. To describe the key characteristics of the firm (eg: firm type, product type, the composition of employees, etc.)
2. To describe the key characteristics of the firm owner
3. To understand the presence of five EO dimensions (i.e. innovativeness, risk-taking, proactiveness, competitive aggressiveness, and autonomy) and how these dimensions have been embedded in the firm
4. To identify different sources of risks faced by the firm and their perception of these sources of risk
5. To understand different risk management strategies adopted by the firm to manage the different sources of risks it faces

Based on the objectives of the qualitative phase, the data was collected under two main managerial aspects of case firms. The first set of data was gathered to understand and elaborate on the presence of entrepreneurial orientation and how they have been embedded in their firms. The second set of

data was gathered to understand their risk-related aspects including sources, attitudes, and management. The following sections describe the steps in the qualitative phase of the study.

4.4.1 Choice of research strategy

The first step in the qualitative phase was to determine the most suitable approach to answer the research questions and achieve the research objectives (Yin, 2011). The case study approach was identified as the most commonly used research approach for qualitative studies. According to Yin and Davis (2007), a researcher could use the case-study method in order to understand a real-life phenomenon in depth where such understanding may encompass important contextual conditions if they are highly pertinent to the phenomenon of study. This logic helps to distinguish case studies from other research methods such as experiments and surveys (Yin, 2009).

Further, a case study is best suited for a study when: (a) the proposed research addresses a contemporary phenomenon, (b) the researcher does not require control over those involved in the study, (c) it addresses "how" and "why" questions; and, (d) the contextual conditions are pertinent to the phenomenon of the inquiry (Creswell, 2014a; Yin, 2009). Investigating the nature of EO and the risk behaviour of agricultural food processing MSEs is considered a contemporary phenomenon. Therefore, the researcher seeks to understand how these businesses adopt EO strategies and manage the risks they face, and these aspects must be understood in relation to the context and the operating environment of the firms. Hence, it is concluded that a case study is best suited for the first phase of the study.

Having selected the case study approach, the first choice the researcher must make is between a single-case study design and a multiple-case study design. Multiple-case study designs have distinct advantages and disadvantages in comparison to single-case study designs. The evidence from multiple-case study designs is more convincing, and therefore, the overall study is regarded as being more robust (Herriott & Firestone, 1983). At the same time, the foundation for single-case study designs cannot be fulfilled by multiple-case study designs as single-case study designs are mostly used for rare, critical, or revelatory cases which require in-depth investigations of the phenomenon of interest. Hence, single-case study designs are mainly adopted in studies that require in-depth information on a given concept. The decision to implement a multiple-case study design can require an extensive amount of resources and time compared to a single-case study design. Yet, the multiple-case study designs contribute towards the breadth and variety of information in the study. Eisenhardt (1989) suggests that given the strength of theory generation, researchers should give priority to multiple-case study designs over single-case study designs where possible. The focus of this study was mainly on comparing two groups of firms. Therefore, choosing the multiple-case study design over the

single-case study design was an inevitable decision. Moreover, it was also decided to adopt a multiple-case study design even within one firm group to add more breadth to the study.

According to Yin (2009), there are two approaches to multiple-case study designs namely; literal replication and theoretical replication. The logic underlying the use of a multiple-case study design will remain the same regardless of the approach selected. Each case must be carefully selected so that it either, (a) predicts similar results (i.e. a literal replication) or (b) predicts contrasting results, but for anticipatable reasons (i.e. a theoretical replication). The literal replication is used when the researcher believes that he will obtain the same results from different cases as the same theoretically relevant conditions hold. Alternatively, if a researcher selects cases in a way that generates different results because they are different in theoretically important ways, it is referred to as theoretical replication (Yin, 2009). Thus, as the researcher decides to move from a single through to a multiple-case study design and from literal to theoretical replication, this will increase the capability of developing a more powerful theory (Yin, 2009). Considering the above arguments in the literature, it was decided to adopt a multiple-case study design with both literal and theoretical replications for the purpose of this study in order to gather the required empirical data. Literal replication was applied as the study intends to do intra-group comparisons among entrepreneurial firms as well as among non-entrepreneurial firms. The firms in each group are expected to be theoretically similar and to produce similar results. Theoretical replication was also applied because the study focused on comparing two types of respondents (i.e. entrepreneurial versus non-entrepreneurial firms) that were expected to be theoretically different.

Yin (2009) further classifies case studies into two further designs: holistic and embedded (Figure 4.3). The researcher must choose an appropriate design between these two variants based on the type of phenomenon being studied and the research questions that need to be addressed (Yin, 2009). A holistic case is one where the case itself is the unit of analysis and there are no embedded units of analysis. In contrast, embedded cases include more than one unit of analysis and there are several components within the case that are investigated. Thus, it is apparent that the embedded case study best fits this study because it investigates a number of sub-units within the cases (i.e. five EO dimensions, sources of risk, perception of sources of risks, risk management strategies, and so on).

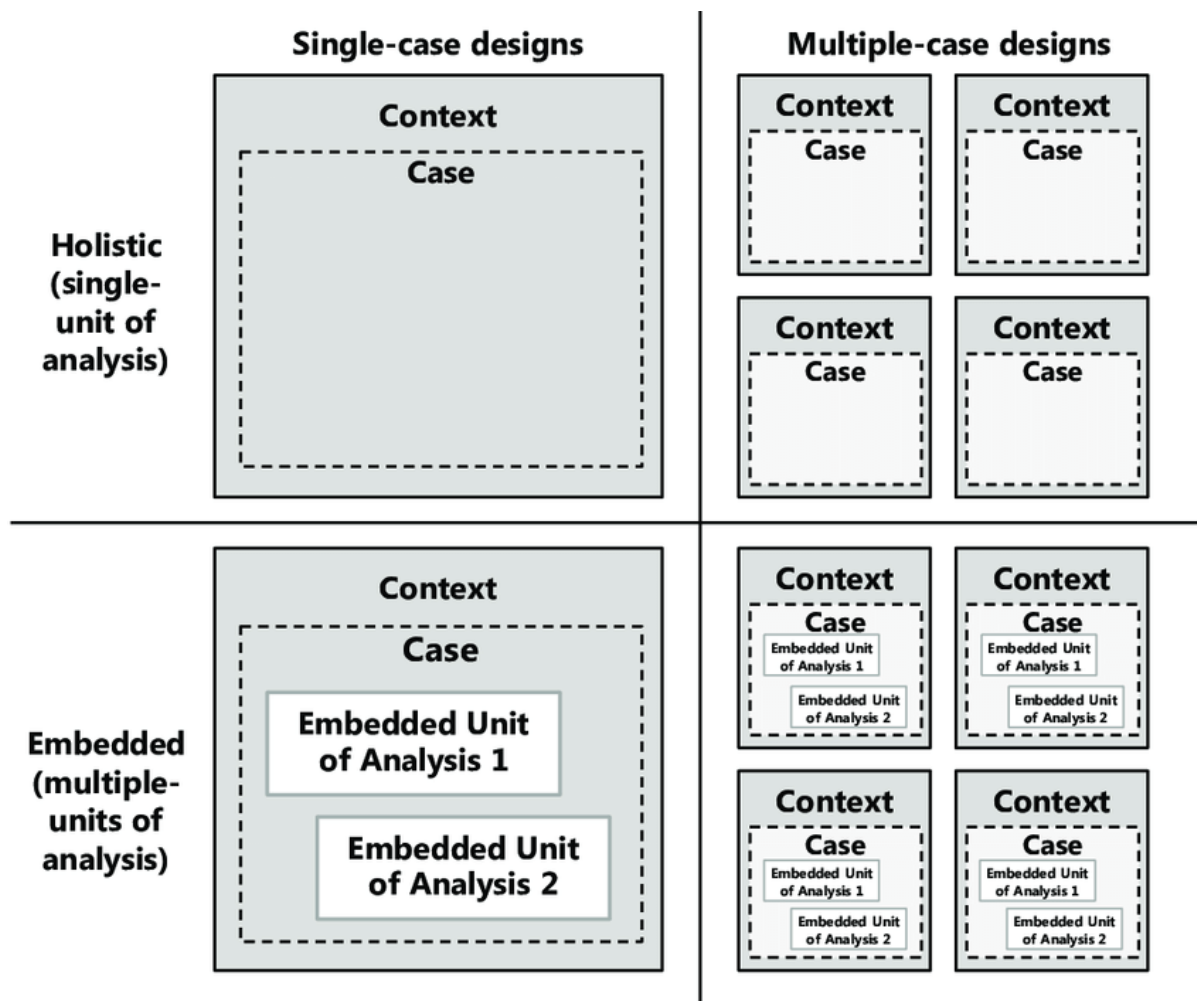


Figure 4-3. The basic types of designs for case studies (Source: Yin (2009))

4.4.2 Sampling Strategy

Qualitative research is different from quantitative research in terms of sampling techniques (Creswell, 2014b). After considering the sampling techniques set out by several authors (M. N. Marshall, 1996; Patton, 1990; Yin, 2009) it was decided to use a purposive or theoretical sampling technique for this study (Patton, 1990; Saunders, Lewis, & Thornhill, 2009). The intention behind purposive sampling was to select participants that will best help the researcher understand the problem and the research questions (Creswell, 2014b). Purposive sampling is a non-random, non-probable sampling technique that solely depends on the deliberate choice of the researcher (Tongco, 2007). In purposive sampling, the researcher decides what needs to be known and sets out to find people who can and are willing to provide the information by virtue of their knowledge or experience (Etikan, Musa, & Alkassim, 2016). Etikan et al. (2016) further stated that, in addition to this knowledge and experience, a purposive sample ensures the respondent's availability and willingness to participate, and the ability to communicate experiences and opinions in an articulate, expressive, and reflective manner.

Moreover, the number of cases that should be studied in a case-study design is another concern for qualitative researchers. Eisenhardt (1989) recommended that between four to 10 cases would be the ideal number of cases to be included in a multiple-case study. Considering the practical limitations such as time, financial constraints, and operational feasibility (Eisenhardt, 1989) four cases (i.e. two entrepreneurial and two non-entrepreneurial cases) were chosen as the sample size for this phase of the study.

The study aims to select “entrepreneurial” and “non-entrepreneurial” firms from the pool of agricultural food processing MSEs in Sri Lanka in order to obtain an in-depth understanding of their entrepreneurial orientation and risk management. The cases were identified based on the information obtained from two government organizations (i.e. National Enterprise Development Authority (NEDA) and Small Enterprise Development Division (SEDD)) that are specifically dedicated to the development of MSMEs in Sri Lanka and who work closely with the MSME owners. Officials from these two organizations were informed about the requirements of the study and provided with a list of criteria that the case studies had to meet. As noted in the preliminary study, the first and most important criterion was that the firm must be processing an agriculture-based food product (i.e. fruit, vegetable, spices, etc). In order to ensure that the firm was an MSE, the firm must employ less than 50 employees or generate an annual turnover of less than 1.5 million USD (MIC, 2015). However, the number of employees was the main criterion for determining the firm size as most of these small firms had poor financial records which meant it was difficult to assess their annual turnover. The third criterion was their geographical location, as noted in the context chapter, the respondents were drawn from three selected provinces namely; Western, North-Western, and Central (ASI, 2015). Apart from these criteria, their availability and willingness to provide accurate data were also considered. The Development Officers were made aware of the background, purpose, and importance of this study towards the development of the MSME sector in order to ensure their genuine support. The officers were also asked to make potential respondents aware on the purpose and importance of this study to get their support as well. This step was important as the respondents were expected to spend their productive time without any direct compensation or benefit.

Accordingly, a list of eight potential MSE cases was obtained from NEDA and SEDD. In early August 2018, these potential MSE owners were contacted via telephone and asked if they would be willing to participate in the study. The purpose of the study was explained during the telephone conversation and a document outlining the purpose of the study, the participant’s rights, the method of data collection, and the time frame was sent to them in preparation for the data collection (Patton, 1990; Poba-Nzaou & Raymond, 2011). Once they had agreed to participate in the study, they were tested using the EO questionnaire in order to determine their level of entrepreneurial orientation. An overall

EO score was calculated by averaging the individual scores given for each EO statement by each respondent. Higher overall scores on the EO scale indicate a more entrepreneurial orientation, while lower scores were indicative of a more conservative orientation (Green et al., 2008). Respondents that obtained an overall score of three or above out of a maximum potential score of five were classified as entrepreneurial and *vice versa*. Accordingly, out of the eight respondents tested, four cases were selected based on their overall EO score. The four cases included the two firms with the highest EO scores (i.e. entrepreneurial) and the two firms with the lowest EO scores (i.e. non-entrepreneurial). The next section describes the process of developing the data collection protocol.

4.4.3 Development of the data collection protocol

Once the number of cases to be investigated was decided, the next step was to develop the data collection protocol to gather case study evidence. Yin (2009) identified six sources of evidence including; documentation, archival records, interviews, direct observations, participant observation, and physical artefacts. Each of these methods has its own advantages and disadvantages and the researcher needs to choose the best method based on the study objectives, types of data required, and nature of respondents. Out of these methods, 'interviews' was identified as the best-suited method of collecting data for this study along with making direct observations as a casual data collection method to support the data obtained through the interview approach.

Yin (2009) stated that preparing for the collection of qualitative data can be complex and difficult. If not done well, the entire case study investigation can be jeopardized, and all the initial work from the development of research questions and the theoretical framework will have been for naught. Yin (2009) identified interviews as one of the most essential and commonly used sources of case study information. Interview methods may share common features with survey methods yet, they are identified as guided conversations rather than structured queries. Rubin (1995) explained that the researcher may follow a consistent line of inquiry, but the actual stream of questions in a case study interview is more likely to be fluid rather than rigid. As such, the case study interview should operate on two levels at the same time; satisfying the line of inquiry required by the study while posing friendly and nonthreatening open-ended questions to the respondent.

Yin (2009) identified two types of interviews: in-depth and focused. In-depth interviews usually take place over an extended period of time under different settings. In these interviews, interviewees are regarded as informants rather than respondents where they are given the opportunity to express their opinion about events and interviews may be used as a source of information to find other respondents. During the focused interviews, a respondent is usually interviewed for a shorter period of time (e.g.: an hour) (Merton, Fiske, & Kendall, 1990). The interviews still remain open-ended and undertaken in a conversational manner, but mostly follow a certain set of guiding questions developed

beforehand. Accordingly, it was decided that the focused method was best suited for this study considering the limited time frame and the ability to ensure coherence among all four cases.

A data collection protocol was developed based on the research questions, specific research objectives set for the qualitative phase, and the literature on the risk behaviour of small firms (Yin, 2009). These protocol questions were different from typical survey questions, where they were used as reminders to help the interviewer regarding the information that needed to be collected. The main purpose of the protocol's questions was to keep the interviewer on track as the data collection proceeds (Yin, 2009). The protocol included open-ended questions or question prompts under several sub-sections. The first section of the protocol included, 'ice-breaking' or less threatening questions about the background information of the interviewee and their business. According to Jacob and Furgerson (2012), starting interviews with these basic questions builds the trust between the interviewer and the interviewee while it allows the interviewer to gather background and contextual data. The questions started with the history and present status of the business, production information, the owner's personal information (i.e. education, experience, etc), and then proceeded towards their motivation to start a business and their short and long-term goals, etc. The next section was focused on gathering information related to the EO of the firm. The questions included their introduction of innovations (i.e. product, process, market, and management), the way they manage and respond to competition, how they react towards market opportunities, their perception of debt and their decision-making style, etc (See Appendix V).

The third section of the interview gathered risk-related data from the respondent. The questions mainly covered three areas; the sources of risks that they have encountered in their business environment, the changes they have experienced in their business environments, and the strategies that they have adopted to manage those risks and cope with the changes. Questions were also included to gather information about how they have perceived the impact of those risk sources and business environment changes (i.e. positively or negatively). In terms of risk management strategies, the questions were designed to capture information about the strategies they have adopted during the past three-year period and also the strategies that they have planned to adopt in near future (See Appendix V). This protocol was originally prepared in English and later translated into the Sinhalese language. The protocol was proofread after the translation to ensure correctness, the simplicity of content, and to be free from technical jargon.

4.4.3.1 *Interview procedures*

For the interviews, it was decided to follow Yin (2009)'s approach, which is to investigate one case at a time in order to increase the feasibility of data collection and obtain a better understanding of the cases. Data collection was initiated in early August 2018 and completed by late October 2018.

As explained in section 4.5.2, the EO screening process has been completed with the selected respondents. Therefore, the respondents were already aware of their participation in the interview and their verbal consent to be involved in the study had already been obtained. They were contacted by telephone to confirm that they had been selected to be involved in the next stage of the study. Once the interviewees agreed to be involved in the next stage of the study, they were asked to select appropriate date, time, and venue for the interviews. This was designed to make the process less threatening for them (Jacob & Furgerson, 2012; Yin, 2009). As a result, all four interviews took place at the factory premises or residencies of the interviewees. Some of these small business owners did not own a separate production facility but carried out food processing within their residencies. This allowed the researcher to make direct observations of the workplace with the consent of the interviewee. The interview protocol was sent to each interviewee by email or postal mail at least a week prior to the scheduled interview date to facilitate their pre-interview preparation. An information sheet outlining the background and purpose of the study (Appendix III) and a written consent form (Appendix IV) were also sent along with the interview protocol. All of these documents were originally prepared in English and later translated into the Sinhalese language.

On the day of the interview, the interviewees were again reassured about their rights during the study and told that their comments would be respected, that confidentiality would be maintained, and they would be provided with information about the outcome of the study (Jacob & Furgerson, 2012). The researcher reiterated that the information obtained from the interview would be kept confidential, used only for the study purposes and that it would not be disclosed to any third party without the prior approval of the interviewee (Schutt, 2019). This step was critical for most of the interviewees as they were concerned about government involvement and income tax issues. Further, this process helped the respondent to relax and to build rapport between the two parties before beginning the interview. After this clarification, the signed consent forms were obtained from the respondents confirming their consent to participate in the study and to be recorded during the interview.

The interviews were conducted following the data collection protocol (Appendix V). The interviewer used clarifications and confirmatory questions were necessary to clarify the questions where necessary (Poba-Nzaou & Raymond, 2011). Probing and follow-up questions were used to obtain more information on important areas (Sandelowski, 2000). At the start of the interview, simple, non-threatening questions about their background and the characteristics of the owner and firm were

asked to relax the respondent (Dundon & Ryan, 2009). Following the data collection protocol, the interviewees were then asked about the entrepreneurial orientation and these questions covered the five EO dimensions; proactiveness, innovativeness, risk-taking, competitive aggressiveness, and autonomy (Lumpkin & Dess, 1996). To gather data on these aspects, the interviewees were asked about their short and long-term goals, their way of reacting to market opportunities, the way they started the business, the different innovations they introduced into the business, their way of challenging their competition, and their management styles.

The next section of the interview focused on gathering data related to the risk behaviour of the respondents. The focus was mainly on identifying the different sources of risk that they have faced during the past five-year period and the changes that they have experienced in their business environment. Their opinions were also gathered on how they have viewed those sources of risks and changes in the business environment with reference to upside risks that resulted in opportunities and downside risks that resulted in threats to their businesses (Shadbolt et al., 2010). Following the data collection protocol, the next set of questions were about the different types of risk management strategies adopted by them to cope with the changes they had experienced. The interviewees were asked to share their past experiences on adopting different risk management strategies and they were also encouraged to specify the risk management strategies they had planned to adopt in the future.

Active listening was critical for identifying areas that require probing or further clarifications (Jassawalla, Truglia, & Garvey, 2004). The interviews were conducted for no more than one to one-and-a-half-hours as suggested by Miles and Huberman (1994) to prevent interview fatigue. The interviews were tape-recorded to ensure an accurate account of the conversation and to avoid losing data (Noor, 2008). Later, the recordings were transcribed and a summary was sent to the interviewees for further verification and approval (Scott, Clayton, & Gibson, 1991).

4.4.4 Ethical Requirements

Obtaining the approval of an ethical review board is a standard procedure for the researchers involved in research with human subjects (Zwanikken & Oosterhoff, 2011). The two fundamental roles of ethics in social science research are the protection of the research participants by conducting research in such a way that it is in the best interests of the participants (Wassenaar, 2006), as well as to ensure that the interests of the research study are also protected (Rump, 2019). The present study involves both interviewing and surveying MSE owners, thus ethical requirements had to be addressed. An application was made to the Massey University Human Ethics Committee and it was evaluated to be a low-risk project (Appendix VI). This approval was obtained for both qualitative and quantitative phases together. This section explains only the practices adopted to ensure the code of ethics during

the qualitative phase (i.e. case study interviews). The necessary ethical practices adopted at the quantitative phase will be discussed later under the quantitative data collection.

In order to ensure the strict code of ethics was followed while conducting this research, informed consent was obtained from each participant prior to the commencement of the interviews (Kvale, 1994). To obtain informed consent, the respondent was provided with an information sheet (Appendix III), and their role in the study was explained to them. This information sheet clearly stated the nature of the research, the qualifications of the researcher, and the ways in which the researcher intended to utilize the data collected. The time input required from the participants was specified and it was made clear that participation was voluntary and that they had the right to withdraw from the research at any point. It was also explained that they did not have to answer questions during the interview if they do not want to. Finally, it was made clear that the participant's identity including all identifying information would be protected and that this information will be omitted from all records. They were then asked to fill in and sign a consent form (Appendix IV) that confirmed that they were happy to participate in the study and that they were willing to allow the interview to be tape-recorded. Prior to completing the consent form, the researcher explained the interview protocol so that the respondent was aware of the key points that would be discussed during the interview. All these documents were originally prepared in English and then translated to the Sinhalese language for ease of communication and to ensure the respondents understood the documents. Interviews were taped and recorded with the consent of the participant. A summary of the transcript was sent back to the participant for verification purposes. The next section of this chapter describes the procedures followed in analysing the data obtained through the interview process.

4.4.5 Qualitative data analysis

Once the data collection was completed and the interview transcripts were generated, the next step was analysing them to answer the research questions. The data analysis was separated into two phases, the 'within-case' and then the 'cross-case' analyses (Dey, 1993; Eisenhardt, 1989; Yin, 2009). The within-case analysis is the first step of the qualitative data analysis process that was undertaken for each case in the study. Within-case analysis focused on describing each case and identifying relevant themes and features relevant to the research questions. Once the 'within-case' analysis was completed, the 'cross-case' analysis was carried out to analyse themes across the cases to identify similarities and differences (Dey, 1993; Eisenhardt, 1989; Yin, 2009). This analysis was completed manually without using any special analytical software.

4.4.5.1 *Within-case analysis*

The within-case analysis was undertaken for the four cases, two entrepreneurial cases and two non-entrepreneurial cases. Dey (1993) provided a step-by-step guide to performing within-case analysis

and this was used in the study. The three-step procedure of; describing, connecting, and classifying was used to convert the raw data into a case report (Dey, 1993). However, this data analysis process was not a linear process, but a spiral with several iterations (Creswell & Poth, 2017; Dey, 1993) (Figure 4.4). To analyse qualitative data, the researcher engages in the process of moving in analytic circles rather than using a fixed linear approach. One enters with data of text or images and exits with an account or a narrative.

Figure 4-4. *The data analysis spiral*
(Source: Dey (1993, p. 55))

Documentation is the most important pre-requisite analytic step of the qualitative data analysis process (Schutt, 2019). This step is represented by the 'data' block of the analysis spiral of Dey (1993). Therefore, the analysis was initiated by converting all the interview recordings to interview transcripts. After transcribing an interview, the next step was 'description'. Describing is the first formal step of the qualitative data analysis process (Dey, 1993; Stake, 1995) where the researcher needs to develop a thorough and comprehensive description of the phenomenon under study. The process of description generally focused on different areas including; the context of action, the intentions of research subjects, and the process in which action is embedded (Dey, 1993). The majority of authors in the field of qualitative research agreed that context is crucially important to understand the case from a theoretical perspective (Creswell & Poth, 2017; Dey, 1993; Schutt, 2019; Stake, 1995). Hence, context plays an important role in the describing process.

During the description process, the first step was to read the transcripts several times in order to become familiar with them and to correct if there were any errors. Agar (1996) suggested that researchers "...read the transcripts entirety several times. Immerse yourself in the details, trying to get a sense of the interview as a whole before breaking it into parts" (p. 103). While reading, important points were highlighted and annotations were made. Revisiting the research questions and relevant literature were essential aspects of this describing process in order to make sure that the analysis was

on the correct track. A combination of text and Tables was used to describe and summarise the contents of interview transcripts.

As noted earlier, describing context-related data played an important role in this description process. The attention was paid to the details related to their specific role in the food processing industry, their products, type and nature of small business ownership and management, etc. This information was useful to identify the uniqueness of each case to the overall study. Following the data collection protocol, important themes and concepts were identified related to the entrepreneurial orientation of case firms within their specific business contexts. These concepts were used as prompts to assist the classification process. The descriptions were structured according to the five EO dimensions starting from the highest score to the lowest. As the end product of the description process, detailed descriptions were made for each of the case firms and they were sent back to the interviewees for verification.

After the verification process, the second step was classification. Creswell and Poth (2017) have identified the classification stage as the heart of qualitative data analysis. Dey (1993) also stated that classification is an integral part of qualitative data analysis as it lays the conceptual foundations upon which interpretation and explanation are based. According to Dey (1993), a category is explained as an idea (a word or phrase) that stands for a set of objects or events with similar characteristics. Classification is viewed as a process of funnelling the data into categories. The data may lose its original shape, but they are organised in a way that is more useful to explain the research questions (Dey, 1993; Eisenhardt, 1989). Therefore, the process of classification was carried out with the aid of two factors; the research questions and the relevant EO theory from the literature. The research questions and the literature helped to determine which categories were useful and relevant.

Setting clear definitions for the categories was central to the classification process (Dey, 1993). The definitions helped to set the boundary around a category and to determine what should be in it or not. For example, during the analysis, the five EO dimensions were broadly defined based on the definitions given by Lumpkin and Dess (1996), and categories and sub-categories were defined accordingly. Once these broad categories were defined, the transcripts were read line by line and compared the data to those definitions. The data-bits that matched the definitions were allocated into defined categories while data-bits that did not match the definition but were relevant to the study were allocated into a new category, given a new name, and defined. This process was manually repeated multiple times until a satisfactory outcome was obtained and until no new categories emerged from the data. The analysis was completed after carrying out multiple iterations of the classification process and then returned to the describing stage to rewrite the summary based on the

outcomes of the classification stage. This final description was a case report resulted from the within-case analysis of each of the individual cases. Accordingly, four case reports were prepared for the four individual cases following the same format and categorisations for the ease of comparing among four case firms.

4.4.5.2 *Cross-case analysis*

According to Miles and Huberman (1994), the fundamental reason for cross-case analysis is to deepen the understanding and explanation while enhancing the generalisability (p. 173). As explained earlier under the 'choice of research design' this study is designed to achieve both literal and theoretical replications (Yin, 2009). Therefore, two types of cross-case analyses were performed. As it involved literal replication (Yin, 2009), the first type of cross-case analysis was carried out between two entrepreneurial firms to determine if they were similar and to identify any differences and why those differences existed. This was repeated with the two non-entrepreneurial firms. The second form of cross-case analysis was carried out to compare in relation to the theoretical replication between the entrepreneurial and non-entrepreneurial firms. The four case reports were analysed to determine if there were important differences between entrepreneurial and non-entrepreneurial firms. This was primarily undertaken in relation to the level and nature of entrepreneurial orientation of the four firm owners, two that were entrepreneurial and two that were non-entrepreneurial firms.

Eisenhardt (1989) provided three tactics that can be used to conduct a cross-case analysis. The first is to select categories or dimensions and then look for within-group similarities coupled with intergroup differences. A second tactic is to select pairs of cases and then to list the similarities and differences between each pair and the third is to divide the data by data source (i.e. observational data versus interview data). Out of these three tactics, the first was selected as it best suited the study which was focused on intra-group similarities (i.e. entrepreneurial firms or non-entrepreneurial firms) and intergroup differences (i.e. entrepreneurial versus non-entrepreneurial firms). Eisenhardt (1989) further noted that these dimensions can either be suggested by the research problem or identified based on the literature. In this case, the five EO dimensions were identified based on the literature (Covin & Slevin, 1989; Lumpkin & Dess, 1996) and the cases were compared against each other along these dimensions. The final result from the cross-case analysis were three cross-case reports; an intra-group comparison of entrepreneurial firms, an intra-group comparison of non-entrepreneurial firms, and then an inter-group comparison of entrepreneurial and non-entrepreneurial firms (see Appendices VII, VIII & IX). The findings of these cross-case analyses were finally presented to the reader as a qualitative results chapter (Chapter Five).

With the completion of data analysis, the qualitative phase of this study was finalised. The next step was the quantitative phase, the second phase of the exploratory sequential mixed-method approach.

4.5 The quantitative phase

The quantitative phase is the second stage of the exploratory sequential mixed-method approach (Creswell & Clark, 2011). As explained earlier, this phase uses the information obtained from the qualitative phase to develop the survey instrument for this phase of the study because there was limited information in the literature from which to construct a research instrument to test how differently these entrepreneurial and non-entrepreneurial firms behave in taking and managing the risks they face. The primary objective of this quantitative phase was to determine how different entrepreneurial and non-entrepreneurial firms manage the risk they face and what factors influence this adoption of risk management strategies. Accordingly, the specific objectives of this phase were:

1. To distinguish between entrepreneurial and non-entrepreneurial agriculture food processing firms using the EO screening questionnaire
2. To identify the differences in propensity to risk between entrepreneurial and non-entrepreneurial firms
3. To identify the differences between how entrepreneurial and non-entrepreneurial firms perceive different sources of risks
4. To understand how entrepreneurial and non-entrepreneurial firms actually act in terms of managing the risks they face
5. To identify the most important risk-related variables that contribute towards the differentiation between entrepreneurial and non-entrepreneurial firms.

The design of this phase of the study consisted of three main steps; (1) the design of the data collection protocol and survey instrument, (2) the implementation of the survey (Creswell & Clark, 2011), and (3) the quantitative analysis of the survey data. These steps are described in the following sections after the choice of the research strategy for this phase is described.

4.5.1 Choice of research strategy

A survey approach was selected as the approach best suited for the quantitative phase of this study as it allows the researcher to describe the characteristics pertaining to a larger sample and to generalise the findings (Creswell, 2014b). It is also the most economical approach for collecting quantitative data within a limited period of time and with relatively high response rates (Loomis & Paterson, 2018). The survey approach can be used for either a cross-sectional or longitudinal study with the intent of generalising from a sample to the wider population (Babbie, 1990). Accordingly, given the nature of the research problem, the nature of the target population, and time constraints; a cross-sectional survey using a structured questionnaire was selected as the best approach for this study.

There are several types of surveys including postal or telephone surveys along with new technologically advanced methods such as creating a web-based or internet/online survey or administering it via email (Manfreda, Bosnjak, Berzelak, Haas, & Vehovar, 2008). It is important that the researcher select a suitable survey mode considering such factors as the research context, the strengths, and weaknesses of the approaches, costs associated with each approach, the data availability, and convenience (Schutt, 2019). Based on the nature of the research questions, the survey was designed to be implemented in two phases. In the first phase, the researcher sought to classify the sample based on the level of EO. Once the sample was classified into entrepreneurial and non-entrepreneurial firms, a second survey instrument was administered to collect data on their risk behaviours. Since, the EO screening questionnaire was short, simple to understand, and needed to reach a relatively larger number of respondents, a postal survey was selected for the first phase of the survey (Dennis Jr, 2003). This phase was undertaken as a self-administered survey where the respondent had completed the questionnaire without interaction with the researcher.

A face-to-face, researcher-administered questionnaire survey (G. Marshall, 2005) was selected as the best mode for the second phase of the survey as the risk-related questionnaire was lengthy, complex, and more difficult to understand. That is one of the main reasons, why the survey was conducted in two phases in order to reduce survey fatigue and to ensure a greater response rate. Getting an adequate response rate for a lengthy and complex questionnaire was deemed difficult considering the context-specific factors. Moreover, according to the Department of Census and Statistics in Sri Lanka, researcher-administered surveys are the most commonly used and practically feasible survey mode used in Sri Lanka (DCS, 2014). Based on the experiences gained from the preliminary contextual study conducted in Sri Lanka, it was also evident that the level of computer literacy of the target population was poor thus; implementing web-based, online, or email surveys were considered infeasible.

4.5.2 Sampling strategy

The agriculture food processing sector in Sri Lanka was chosen as the population for this study. However, the availability of exact statistical data on the number of establishments operating in this sector is limited and inconsistent across the country. Moreover, the parameters used in defining the MSEs within the country by different organizations are inconsistent which in turn resulted in inconsistent statistics on the number of establishments. Hence, the annual survey of industries conducted by the Census and Statistics Department of Sri Lanka (ASI, 2015) is the only source that is available in Sri Lanka to obtain an understanding of the number of business entities operating in the country. However, this survey does not cover the micro-scale household-based firms which employ less than ten employees (ASI, 2015). Moreover, the classification system used by ASI to categorise the firms by the number of employees is different from the approaches used by most other MSME-related

organisations including the National Policy Framework (NPF) for SME Development (MIC, 2015). According to the report by ASI (2015), there were 2,971 food processing firms located in Sri Lanka of which 1,547 firms employ less than ten employees, 822 firms that employ 10-99 staff, and 602 firms that employ more than 100 employees (see Table x in Chapter Two for more details). Thus, according to the report, 2,369 firms are operating in Sri Lanka which employ less than 99 employees. However, as mentioned previously (Table 3), this categorisation does not match the definition used by the study (i.e. a definition given by NPF) to distinguish micro and small-scale businesses. Yet, given the limited statistics available, it was assumed that 2,369 firms made up the study population.

Having defined the population size, the next step was to obtain a representative sample of the MSEs which can be used to generalise the research outcome (Hair, 2007). Yamane’s (1967) method was used to derive an appropriate sample size as it is a simple, straightforward, and suitable method for small population sizes (Equation 1).

$$n = \frac{N}{1 + N(e)^2} \quad \dots\dots\dots \text{Equation (1)}$$

where,

n = sample size

N = population size

e = level of precision (at 95% confidence interval)

According to the above equation, the sample size was calculated as approximately 300 at the 95% confidence level. The next step was to identify and access the respondent databases in order to develop the necessary sampling frame and draw the required representative sample.

The first phase of the survey was scheduled to be conducted in postal mode. However, it was difficult to assume an appropriate response rate for the postal survey due to the lack of availability of literature in the Sri Lankan context. Literature compiled by Dennis Jr (2003) stated that mail surveys of small business owners and entrepreneurs produced low response rates ranging from 25% to 50%. Therefore, to achieve a target sample of 300 firms, around 600-1200 firms should be surveyed in a mail survey. However, the first survey was relatively short and simple to answer, so it was expected that this would result in a higher response rate than reported for a typical survey. As such, it was decided to survey a minimum of 500 firm owners for the first phase of this study in order to achieve the required sample size of 300 firms.

To obtain the contact details of micro and small-scale food processing firms located in provinces that were selected for the study (i.e. Western North-Western and Central provinces), a range of entities

were contacted that worked with SMEs and had contact details for these firms. These entities included the Small Enterprise Development Division (SEDD), National Enterprise Development Authority (NEDA), Business Research and Development Centre (BREAD), and *Vidatha* Centers facilitated by the Ministry of Science and Technology. This process was difficult because their systems were not computerised and often the firms were classified by type. Eventually, after obtaining information from these organisations, a list of 554 micro and small-scale food processing firms was obtained. After screening the list, 28 firms were deleted because of errors, missing details, and duplication. A final list of 526 micro and small food processing firms was compiled and this was used for the survey.

4.5.3 Survey instrument design

Once the data collection mechanism was finalised and the sampling frame had been identified, the next step was to develop the survey instruments (i.e. the structured questionnaire); (1) the initial EO screening survey and (2) the risk management behaviour survey. The same survey instrument that was developed for the preliminary study (Section 4.2) was used in the initial EO screening survey. As such, this section will only describe the development of the survey instrument for the main survey that gathered data about the risk management behaviour of the food processing MSEs.

The questionnaire took the form of semi-structured consisting of both open-ended and closed-ended questions (Williamson, 2013). Further, the questionnaire consisted of a variety of closed-ended questions including; closed-ended questions with ordered choices (i.e. Likert scales), closed-ended questions with unordered choices (i.e. multiple-choice questions and ranking items), and partial closed-ended questions where respondents were asked to select possible choices and/or write 'other' options (Glasow, 2005). The questionnaire was mainly segmented into two categories; (1) questions to gather socio-demographic data and (2) questions to gather risk management behaviour. The following section describes the nature and types of questions included in each of these sections of the questionnaire (Appendix X).

4.5.3.1 *Socio-demographic parameters*

The questionnaire included a set of both open and closed-ended questions to gather data on the socio-demographic characteristics of the respondents. These questions on socio-demographic details were included under two categories; firm characteristics and firm-owner characteristics. Similar studies such as Salleh and Ibrahim (2011); (Stewart et al., 1999) and Yong and Panikkos (2010) have investigated such demographic parameters and their impact on different risk-related variables. Firm characteristics included questions on; firm type, product range, ownership and management information, number and types of employees, and the annual turnover of the firm. Firm-owner characteristics included; owners' gender, age, education, years of experience, previous start-up attempts, and sources of income, etc. Contact details of both firm and firm owners were collected if

they needed to be contacted again as the study progressed. However, disclosing the name of the firm or the owner was regarded as optional as individual-specific responses were not considered in the quantitative data analysis.

The next section of the questionnaire was structured to gather data on the risk and the risk management of MSEs. The risk-related questions were set out under four main headings; (1) risk propensities, (2) risk scenario questions, (3) perceived sources of risk (opportunity and threat), and (4) risk management strategies. All these questions were closed-ended Likert scale types of questions with either dichotomous or five-point choices.

4.5.3.2 Risk propensity attributes

The questionnaire included nineteen items to measure the risk propensity (Brockhaus, 1980; Carland III et al., 1995; Miner & Raju, 2004; Stewart Jr & Roth, 2001) of the MSEs. The questions were closed-ended Likert-scale items ranging from strongly disagree (1) to strongly agree (5). A five-point Likert scale instead of a seven-point scale was used to maintain consistency with the measurements of other risk-related variables. The questions were developed based on both the literature and the inputs received from the qualitative phase. The questions were designed to capture the tendency of the firms to seek or avert risk under different circumstances including; new product development, market exploration, obtaining financial credit, and overall strategic and tactical decision making. Questions were extracted from studies by Shadbolt and Olubode-Awosola (2013), van Winsen et al. (2016), and Bernd Rohrmann (2005) were modified in order to match the context and industry-specific requirements.

4.5.3.3 Risk scenario questions

The second sub-section of risk-related questions was comprised of risk scenario questions adapted from Bernd Rohrmann (2002). Bernd Rohrmann (2002) developed a risk scenario questionnaire in line with the domain-specific-risk-taking (DOSPERT) scale which uses five specific risk domains; ethical, financial, health/safety, social, and recreational (Blais & Weber, 2006). Bernd Rohrmann (2002)'s risk scenario questionnaire consisted of twenty domain-specific scenarios corresponding to the five risk domains. Each risk scenario question presented a short story about a person facing a situation where both good reasons for taking and for avoiding a risky course of action exist. The respondent was asked to imagine they are the person described in the dilemma and to rank on a score ranging from "Definitely not" (i.e. 1) to "For sure" (i.e. 10) for each scenario to indicate how likely s/he would decide to undertake the risky behaviour in such a situation (Bernd Rohrmann, 2002).

The first version of the study questionnaire included four risk scenario questions, designed to evaluate the financial dimension of risk-taking according to the DOSPERT scale. Scenarios related to other

domains were not used since they were not relevant to the focus of the study. The scenario questions that were extracted from Bernd Rohrmann (2002) were modified according to the Sri Lankan context and the food processing industry. In brief, the four questions were focused on; gambling, investing in a new product, placing a bet on a horse, and investing in shares. However, the outcome of the pilot survey suggested that the scenarios on gambling and placing a bet on a horse were not or least answered by the respondents. The respondents were asked about these responses and their explanations revealed that those questions conflicted with their personal and religious values. Hence, with the agreement of the research team, those two risk scenario questions were removed from the questionnaire before proceeding to the main survey. As a result, two scenario questions that were based on investing in a new product and investing in shares were presented in the final questionnaire.

4.5.3.4 Perceived sources of risk

Questions on how firms perceive risks in their business environment were included as the next subsection of the risk-related questions. The intention of this segment was to gather data on how firms perceive different sources of risks that they find in their respective business environments. Similar to previous sub-sections, these sources of risks were identified based on both the literature and the inputs received from the qualitative study. The main literature included the work carried out by A. Miller et al. (2004), Shadbolt et al. (2010), Shadbolt and Olubode-Awosola (2013), Verbano and Venturini (2013), Hudáková and Dvorsky (2018) and Kaplan and Mikes (2012). Due to the limited availability of literature on manufacturing MSMEs, the sources of risk were also explored in other fields of literature including farm management. However, the information obtained from the farm management literature was modified and adapted according to the specific industry context and also drawing on the qualitative findings.

Thirty-five sources of risks were identified from the literature and the ideas shared during the qualitative phase, and the number was reduced to 31 after the pilot survey. These sources of risks were categorised into nine categories based on their nature. The categories of risk included; hazard, financial, market, strategic, operational, HR, knowledge, regulatory and legal, and political risks. Following the concept that a risk can be imposed as both an opportunity and/or a threat depending on the way it was being perceived by the firm (Detre et al., 2006; Shadbolt & Olubode-Awosola, 2013; Shadbolt et al., 2010), the questions on sources of risk were presented in a manner that reflected this. The same set of sources of risks was listed twice in order to gather the respondent's responses about whether they were perceived as opportunities and/or as threats. First, the respondent was asked about the "potential of a given source of risk to benefit the firm by acting as an opportunity". The responses were gathered on a five-point Likert scale ranging from "very low (1)" to "very high (5)". Second, as an extension to the first question, the respondent was asked about the "likelihood of this

potential benefit happening in the long-term”. Again, the responses were collected on a five-point Likert scale ranging from “rare (1)” to “almost certain (5)”. This was then repeated for the risk from a threat perspective – the downside risk.

4.5.3.5 Risk management strategies

The last section of risk-related questions was focused on gathering data on the risk management strategies adopted by these MSEs to manage the risks they face. Both the literature (Ratas & Nurmet, 2017; Shadbolt et al., 2010; Smit & Watkins, 2012; van Winsen et al., 2016) and ideas received at the qualitative phase were used to identify possible risk management strategies. Based on these inputs, fifty-five risk management strategies were identified under the same nine categories of risk noted above. The responses to the risk management strategies were gathered in two ways. The first set of questions were to understand whether these strategies were adopted by the respondents. The responses were collected on a three-point Likert scale ranging from “Yes (3)”, “No (2)”, and “Not applicable (1)”. Then a set of follow-up questions were posed to gather data on the applicability of these strategies to their businesses. The respondents were asked to score on how much they think these strategies are applicable to their firm even if they were not adopted. The applicability responses were on a five-point Likert scale ranging from “very low (1)” to “very high (5)”. The next section of this chapter explains the procedures of data collection including; how and when the questionnaires were administered, the EO survey, pilot survey, the mode of data collection, etc.

4.5.4 Data collection

Data collection for the survey consisted of two main phases; (1) the EO screening survey and (2) the main risk management behaviour survey. This main survey was also carried out in two steps as a pilot survey to test the validity of the questionnaire (Van Teijlingen & Hundley, 2001) followed by the real survey for final data collection. The two sets of questionnaires were originally prepared in the English language and later translated to Sinhalese; the official language that is predominantly spoken in Sri Lanka. The translated questionnaires were proofread and verified with one academician and one small business owner in Sri Lanka as a precaution to avoid any misinterpretations and misunderstandings of the technical jargon.

The EO screening questionnaire was sent to 526 micro and small-scale food processing firms via post during mid-July 2018. Each envelope included a covering letter, a consent form, an information sheet, the questionnaire, and a return-paid envelope (refer to Appendix III for a copy of the cover letter and information sheet included in the envelope). The covering letter included the reason for selecting them for the study, a brief introduction to the study, and it was pointed out that as part of the study, they would be surveyed face-to-face after completing the initial postal survey. The respondents were given the right to decline to answer all or any of the questions in the survey. More than 90% of the

respondents were contacted over the phone two weeks after the survey had been sent out to remind them to fill in the questionnaire and increase the response rate.

Some 46 postal surveys were returned due to incorrect addresses or because the business was non-functioning. During the telephone reminders, some respondents claimed that they did not receive the survey, and this was because their addresses were incorrect. The addresses were corrected, and the survey was sent out again. A second telephone reminder was also made a week after the first. Most of the respondents were happy to be a part of the study. Some were concerned about disclosing their personal and confidential information such as the annual turnover of the business because they thought it could be provided to the government for tax purposes. Hence, the respondents were assured that their information would only be used for the study and not divulged to third parties. They were also made aware that in the thesis, their personal information could not be identified. This information was already available in the covering letter enclosed with the questionnaire, but many of the respondents needed reassurance about this. Out of the 526 EO questionnaires posted, 232 responses (44.1%) were received within approximately two months of sending of which 210 (39.9%) were complete and usable for the main survey.

Once the EO survey had been sent out, the second survey on the risk management behaviour of the firms was pre-tested with ten selected food processing firms. Based on this, certain minor amendments were made to the questionnaire. The questionnaire was also presented to MSE experts in the food processing industry in Sri Lanka in order to get their opinion about the depth and understandability of the questions. The amended questionnaire was translated to the Sinhalese language and proofread, and then the face-to-face survey was initiated in October 2018. Two recent agribusiness graduates were hired to assist with the data collection process. The background and objectives of the study were explained to the graduates and they were then trained in how to collect the survey data.

The survey was conducted in a personal, face-to-face mode (Doyle, 2005). The respondents were contacted over the phone prior to the survey and a date, time and location were pre-organised and agreed upon. The members of the research team assisted the respondent to fill out the questionnaire where necessary and explained certain questions and technical terms that were unclear to the respondents. The data collection was completed in December 2018. After completing the survey, the data were entered manually into the Excel database for analysis. The response rates of the survey and the quantitative results are shown in the quantitative results chapter (Chapter 7).

4.5.5 Quantitative data analysis

The quantitative data analysis was carried out in three phases. The first phase was to test the validity and reliability of the data in order to assure the rigor of the research and the internal consistency of the variables (Hair, Black, Babin, Anderson, & Tatham, 1998). The second phase involved an exploratory descriptive statistical analysis carried out on all the variables to explore the nature of the data and to describe the sample (Saunders et al., 2009). It was also intended to differentiate between entrepreneurial and non-entrepreneurial firms and firm owners descriptively and to understand their basic differences. The third phase was the use of inferential statistical measures to analyse the data. The inferential measures included analysis techniques such as; independent sample t-tests to compare demographic variables and risk-related aspects among the two firm groups, principal component analysis to summarise risk-related variables to form meaningful categories (Hair et al., 1998), chi-square analysis to test the association between selected risk-related variables and the entrepreneurial/non-entrepreneurial status of firms (Collis & Hussey, 2013), binary logistic regression to identify the most important factors contribute for the probability of a firm being entrepreneurial or non-entrepreneurial (Hair et al., 1998) and finally multiple linear regression to understand the factors influencing risk-related variables such as the adoption of risk management strategies and risk propensity attributes. The next section of this paragraph

4.5.5.1 *Validity and reliability*

In quantitative research, attention must be paid not only to the significance of the research outcomes but also to the rigour of the research. According to LoBiondo-Wood, Haber, Cameron, and Singh (2017), research rigour is the extent to which researchers attempt to enhance the quality of their studies. In quantitative research, this is achieved through the measurement of validity and reliability. Ghauri and Grønhaug (2005) noted that validity and reliability are indicators of research quality in survey designs.

4.5.5.1.1 *Validity*

Validity is defined as the extent to which a measure or set of measures correctly represents the concept of the study (Hair, Black, Babin, & Anderson, 2013). Ensuring validity starts with a thorough understanding of what is to be measured and then making the measurement as “correct” and accurate as possible. Ghauri and Grønhaug (2005) identified different types of validity including; construct validity, face validity, and external and internal validity. Out of which assuring construct and face validity is important, especially for social science-based research studies.

Construct validity refers to the extent to which an instrument measures the concept that it intends to measure (Ghauri & Grønhaug, 2005). This is essential for meaningful and interpretable research

findings where it is measured in various ways. Netemeyer, Bearden, and Sharma (2003) presented three ways to measure construct validity; 1) specifying a set of theoretical constructs and their relations; 2) developing methods to measure the theoretical constructs, and 3) empirically testing how well observable variables measure the constructs in the theory. This study adopted different techniques to ensure the construct validity of the variables used. First, the majority of the constructs were extracted from previous research, which used valid empirical tests developed from theory. It is also important to highlight that some of the variables used in this study were taken from other fields of study outside small business management and from different contexts. Accordingly, these were adjusted to the context of the Sri Lankan agriculture food processing small businesses and tested with respective firm owners to ensure their validity. Moreover, the questionnaire was pre-tested with a sub-set of selected small-scale agricultural food processing firms as a strategy of ensuring construct validity empirically (Taherdoost, 2016b).

Face validity (also known as content validity) is explained as the extent to which the measure used seems to be a reasonable measure for what it intends to measure (Ghauri & Grønhaug, 2005). Hair et al. (2013) noted that face validity can be assured through ratings by expert judges, pre-tests with a sub-population, or other means. In order to ensure face validity, the variables were discussed with experts, and their opinions were used to assess whether the proposed variables seemed to be a reasonable measure for what they claimed to measure. This process of taking expert views was carried out in two instances, before and after translating the questionnaires to the Sinhalese language.

External validity refers to what extent the findings can be generalized to or across particular persons, settings, and times (Ghauri & Grønhaug, 2005). Ghauri and Grønhaug (2005) further explained that external validity can be ensured by taking random (probability) samples. However, this may not be always possible for all research activities depending on the context and the topic of study. As such, ensuring external validity was not achieved adequately since the sampling technique was not completely random. The study adopted purposive sampling given the practical and contextual constraints encountered during the data collection process (refer to 4.6.2 for details). Upon ensuring the validity of the instrument, the next step was to ensure the reliability of the items used.

4.5.5.1.2 Reliability

Hair et al. (2013) defined the term reliability as the extent to which a variable or set of variables is consistent in what it is intended to measure. It differs from validity in that it relates not to what should be measured, but instead to how it is measured (Hair et al., 2013). The most widely used diagnostic measure of reliability is the reliability coefficient, which assesses the consistency of the entire scale, with Cronbach's alpha (Cronbach, 1951). According to Cronbach (1951), this measure is equivalent to dividing data into two in every possible way and computing the correlation coefficient for each split.

The average of these values is equivalent to Cronbach's α . The generally agreed-upon lower limit for Cronbach's alpha is 0.70, although it may decrease to 0.60 in exploratory research (Hair et al., 2013).

Hair et al. (2013) further noted that above threshold levels (i.e. Cronbach's alpha 0.7 or 0.6 in exploratory research) need to be followed with caution because the value of α depends on the number of items on the scale. The authors explained that when the number of items on the scale is increasing, even with the same degree of inter-correlation, it will increase the reliability value. Thus, researchers must place more stringent requirements for scales with large numbers of items. Cortina (1993) emphasised that values that are under 0.70 are acceptable for short scales (i.e. less than 10 items), moreover, α 's value tends to grow with the expansion of the samples. Therefore, during the preliminary test, a value below 0.7 was deemed acceptable given the smaller number of sampling units. Accordingly, the items in the Entrepreneurial Orientation scale and the risk propensity attributes were tested for the Cronbach's alpha in order to measure the internal consistency of the variables.

4.5.5.2 Descriptive analysis of data

Descriptive statistics enable the researcher to summarise and organize data in an effective and meaningful way whereas inferential statistics are used to make inferences by interpreting patterns (Ghauri & Grønhaug, 2005). The descriptive measures employed in the study were certain measures of central tendency (i.e. mean), percentage calculations, and graphical representations such as pie charts and bar graphs (Nick, 2007). The descriptive analysis was mainly employed to compare demographic parameters, including firm and firm owner characteristics, between entrepreneurial and non-entrepreneurial firms. Moreover, descriptive measures were also used as part of the analysis of risk-related aspects. All risk-related aspects were subjected to descriptive analysis (i.e. mean scores and percentage of responses) in order to summarise the responses and to compare between the two firm types. In certain situations, the results of these descriptive analyses were used to elaborate on the results of statistical analyses. The descriptive analyses were carried out using Microsoft Excel software and SPSS version 25.

After completing the descriptive analyses, the data were subjected to inferential statistical analysis. SPSS statistical software version 25 was used to perform the statistical analyses. Both demographic and risk-related data were subjected to different statistical tests depending on the hypotheses and expected outcomes. Moreover, these analyses were carried out either on the whole sample ($n=206$) or separately on entrepreneurial/non-entrepreneurial firm groups depending on the expected outcomes. The statistical analysis involved simple statistical tools such as independent sample t-tests to compare different variables between the two firm groups and chi-square tests to determine the association of different variables with the entrepreneurial/non-entrepreneurial status of firms (Saunders et al., 2009). Moreover, data reduction techniques such as principal component analysis

(PCA) were used to summarise variables to be used in further analysis (Hair et al., 1998). Finally, regression analysis techniques were employed to identify relationships between variables.

4.5.5.3 *Independent sample t-test*

Once the descriptive analysis was completed, the first step of the statistical analysis was to determine whether there were statistically significant differences between entrepreneurial and non-entrepreneurial firms in relation to both demographic and risk-related variables. In statistics, there are many ways to compare the means of two populations or samples in order to understand the presence of significant differences. One sample t-test, independent sample t-test, paired sample t-test, and one-way analysis of variance (ANOVA) are such analytical techniques used by researchers to simply compare the means between two independent or correlated groups (Jackson, 2017). Given the fact that the two groups are unrelated to each other, the t-test appropriate for this analysis was the "independent sample t-test" (Lim & Hoffmann, 2007). The independent sample t-test is a parametric statistical test that compares the performance of two different samples of participants. The test was a better fit for a two-tailed approach rather than a one-tailed approach since the intention was to identify the differences between the groups, but unsure which group will perform better or worse (Jackson, 2017). Null and alternative hypotheses were set separately for each variable as appropriate.

Example for hypotheses:

H₀: Entrepreneurial firms do not differ from non-entrepreneurial firms in terms of their level of EO

H₁: Entrepreneurial firms do differ from non-entrepreneurial firms in terms of their level of EO

The probability values derived for each dimension were tested against the 95% confidence level for interpretation purposes. If the probability value is less than 0.05, it indicates strong evidence against the null hypothesis, as there is less than a 5% probability the null hypothesis is correct. Therefore, the null hypothesis is rejected, and the alternative hypothesis is accepted.

4.5.5.4 *Principal component analysis*

The literature identifies Principal Component Analysis (PCA) as a dimension reduction technique that is used with the objective of finding a way to condense the information contained in a number of original variables into a smaller set of variates (i.e. principal components or factors) with a minimal loss of information (Hair et al., 2013). According to Norman and Streiner (2008), PCA can be used to (1) explore the relationship among the variables, (2) see if the pattern of results can be explained by a smaller number of underlying constructs (i.e. principal components), (3) test some hypotheses about the data, and (4) reduce the number of variables to a more manageable size. The resulting principal components are new non-observed variables that capture the most variance of the data observed in the original items. According to Hair et al. (2013), PCA provides the researcher with two distinct, but

interrelated, outcomes: data summarisation and data reduction. In data summarisation, PCA derives underlying dimensions that describe the data in a much smaller number of concepts than the original individual variables. Data reduction extends this process by deriving an empirical value (factor score) for each component and then substituting this value for the original values. Therefore, data reduction identifies representative variables from a much larger set of variables for use in subsequent multivariate analyses (Hair et al., 2013). This study employed PCA mainly to achieve this objective.

Accordingly, it was decided to perform PCA on all four risk behaviour aspects; (1) risk propensity attributes, (2) perceived opportunities of sources of risk, (3) perceived threats of sources of risk, and (4) adoption of risk management strategies. As noted earlier, there are 19 risk propensity attributes, 31 sources of risk, and 55 risk management strategies included in the study. Therefore, the aim of conducting PCA on these risk-related aspects were to see the pattern of variables that can be explained by a smaller number of components while reducing the number of variables to a more manageable size. It was essential to identify the best combination of variables that can explain the optimum amount of variance in the original set of variables in order to use them in further statistical analysis. All four risk-related aspects, except risk propensity attributes, were categorised into several risk categories based on the literature. However, the PCAs were carried out for the entire set of variables without considering these categorisations. The aim was to explore how these variables are classified through the analysis without enforcing them beforehand. Moreover, the entire data set of 206 respondents were considered for PCA without considering their entrepreneurial/non-entrepreneurial nature. Again, the purpose of PCA procedures was to retain the nature and character of the original variables but reduce their number to simplify the subsequent multivariate analysis.

The design, as well as interpretation of PCA, usually begins with a correlation matrix. In order to proceed with PCA, the data matrix should display enough correlations among the variables. Having a substantial number of correlations greater than ± 0.3 indicates the existence of an underlying factor structure among the set of variables used (Hair et al., 2013). This fulfils one of the basic assumptions of PCA, the existence of underlying factorial structure among the variables, and as a result, PCA can be applied. Bartlett's test of sphericity was another method of determining the appropriateness of principal component analysis by examining the entire correlation matrix. It provides the statistical significance that the correlation matrix has among at least some of the variables. In order to proceed with PCA, the resulting Chi-square statistic must be a higher value while the probability value must be less than 0.05 (Norman & Streiner, 2008). A third measure that is used to quantify the degree of intercorrelations among the variables and the appropriateness of data for PCA is the Kaiser-Meyer-Olkin measure of sampling adequacy (MSA). The SPSS software usually produces an overall MSA value for the entire data set as well as the individual values for each variable. This index ranges from 0 to 1,

reaching 1 when each variable is perfectly predicted without error by the other variables. Kaiser (1970) gave six guidelines to test the appropriateness of data using an MSA value: 0.80 or above, meritorious; .070 or above, middling; 0.60 or above, mediocre; 0.50 or above, miserable; and below 0.50, unacceptable. Following the three criteria above: correlation values greater than ± 0.3 ; statistically significant chi-square statistic for Bartlett's test and MSA values above 0.7 were considered for the safe application of PCA into risk-related data.

Once the variables are specified and the correlation matrix is prepared, the next step is to apply PCA to identify the underlying structure of relationships. In this step, attention was paid towards the extraction method and how many components to retain to represent the underline structure in the data. As mentioned already, component analysis has been chosen (i.e. against common factor analysis) as the extraction method for this study given data reduction was the main objective of the analysis. PCA uses total variance in deriving components against the shared variance employed by common factor analysis. This makes PCA more desirable as the overall factor structure is not distorted by containing unique or error variance in the first few components extracted (Hair et al., 2013). Hence, the procedure for PCA is less complicated and more widely used compared to common factor analysis. Once the components are extracted through PCA, the next step is to determine the number of components extracted and the appropriate rotation methods used.

The components that result from PCA are linear combinations of variables that account for different proportions of variance. The first component is the single best summary of linear relationships exhibited in the data whereas the second factor is defined as the second-best linear combination of the variables, subject to the constraint that it is orthogonal to the first factor (Hair, 2013). The first component accounts for the largest proportion of variance while the second component is uncorrelated with the first and expresses the largest amount of variance left over after the first component is considered (Norman & Streiner, 2008). The process continues by extracting components accounting for smaller and smaller amounts of variance until all of the variances are explained. For example, when 55 risk management strategies were subjected to PCA, the analysis extracts 55 components. Since the aim of conducting PCA was dimension reduction while explaining the optimum proportion of variance, it is important to decide on the number of components to retain. The literature explains a set of criteria for this purpose. Yet, none of these are regarded as perfect and they are dependent on several factors such as; sample size, the number of variables used, etc. Therefore, the researcher must decide on the maximum number of components to be retained based on the literature as well as the specific research questions that need to be addressed (Hair et al., 1998; Norman & Streiner, 2008).

When performing a PCA, Hair et al. (2013) suggested four different criteria namely; latent root, priori criterion, percentage of variance, and the scree test to determine the number of principal components to be extracted through the analysis. The latent root is the most commonly used criterion where the principal components that have eigenvalues greater than one are considered significant and useful for interpretation. Components with latent roots or eigenvalues greater than 1 are considered significant and are retained. When applying the priori criterion, the researcher decides on the number of principal components to be extracted and instructs the statistical software to stop the analysis when the desired number of principal components have been extracted. The third criterion; the percentage of variance, is based on achieving a specified cumulative percentage of total variance extracted by successive principal components (Hair et al., 2013). Lastly, Cattell's scree test plots eigenvalues against the number of components extracted where the researcher needs to retain the number of components at the sharp break in the curve between the point where it's descending and where it levels off (Norman & Streiner, 2008). If several breaks are in the descending line, usually the first one is chosen. Norman and Streiner (2008) also agreed that the scree test is a somewhat better criterion compared to the others. Considering all the alternative criteria mentioned above, this study used a combination of latent root and scree test criteria to determine the number of principal components extracted and retained. However, in this study the final decision on the number of components retained was also made based on the specific research questions and the practicality and feasibility of using these components in further multivariate analysis.

Once the number of retaining principal components was decided, the interpretation of the underlying structure of each of these components was addressed based on the component loadings resulting from the PCA. Usually, component loadings can be obtained as either rotated or unrotated loadings, where rotated loadings appear to make the factor structure more simplified. Factor rotation is another technical aspect involved in PCA in relation to developing a component loading matrix (Norman & Streiner, 2008). According to Hair et al. (2013), factor rotation is a common technique used by researchers to achieve the simplicity of factor structure by redistributing the variance among components. Other than supporting even distribution of variance among components, rotation helps the researcher to minimise cross-loading (i.e. one variable is strongly loaded to more than one component), maintain the magnitude of the loadings, and achieve unipolarity (i.e. all the strong variables have the same sign) of the components (Norman & Streiner, 2008). Orthogonal and oblique are the two types of rotation methods in PCA while orthogonal is found to be the most commonly used technique among researchers (Hair et al., 2013; Kinnear & Gray, 2006). Selecting an orthogonal rotation method was important for this study as orthogonal methods ensure that the components are uncorrelated (Dilbeck, 2017). This was important, as these selected components needed to be used

as independent variables in further multivariate techniques including regression analysis. Out of several orthogonal methods, this study employed varimax as the rotation technique. Varimax is the most commonly used rotational technique (Norman & Streiner, 2008) and it ensures the simplicity and clear separation of the components (Dilbeck, 2017; Hair et al., 2013).

Once the rotated component matrix is obtained, the next step was the interpretation of those component loadings (Hair, 2007; Norman & Streiner, 2008). Loadings indicate the strength and direction of the correlation between the variable and the component, with higher loadings making the variable more representative of the component. Component loadings illustrate the role each variable plays in defining each component (Hair et al., 2013). Hair et al. (2013) recommended that component loadings that are above ± 0.30 are considered to meet the minimal level for interpretation of the structure. Loadings ± 0.50 or greater are considered practically significant while loadings exceeding ± 0.70 are considered indicative of a well-defined structure. Moreover, they have come up with a more reasonable way of determining significant variables based on the sample size. Accordingly, for a sample of 200 respondents, the cut-off level given is ± 0.4 . Therefore, ± 0.4 was considered the cut-off for this study with 206 respondents (Hair et al., 2013). When a variable is cross-loaded among more than one component, the variable was allocated to the component with the highest loading value. A similar procedure was followed in interpreting the results of PCA analyses of all four risk-related aspects.

As the number of components to be retained and the respective variables that strongly loaded into those components were now determined, the next step was to convert them into variables that can be used in further statistical analysis. As noted earlier, the aim was to use the outcomes of PCA analyses to create individual variables for four risk-related aspects while keeping the structure and idea of the original variables. Deriving component-based indices from selected components were identified as the best way of converting the PCA outcome to individual variables. The next section explains the procedures that were used to develop these indices.

4.5.5.5 The development of component-based indices

Based on the literature, the research questions, and considering the feasibility of handling variables, it was decided to use only the first two components of the PCA for further analysis. Accordingly, the first two components of each risk aspect (i.e. propensity attributes, perceived sources of risks, and the adoption of management strategies) were selected to develop two component-based indices to be used in further analysis. The PCAs are uncorrelated and orthogonal from each other, and therefore need to be considered as individual variables. Therefore, using more than two components from each risk aspect would complicate the data handling and interpretation of further statistical procedures.

According to the literature, the component-based indices can be developed in two ways. The first is to simply use the factor scores estimated by the SPSS statistical software. For this method, the software considers all the variables regardless of whether they were loaded strongly or weakly to the given component. Pett, Lackey, and Sullivan (2003) noted that the use of estimated factor scores can be clumsy because they are usually generated from all the items in the item pool. Even items that load very low on a component (e.g., <0.30) could be included in factor score estimations. On the other hand, the researcher may develop component-based indices by using component score coefficients as weights and raw scores provided by the respondent (Equation 2). The advantage of this method is that the researcher can select variables that were strongly loaded to a given component. In this study, the variables loaded with a component loading above ±0.4 were considered as strongly loaded to the given component. In situations where a variable is cross-loaded between multiple components, the variable was allocated to the component with the highest component loading value.

$$RI_i = \sum \frac{((CL_a * SS_a) + (CL_b * SS_b) + \dots + (CL_n * SS_n))}{n} \dots\dots\dots \text{Equation 2}$$

RI_i: Risk index of the *i*th respondent (i.e. Risk propensity index, Perceived risk index for opportunity or threat, Risk management index)

CL: Component score coefficient

SS: Raw score provided by the respondent

a, b, ..., n: number of variables strongly loaded to the component (i.e. component loading >0.4)

As the first step, the indices were developed following both procedures noted above. The estimated factor scores and personally developed Risk Index (RI) values were obtained for both entrepreneurial and non-entrepreneurial firms for all four risk aspects. Later both types of indices were separately subjected to independent sample t-tests in order to examine whether there was a difference between entrepreneurial and non-entrepreneurial firms. This t-test was to understand which index could capture the difference between entrepreneurial and non-entrepreneurial firms across all four risk-related aspects. Based on the results of the t-test, it was decided to use equation-based indices for the next stage of the analysis. Accordingly, eight equation-based indices, two from each risk aspect were used as individual variables in the regression analyses described 4.6.5.9.1.

4.5.5.6 Chi-square test of independence

Before undertaking the modelling and regression analysis, a further statistical test was conducted to understand whether the risk-related variables used to build those indices are associated with the entrepreneurial or non-entrepreneurial status of firms. The Chi-square test of independence was selected as the appropriate statistical tool to achieve this purpose. The Chi-square (*X*²) test is a

nonparametric statistical method often used in quantitative data analyses where the data consist of 'counts' and are categorical in nature (Zibran, 2007). It can be used to compare the relative frequencies of one outcome versus other outcomes across groups. Chi-square is applied in this study in order to test the association between one grouping and another. When Chi-square is applied to test an association between two groups, it is known as the Chi-square test of association or Chi-square test of independence (Rosenstein, 2019). The Chi-square test was applied to test the association between selected risk-related variables against the entrepreneurial or non-entrepreneurial status of firms. The risk variables that were tested were the same variables that were used to derive the eight equation-based indices noted above. The outcomes of the tests were perceived as a confirmation of the suitability of selected variables for further analysis.

4.5.5.7 Modelling the relationship

The last step of the quantitative data analysis is modelling the relationship among risk indices, demographic variables, and the entrepreneurial/ non-entrepreneurial status of the firms. The aim of this modelling was to examine the impact of those risk and demographic variables in determining the entrepreneurial and non-entrepreneurial status of these small firms. It was also intended to understand whether entrepreneurial firms behave differently in risk-related aspects compared to non-entrepreneurial firms. Therefore, the dependent variable was identified as the firms' entrepreneurial or non-entrepreneurial status. Given the dichotomous nature of the dependent variable, the choice of relationship modelling tool was mainly limited to two main options; (1) binary logistic regression (BLR) and (2) linear discriminant analysis (LDA).

According to Hair et al. (2013), both BLR and LDA are appropriate multivariate statistical techniques when the dependent variable is a categorical (nominal or nonmetric) variable and the independent variables are metric or nonmetric variables. The main difference between these two methods is that BLR estimates the probability of an event occurring (G. A. Morgan, Vaske, Gliner, & Harmon, 2003) or it estimates the probability of a firm being either entrepreneurial or non-entrepreneurial. On the other hand, LDA determines to which group an object (i.e. firm or respondent) belongs (Hair et al., 2013) or in this study, whether a firm belongs to either the entrepreneurial or non-entrepreneurial group. Even though both of these methods appear to serve the same purpose, many scholars recommended using BLR over LDA and they consider that LDA has been made obsolete by BLR based on its features (Hair et al., 2013; Steyn, 2015). However, it was important to determine which approach is best suited for this study based on the intended outcomes. The most important difference in this study was that BLR is more interested in the independent variables' prediction power of the outcome, whereas LDA is more focused on the outcome itself (Steyn, 2015). Steyn (2015) further explained that BLR is more appropriate when the researcher is interested in the underlying structure of the prediction (i.e. "what

are the most important predictors?” or “what is the role that different variables play in the prediction), rather than in the specific prediction of which group of people belong to which is the emphasis of LDA. This explanation provides a good justification to choose BLR over LDA for this study as the aim was to understand what risk variables are most important in determining the entrepreneurial or non-entrepreneurial nature of firms.

Apart from the above reasons, LDA functions based on a number of strict assumptions on multivariate normality, equal dispersion of covariance matrices across groups, linearity, and outliers (Hair et al., 2013) whereas BLR is robust against deviations from most of these assumptions (Steyn, 2015). BLR can handle categorical predictor variables whereas in most cases, LDA accepts only continuous variables. This study also included certain categorical demographic variables that needed to be considered in relationship modelling. Based on the above, it was concluded that BLR is the best suited statistical tool for modelling the relationship between the entrepreneurial/non-entrepreneurial status of firms against risk-related and demographic variables.

4.5.5.7.1 Binary logistic regression analysis

As noted earlier, BLR is a statistical approach used to predict the presence or absence of an outcome based on the values of a set of predictor variables (Bian, 2018). The aim of BLR is to determine the probability of a case belonging to one category of the dependent variable for a given set of predictor variables. The outcome variable is dichotomous, while the predictor variables can either be continuous or categorical. BLR assumes a non-linear relationship between outcome and predictor variables. The regression coefficients are estimated using maximum likelihood.

When coding the outcome variables, one was used as the event occurring (i.e. entrepreneurial firms) while zero was used as the absence of the event (i.e. non-entrepreneurial). The outcome and predictor variables used in this study are depicted in Table 4.1.

Table 4-1. A description of the variables used in BLR

Variable name		Type	Description
Dependent variable		Dichotomous Nominal	Entrepreneurial – 1 Non-entrepreneurial – 0
Predictor variables			
Firm owner characteristics / Demographic parameters	Gender	Dichotomous (Categorical) Nominal	Male – 1 Female – 0
	Years of formal education	Scale	
	Age	Scale	
	Years of experience	Scale	

Risk-related aspects	Risk Propensity_FAC1	Scale	Equation based indices
	Risk Propensity_FAC2	Scale	
	Perceived opportunities of risks_FAC1	Scale	
	Perceived opportunities of risks_FAC2	Scale	
	Perceived threats of risks_FAC1	Scale	
	Perceived threats of risks_FAC2	Scale	
	Risk management strategies FAC1	Scale	
	Risk management strategies FAC2	Scale	

One of the unique characteristics of BLR is its use of the logistic relationship in both estimating the logistic model and establishing the relationship between outcome and predictor variables (Hair et al., 2013). The result is a unique transformation of the outcome variable, which impacts not only the estimation process but also the resulting coefficients for the predictor variables. As commonly used in regression methods, the concept of R^2 was used to estimate the model fitness. Moreover, a classification matrix was formed to measure how well the group membership is classified. When data were analysed using logit models, its coefficients take on a relatively different meaning from those found in regression with a metric outcome variable (Hair et al., 2013). Following the logit transformation process, the coefficients are considered as measures of the change in the ratio of the probabilities (i.e. the odds). Therefore, logistic coefficients are not interpreted in their original form, but as an exponentiated logistic coefficient, which is the antilog transformation of the original logistic coefficient.

When interpreting the results, it was important to pay attention to the positive or negative direction of the relationship (King, 2008). However, the interpretation of direction was different for original and exponentiated coefficients (King, 2008). In original coefficients, a positive sign indicated a positive relationship between the predictor and outcome variable where an increase in the predictor variable is associated with an increase in the predicted probability, and *vice versa* for a negative relationship (Hair et al., 2013). The original coefficients were used to identify the direction of the relationship while exponentiated coefficients were used to interpret the magnitude of the relationship (Hair et al., 1998; King, 2008). Since the exponential coefficients were expressed in terms of odds or as logarithms of original coefficients, there were no negative signs. Hence, the logarithm of 0 (no effect) is 1.0 and reflected no positive or negative direction. As a result, exponentiated coefficients above 1.0 reflected positive relationships while values less than 1.0 represented negative relationships (Hair et al., 2013).

Following the above procedure for interpretation, the BLR outcome was used to understand the relationship between risk-related variables and the entrepreneurial and non-entrepreneurial status of firms. Most importantly, the outcome was used to identify the most important variables that contributed to the probability of a firm being entrepreneurial or non-entrepreneurial. Out of these important variables, the most important risk-related variables were selected for further examination to understand their relationship with other variables. Since the selected risk-related variables were metric, multiple linear regression models were applied to understand the direction and magnitude of relationships.

4.5.5.7.2 Multiple linear regression analysis

Multiple linear regression analysis (MLR) is a general statistical technique used to analyse the relationship between a single outcome variable and several predictor variables. According to Hair et al. (2013), the general objective of MLR is to use the predictor variables whose values are known, to predict the single outcome value. This study employed MLR analysis to understand the factors that influence the risk-related outcome variables that were selected by the BLR. Several predictor variables including risk and demographic variables were used as predictor variables to understand the relationship.

The procedure of MLR analysis includes weighting each predictor variable to ensure maximal prediction from the set of predictor variables (Norman & Streiner, 2008). The weights denote the relative contribution of the predictor variables to the overall prediction and facilitate interpretation as to the influence of each variable in making the prediction (Hair et al., 2013). These weights are the regression coefficients that provide both the direction and magnitude of the relationship. Three MLR analyses were performed by considering three different risk indices as outcome variables. The idea was to understand the impact of other risk indices and demographic parameters of the sample on those risk indices. The analyses were carried out on the entire sample of 206 respondents without considering their entrepreneurial or non-entrepreneurial status. Even though it was important to understand whether the predictor variables that influence these risk indices were different among the two firm groups, performing a group-wise MLR was not successful given the smaller sample size. As a rule of thumb, there should be at least 20 respondents per one predictor variable to perform a successful MLR analysis (Hair et al., 2013) and this criterion was not fulfilled when the sample was categorised into two groups.

4.6 Summary

The purpose of the methods chapter was to set out the methodology applied in this study to address the research questions and to achieve the objectives. The chapter started with an overview of the research questions and then preceded to discuss the approaches taken to address them. The chapter

first detailed the methodology adopted in the preliminary study which was conducted to explore the Sri Lankan context of micro and small-scale firms operating in the agriculture food processing sector. The next sections were designed to explain the choice of research design along with the justifications for choosing an exploratory sequential mixed-method approach. Accordingly, the latter sections described the design, instrument development, data collection, and data analysis approaches used during the qualitative and quantitative phases respectively. Following the methods explained in this chapter, the next chapter presents the results of the qualitative phase.

Chapter 5 The Results of the Qualitative Phase of the Study

5.1 Introduction

This chapter presents the findings of the qualitative phase of the study. The qualitative phase is the first phase of the exploratory mixed method that investigates four case firms. Two entrepreneurial and two non-entrepreneurial firms were included in this phase of the study. As noted in the methodology chapter, the owners of the four case firms were interviewed, case reports were generated, and the cases were analysed following within-case and cross-case analysis procedures.

The broad aim of the qualitative phase was to explore and understand the nature of entrepreneurial and non-entrepreneurial MSEs in the agriculture processing sector in Sri Lanka. This addresses the first research question of the study, to establish whether there are entrepreneurial firms operating in the sector. Hence, entrepreneurial orientation (EO) is an established theory for determining the entrepreneurial nature of a firm, and it was used to understand the nature of EO of the selected case firms as a strategy for determining their entrepreneurial/non-entrepreneurial status. Thereby, the specific objectives of the research during the qualitative phase in relation to the EO of each case firm were:

- To describe the key characteristics of the firm (eg: Firm type, product type, the composition of employees etc.)

- To describe the key characteristics of the firm owner
- To understand the presence of the five EO dimensions (i.e. innovativeness, risk-taking, proactiveness, competitive aggressiveness, and autonomy) and how these dimensions have been embedded in the firms

In addition to these three specific objectives, as noted in the methodology chapter, there were two other objectives for the qualitative phase in relation to the risk behaviour of the firms. However, results pertaining to these objectives are not addressed under this results chapter, as the risk-related data were used for the instrument development for the quantitative phase and the risk-related results are discussed in the quantitative results chapter.

This chapter first provides an overview of the four case firms used in terms of the firm and firm owner characteristics. This is followed by a series of sections based on the five-dimensional approach of the EO. As explained in the methods chapter, the outcome of the qualitative analysis included: the results of the within-case analysis of the four case firms, the results of two types of cross-case analyses; an intra-group comparison of entrepreneurial, and non-entrepreneurial, firms, and an inter-group comparison of entrepreneurial *versus* non-entrepreneurial firms. However, this results chapter will mainly present the results of the final cross-case analysis: the inter-group comparison of entrepreneurial *versus* non-entrepreneurial firms. It will be supported with data and quotations extracted from the within and cross-case analysis reports where necessary. Four within-case analysis reports and two intra-group cross-case reports are included as appendices to provide the reader with more information if required.

5.2 Firm and firm owner characteristics

The study involved four case firms; two entrepreneurial and non-entrepreneurial firms. The firms and firm owners were given pseudonyms to protect their confidentiality and anonymity (Given, 2008). According to Given (2008), a general rule about the presentation of data is that individual respondents should be able to recognise themselves, but a reader should not be able to recognise the respondent. Moreover, it is important to select pseudonyms that do not distort the personality of the respondents. Hence, the pseudonyms used for the firms were given to reflect their unique characteristics such as their main products, or their primary target market while the pseudonyms of the firm owners were based on some of the most commonly found surnames in Sri Lanka. The pseudonyms are given in Table 5.1.

Table 5-1. Pseudonyms assigned to the case firms

Firm type	Firm's pseudonym	Firm owner's pseudonym
Entrepreneurial firm 1	Spice Co.	Mr. Perera
Entrepreneurial firm 2	Export Co.	Mr. & Mrs. Silva

Non-entrepreneurial firm 1	Snacks Co.	Mr. & Mrs. Dias
Non-entrepreneurial firm 2	Sesame Co.	Mr. & Mrs. Fernando

Table 5.2 summarises some of the key firm and firm owner characteristics of all four case firms. These details are provided to give the reader with a better understanding of the background and the nature of the individual case firms. Table 5.3 provides a cross-comparison between the entrepreneurial and non-entrepreneurial firms in relation to those key firm and firm owners' characteristics. The explanations of the firm and firm owner characteristics are mostly based on the data provided in Table 3 as the focus of this chapter is to compare and understand the differences between entrepreneurial and non-entrepreneurial firms rather than focusing on their individual identities.

Table 5-2. A summary of the firm and firm owner characteristics of the two entrepreneurial and two non-entrepreneurial case firms

Firm	Characteristic	Description			
		Entrepreneurial		Non-entrepreneurial	
		Spice Co.	Export Co.	Snacks Co.	Sesame Co.
	Firm type/category	Other processed foods (i.e. Spice processing)	Processed fruit and vegetables Other processed foods (i.e. spices, tea blends)	Other processed foods (i.e. <i>murukku</i> , spices, tea)	Other processed foods (i.e. confectionery items)
	Business structure	Private limited liability company	Sole-proprietorship	Sole-proprietorship	Sole-proprietorship
	Management	CEO and a board of directors	Family managed (husband and wife)	Family managed (husband and wife)	Family managed (husband and wife)
	Number of employees	Seven (two permanent and five on contract, non-family)	Five (two family and three non-family on contract)	Two (non-family on contract)	Two (family members)
	Location	Kandy District, Central province	Colombo District, Western province	Colombo District, Western province	Colombo District, Western province
	Years of operation	Four years	Nine years	Ten years	Seventeen years
	Product range	Spices, Innovative processing machinery	Dehydrated fruit and vegetables, Spices, Herbal tea blends, Herbal porridge mixtures and Herbal capsules	<i>Murukku</i> , spices, tea (packing and selling only)	Sesame products, other food items, confectionary items
	Market	Primary – Domestic hotel sector (star grade) Secondary – International	Primary – International Secondary – Domestic (High-income urban consumers, supermarkets)	Domestic retail market	Domestic retail market

		Spice Co.	Export Co.	Snacks Co.	Sesame Co.
Entrepreneur/ founder (CEO)	Age	Late twenties	Mid-thirties	Early-fifties	Early-sixties
	Education	Degree level (Engineering)	Degree level (IT)	Both wife and husband: G. C. E. (Ordinary level)	Husband: Up to G.C.E. Ordinary level Wife: Up to G.C.E. Advanced level
	Business motivation	To become an innovative business-person Seeing the market opportunity	Seeing the market opportunity	As a primary source of income Seeing the market opportunity	As a primary source of income
	Involvement with the business	Part-time (Engineer by profession)	Part-time (Owns another business firm)	Full-time	Full-time
Level of EO		4.09	4.06	2.84	1.94

Table 5-3. A comparison of the key characteristics of the entrepreneurial and non-entrepreneurial cases

	Characteristic	Entrepreneurial	Non-entrepreneurial
Firm	Firm type/ category	Other processed foods One firm is also in the processed fruit and vegetable category	Other processed foods
	Business structure	Initiated as sole-proprietorships and later converted or will be converted to private limited liability companies	Sole-proprietorships
	Management	Different management styles (a board of directors vs family)	Family managed (husband and wife)
	Number of employees	A higher number of employees Either family or non-family employees Both permanent and contracted employees	Less in number Either family or non-family employees All contracted employees
	Location	Urban, but different geographical locations	Urban, in the same geographical area
	Years of operation	Recently established compared to NE group	Started ≥ 10 years ago
	Product range	Both produce spices One is specialized in fruit and vegetable processing while one is in the production of non-food items	Snacks and confectionery items
	Market	Both domestic and international	Domestic retail
Entrepreneur/ founder (CEO)	Age	Relatively young owners	Relatively old owners
	Education	Degree level	Only up to school level
	Business motivation	Similar motives - Seeing the market opportunity One owner wanted to become an innovative entrepreneur (Their passion)	Similar motives - As a primary source of income
	Involvement with the business	Part-time	Full-time
Level of EO		Average – 4.075 (4.09+4.06)	Average – 2.39 (2.84+1.94)

Both the entrepreneurial cases and the non-entrepreneurial cases produce what the Annual Survey of Industries (ASI, 2015) classifies as “other processed foods” (Table 5.3). This similarity was an important feature in case analysis as it mitigates the impact of firm type on the firm’s nature of entrepreneurial orientation. However, one of the entrepreneurial firms (i.e. Export Co.) was classified under more than one firm type as it produced different types of products. According to the Annual Survey of Industries, Sri Lanka (ASI, 2015) the “other processed foods” category comprised a number of different firm types including bakery products, sugar, and confectionary, spices, essential oils, macaroni and noodles, etc. Hence, both firm groups represented one firm type, but produced different types of food items.

It was interesting to note that the entrepreneurial firms started their business as sole-proprietorships, but have converted or are converting into private limited company structures with more sophisticated management styles (Table 5.3). This change in legal business structure was noteworthy as it happened within a relatively short period of time as these entrepreneurial firms are still in the early stages of their business life cycles. In contrast, the non-entrepreneurial firms had originated and operated as sole-proprietorships for a relatively long period. Moreover, the owners of the non-entrepreneurial firms showed no interest in converting their legal business structures. Accordingly, the two types of firms showed two different styles of managing businesses. The entrepreneurial firms were, or are, managed by a board of directors including a chief executive officer while the non-entrepreneurial firms are family-owned and managed (Table 5.3). Moreover, the non-entrepreneurial firm owners expressed limited interest in upgrading their business structures or management styles to a different setting in the foreseeable future.

In terms of the number and composition of employees between the two firm groups, entrepreneurial firms appeared to be larger as they had a comparatively higher number of employees compared to the non-entrepreneurial firms (Table 5.2 & 5.3). However, the composition of family and non-family employees seemed inconsistent among the two groups. One firm from each group employed family members (i.e. Export Co. and Sesame Co.) while the other firms did not (i.e. Spice Co. and Snacks Co.). Recruiting employees on a contract basis seemed a common strategy for all firms regardless of their entrepreneurial orientation. However, entrepreneurial firms employed, or were going to employ a few permanent staff members, something not undertaken by the non-entrepreneurial firms. As noted earlier, the non-entrepreneurial firms had been established for a relatively longer period than the entrepreneurial firms. The interesting difference was that the entrepreneurial firms have shown capture more markets and introduce many new products compared to the non-entrepreneurial firms that were in business for a longer period of time.

The entrepreneurial and non-entrepreneurial firms are different from each other in terms of their product differentiation strategies too. As noted earlier, both the groups of firms were from the same firm type of “other processed food” yet, produced a different range of food items (Table 5.2 & 5.3). Entrepreneurial firms commonly produced spice items while non-entrepreneurial firms specialized in producing snacks and confectionary items. However, the entrepreneurial firms showed differences from each other in terms of their product diversification strategy. One of the entrepreneurial firms categorised under two firm types as it has diversified its product line into two different product lines (i.e. Export Co.). The other entrepreneurial firm (i.e. Spice Co.) chose to diversify their product range following an unrelated diversification strategy and produced agricultural machinery for the market. In terms of market targeting, the entrepreneurial firms acted differently from the non-entrepreneurial firms in selecting their target markets (Table 5.2 & 5.3). The entrepreneurial firms targeted the international market as either their primary or secondary market, whereas non-entrepreneurial firms only targeted the domestic retail market. However, entrepreneurial firms showed little interest in catering to the domestic retail market and chose to cater to different segments in the domestic market (i.e. catering to the domestic luxury hotels, and other business organizations) (Table 5.3).

Significant differences were also observed between the entrepreneurial and non-entrepreneurial firms in terms of the firm-owner characteristics (Table 5.2 & 5.3). The entrepreneurial firm owners were young and well-educated to a degree level compared to the non-entrepreneurial firm owners who were much older and only educated up to a secondary school level. Another prominent difference observed between the two case types was in relation to their motivation to start the businesses. The entrepreneurial firm owners were primarily motivated by a desire to take advantage of market opportunities and their strong passion for entrepreneurship (Table 5.2 & 5.3). More specifically one of the entrepreneurial firm owners (i.e. Mr. Perera of Spice Co.) declared that his intention was to become an innovative businessperson from the very beginning of his career. In contrast, the non-entrepreneurial owners were motivated by the need for a livelihood strategy to support their families. Accordingly, the entrepreneurial firm owners can be identified as “opportunity entrepreneurs” who started their businesses in order to capture the benefits of a market opportunity and to use their high level of creativity (Block, Sandner, & Spiegel, 2015). Both entrepreneurial firms fit into this category as their start-up motivations were to seize market opportunities while being innovative in the product-market strategies. On the other hand, the non-entrepreneurial firms were set up because the owners needed a means of supporting their families (i.e. necessity orientation) (Block et al., 2015). Out of two non-entrepreneurs one can be considered as entirely necessity-oriented whereas one was mixed-motivated with two start-up motivations (Block et al., 2015). They wanted to seize opportunities in the market, but also they wanted to use the firm to support their family.

The owners of the entrepreneurial firms were involved with the business on a part-time basis as they had other commitments such as a full-time job or another business to attend to. In contrast, the owners of the non-entrepreneurial firms committed themselves to the business on a full-time basis as it was their primary source of income (Table 5.2 & 5.3). This again confirms their nature as being necessity entrepreneurs rather than opportunity entrepreneurs. Non-entrepreneurial firm owners had no other alternative sources of income to support their families besides their firms. Hence, they were engaged full-time with that business.

As explained under the methodology chapter, the firms were tested for their level of EO prior to the interviews to determine their entrepreneurial/non-entrepreneurial status. Mean scores were calculated for both individual dimensions and for the firms' overall EO. In terms of the overall EO scores, it was clear that two entrepreneurial firms scored similarly to each other while the scores of two non-entrepreneurial firms were quite different from each other. The overall scores obtained by the individual case firms for the EO test are also depicted in Table 5.2 and 5.3. Table 5.2 shows the comparison of mean scores of the overall EO dimensions among the four firms while Table 5.3 shows the averages scores for the entrepreneurial and non-entrepreneurial groups to understand the cross-case differences. Table 5.4 shows a comparison of mean scores of the individual EO dimensions among the four case firms and among the two firm groups.

Table 5-4. Comparison of EO dimensional mean scores of the case firms

Dimension	Spice Co.	Export Co.	Avg E	Snacks Co.	Sesame Co.	Avg NE	Difference between E - NE
Proactiveness	4.50	5.00	4.75	2.80	1.50	2.15	2.60
Innovativeness	4.33	4.56	4.44	2.44	1.89	2.17	2.27
Competitive aggressiveness	4.20	4.40	4.30	3.00	2.60	2.80	1.50
Risk-taking	3.88	3.75	3.82	3.13	2.13	2.63	1.19
Autonomy	3.60	2.40	3.00	3.00	1.40	2.20	0.80

The comparison of dimensional mean scores shows that the entrepreneurial firms scored higher for all five dimensions compared to the non-entrepreneurial firms (Table 5.4). Among the two entrepreneurial firms, Export Co. scored higher in the first three dimensions; proactiveness, innovativeness, and competitive aggressiveness while Spice Co. scored higher in the risk-taking and autonomy dimensions. In comparison, of the non-entrepreneurial firms, Snacks Co. scored higher for all five EO dimensions compared to Sesame Co (Table 5.4). The next section of this chapter will compare and contrast the relevant EO practices adopted by two types of case firms with examples of individual case firms where necessary.

5.3 The entrepreneurial orientation of the case firms

The results of inter-group cross-case analysis between the entrepreneurial and non-entrepreneurial firms in relation to their entrepreneurial orientation are presented here. The discussion is mostly focused on the differences between the two firm types, but important points about the individual case firms are also included where appropriate. This section includes a detailed comparison of the practices and approaches adopted by the two firm groups related to five EO dimensions; proactiveness, innovativeness, competitive aggressiveness, risk-taking, and autonomy.

5.3.1 Proactiveness

Proactiveness is the dimension that yielded the highest overall score difference between the two firm groups (Table 5.4). The average scores obtained for the individual proactiveness statements for the entrepreneurial and non-entrepreneurial firms along with the difference between the two firm types for those individual statements are shown in Table 5.5. The statement P2 shows the highest score difference between the two groups while P3 and P4 show the least score differences.

Table 5-5. A comparison of scores for the proactiveness statements

No	Statement	Avg. Score		Difference b/w E-NE
		E	NE	
P1	My firm typically initiates action which the competition then responds to	4.5	1.5	3
P2	My firm is very often the first business to introduce new products, administrative techniques, operating technologies, etc.	4.5	1	3.5
P3	My firm is closely monitoring technological trends and identifying the future needs of customers	5	3	2
P4	My firm excels at identifying opportunities	5	3	2

Clear differences were observed between the entrepreneurial and non-entrepreneurial firms in relation to their level of proactiveness shown during the start-up period as well as in their day-to-day business operations. More specifically, the entrepreneurial firms scored their proactive behaviour much higher than the non-entrepreneurial firms. In general, a proactive business is one that places a greater emphasis on forward-looking strategic planning and the capture of opportunities. These features were prominent in the behaviour of entrepreneurial firms since their start-up period. As noted in section 5.2, the two businesses were set up because the owners were seeking to solve problems faced by businesses owned by their parents.

Mr. Perera of Spice Co. explained the problems faced by his parent's business as;

"... My father is a spice grower who owns pepper cultivations and grows pepper, cinnamon and other crops. We live in Kandy, an area with lots of rains throughout the year. Our harvesting period always

overlaps with the rainy season. We face the problem of heavy rains during the harvesting and processing period where sun drying becomes impossible..."

Mrs. Silva of Export Co. also explained how her husband conceived the initial idea of a business start-up based on a problem his father was experiencing with his business as;

"... my husband started this business in 2009 while he was studying at the university. He saw his father is earning very little from his cinnamon even if it has a very high potential of earning a good amount of money. Both locally and internationally. So, he wanted to make a difference in the way his father was doing business..."

Later the owners of both entrepreneurial firms managed to take the solutions they had developed to not only to solve the issues faced by their families, but also to seize these as opportunities within the market. For example, Mr. Perera decided to incorporate his engineering knowledge to find a solution for the spice drying problem and realised that not only his father, but also the other farmers in the area faced the same issue. As such, he designed a specialized dryer that uses inexpensive renewable energy, that would be suitable for local farmers.

"As I was thinking about the dryer, I realized that it would be best if I can use renewable energy for that. I wanted to use some material that is not being used or something we dispose, instead of using furnace oil or electricity. In our villages we can find lot of dried coconut leaves, husks and dried wood that are not being used for any purpose. I thought it would be better if I can use them as an energy source for the new drying machine..." (Mr. Perera, Spice Co.)

This observation again confirms the opportunity seeking behaviour of entrepreneurial firms (Block et al., 2015; Niels Bosma & Harding, 2006) as compared to non-entrepreneurial firms. In contrast, the non-entrepreneurial firms said that they have started their businesses not because they saw an opportunity in the market, but because they needed a primary or supplementary source of income.

The proactive nature and the forward-looking perspective of the entrepreneurial firms helped them to obtain the benefits and competitive advantage of being first movers in introducing different products and processes to the market. This outcome is consistent with the first-mover advantages of entrepreneurial firms as discussed by Lieberman and Montgomery (1988). The entrepreneurial firms had introduced certain new products and processes to the market ahead of the competition as suggested by Lumpkin and Dess (2001). In contrast, the non-entrepreneurial firms had only followed the market leaders. For example, Export Co. was one of the first firms in Sri Lanka to introduce frozen fruit and vegetables and herbal tea blends to the local market.

“... the volatile oils that are present in spices are very well used in the pharmaceutical and perfume industries. However, use of these oils in the production of herbal, medicine and perfumes are not well developed in Sri Lanka and in fact no one else is doing it at the moment. I did some research work on this and will introduce it with proper investments...” (Mr. Perera, Spice Co.)

The above quote from Mr. Perera’s interview sets out his thinking in terms of introducing new products to the local market as a first mover. In contrast, Mrs. Fernando of Sesame Co. agreed that they usually imitate the concepts of their competitors rather than their competitors copying them. This is further shown by the higher score differences for statements P1 and P2 between entrepreneurial and non-entrepreneurial firms. As noted earlier, the forward-looking perspective in decision making and identifying the future needs of the customers are also identified as important aspects of firm proactiveness (Lumpkin & Dess, 1996).

The cross-case analysis showed that the entrepreneurial firms always kept up to date on demand trends and changes in market demand. The entrepreneurial firms had a reasonably clear idea about how the processed food market was likely to change in the future and they designed products to capture this future market demand. Moving towards renewable energy, using organically produced crops, designing spice mixtures for specific curries, and placing food supplements in capsule form are some of the examples that they had developed to meet the future needs of their customers. They were aware that customers in the future will be more conscious about their health and the environment. They believed that their customers would also prefer ready-to-eat products to save time on cooking.

As an example, Mrs. Silva of Export Co. explained about their understanding of the present situation and future trends important to their food business as follows.

‘... Our people are now not as healthy as they used to be. Most of us are suffering from diabetes and cholesterol due to the consumption of unhealthy artificial foods. In future we are going to need healthy and organic foods more and more. We don’t eat healthy foods, or we don’t have access to them. Our products do a great deal of work to change that habit and our raw material are 100% natural and organic...’

In contrast, the two non-entrepreneurial firms had less interest in the future needs of their customers. Sesame Co. showed no interest in the future needs of their customers and nor did they try to anticipate trends in the processed food industry. They had no significant plans for the future and focused on the present status of the business (i.e. statement P3 in Table 5.5). In contrast, Snacks Co.

showed some interest in future customer needs and thought about potential demand trends, but not to the degree of the entrepreneurial firms.

Technology orientation was identified in this study as another important determinant of firm proactiveness (Lumpkin & Dess, 1996, 2001). The entrepreneurial firms in this study were more technologically oriented given their owners' knowledge, special skills (i.e. engineering & IT), and the strong passion for technological and product innovations. Moreover, these firms invested reasonable amounts of time and capital towards R&D activities within their businesses. As individual firms, Spice Co. was always seeking information about new technologies and processes while Export Co. spent time researching new product developments. As an engineer, Mr. Perera himself designed all the machines and processing equipment used by Spice Co. and these incorporated modern technological advancements. This was further supported by his start-up motivation as Mr. Perera stated;

"... My main motivation is actually not to become just a businessman, I wanted to become an innovative businessman who uses technology as and when appropriate. That is the difference between me and another ordinary businessman and that makes me unique. I always keep the role of the engineer within that businessman..."

In contrast, this sort of technology orientation did not exist for the two non-entrepreneurial firms. The non-entrepreneurial firms did not use much technology, but rather they used simple machinery to aid their production processes. Many of their production activities were manual and they did not actively research technologies that might be useful to their businesses in the future (i.e. statement P3, Table 5.5).

Business-related activities such as; technology orientation, R&D and the competitive advantages of being first-movers in the industry may influence not only the proactivity of firms but also their innovativeness and competitive aggressiveness. The literature also supports the fact that these three dimensions are closely linked to each other (Lumpkin & Dess, 1996, 2001) and certain activities may represent more than one EO dimension. The next section will compare and contrast the innovation strategies used by entrepreneurial and non-entrepreneurial firms.

5.3.2 Innovativeness

The innovativeness dimension recorded the second-highest score difference between entrepreneurial and non-entrepreneurial firms (Table 5.4). Entrepreneurial firms recorded an average score of 4.44 while non-entrepreneurial firms recorded 2.17 indicating the entrepreneurial firms are much more innovative than their non-entrepreneurial counterparts. Table 5.6 shows the average scores calculated for the entrepreneurial and non-entrepreneurial firms for the individual innovativeness

statements along with the difference between the two firm types for those individual statements (Table 5.6).

Table 5-6. The comparison of scores for the innovativeness statements

No	Statement	Avg. Score		Difference
		E	NE	E - NE
I1	In my firm during the last five years, very many new product lines were introduced/marketed	4.5	3.5	1
I2	In my firm, changes in product lines have mostly been quite dramatic (new to the industry/new to the world)	5	1	4
I3	In my firm during the last five years, many new processing methods have been introduced	4	2	2
I4	In my firm during the last five years, many new marketing approaches have been introduced	4	1.5	2.5
I5	In my firm during the last five years, many new administration/management approaches have been introduced	2.5	1	1.5
I6	In my firm, there is a long-term commitment to invest in new technology, R&D, and continuous improvement	5	2	3
I7	My firm actively introduces improvements and innovations	5	2.5	2.5
I8	My firm is creative in its methods of operation	5	3	2
I9	My firm seeks out new ways to do things	5	3	2

It was interesting to note that, among the nine innovativeness statements, both the highest and lowest score differences were recorded from the statements that were related to product innovations. Statement I2 regarding 'product innovations being dramatic' or new to the industry and, or world, marked the highest score difference between entrepreneurial and non-entrepreneurial firms while introducing many new products (i.e. statement P1) recorded the least score difference. This indicates that both entrepreneurial and non-entrepreneurial firms have introduced quite a few products to their product lines during the past five-year period, yet only the entrepreneurial firms managed to introduce significantly new products that are not only new to their firms, but also to the respective markets they operate in. According to statement I3, it was clear that the entrepreneurial firms have introduced more process innovations than the non-entrepreneurial firms. The average score for the entrepreneurial firms is twice that of the non-entrepreneurial firms. This finding can be attributed to the high technology orientated nature of entrepreneurial firms compared to the non-entrepreneurial firms.

Relative to the entrepreneurial firms, the non-entrepreneurial firms have introduced a limited number of product and process innovations. Moreover, these product and process innovations introduced by the non-entrepreneurial firms were limited in the degree of importance to the processed food

industry. In a broader sense, the entrepreneurial firms have introduced not only new-to-the-firm type innovations, but also new-to-the-market type product/process innovations whereas the non-entrepreneurial firms only came up with the new-to-the-firm type of innovations that were imitations of what their competitors were doing. For example, Spice Co. has introduced a Garcinia cream that was identified as a new-to-the-market type of product innovation while different herbal tea blends and cinnamon toothpicks introduced by Export Co. were also identified as a new-to-the-market type of product innovation. Spice Co. has also come up with a new-to-the-market type process innovation as they introduced a new method of processing white pepper. Mr. Perera explained about his new processing technique as follows.

“... For white pepper products, we use a unique process designed by me. Because, the common procedure to produce white pepper is that we have to pick fully ripened peppers and remove the peel. But the problem is, we cannot wait until the pepper is ripe and it has reached the correct stage for white pepper. There are practical problems such as; rain, labour as well as theft. What I did was, I invented a new method using some microbial activities and enzymes to produce white pepper from matured pepper without using a fully ripe pepper ...” (Mr. Perera, Spice Co.)

Although the entrepreneurial firms scored highly for innovativeness, the non-entrepreneurial firm, Snacks Co. also developed a unique production process for their main product through experimentation that uses unique ingredients. The owner of Snacks Co., Mrs. Dias claimed that this was a new-to-the-market type process innovation as it was not something they had seen used by their competitors.

“... It’s our production process and usage of our raw material that makes our products unique. What they [competitors] have in the market is a Murukku that is made using yeast as a leavening agent. Our production process is different as we do not allow any fermentation. Instead of fermentation, we found out that we can boil flour before making the end product. That gives a good taste and good texture to the product...”

“...In terms of inputs, we use a mixture of rice flour, gram flour and wheat flour whereas our competitors only use wheat flour for production. Using wheat flour is cheap but results a poor quality, poor tasting end product...” (Mrs, Dias, Snacks Co.)

Although Snack Co. had developed this innovation, all the other product innovations introduced by them and all the product and process innovations introduced by Sesame Co. were identified as “me-too” or new-to-the-firm type innovations. This observation helps to differentiate the four firms into two categories; innovation generators versus innovation adapters (Damanpour & Wischnevsky, 2006). Based on this categorisation, the entrepreneurial firms can be classified as innovation generators

whereas the non-entrepreneurial firms can be classified mostly as innovation adapters. However, this classification system cannot be applied in an absolute sense to all the case firms. For example, certain innovations introduced by entrepreneurial firms were also inspired by their competitors. This suggests that it is impractical for a small business to introduce new-to-the-market innovation all the time. It also shows that firms operate along a continuum of innovation.

Schumpeter (1934) was one of the first scholars to relate innovativeness as a key determinant of entrepreneurship while focusing on four types of innovations; product, process, market, and organizational/management. Out of these four types of innovations, product and process were identified as the most commonly researched types of innovations in the literature (Avermaete et al., 2004; Cabagnols & Le Bas, 2002; Lumpkin & Dess, 1996) whereas market and organizational innovations were seldom considered in these studies (Karlsson & Tavassoli, 2016). This lack of market and management innovations is also apparent in the case firms regardless of their level of EO. Both entrepreneurial and non-entrepreneurial firms recorded a low level of market and especially management related innovations compared to their introductions of product and process innovations (i.e. statements I4 & I5). Export Co. was the only firm that has adopted different market innovation strategies due to their primary market being international via an online platform. However, these practices were inspired from their competitors and mostly identified as good marketing practices. Out of the four case firms, the entrepreneurial firms have carried out or have planned to carryout organizational and management innovations whereas the non-entrepreneurial firms showed no interest in such activities. The management innovations that were introduced were related to converting their ownership structure from a sole-proprietorship to a private limited liability company. This conversion is not something unique to these entrepreneurial firms, but changing the ownership structure at the very early stage of the business life cycle was a notable feature for these two firms. According to the literature, it appeared that a lack of marketing and management innovations is a common feature among businesses. Tavassoli (2015) noted that most firms may turn to market and/or organizational innovations during the maturity and obsolescence stages of the business life cycle. However, the non-entrepreneurial case firms had no significant market or organizational innovations even though they had been in the industry for a quite long time.

In consideration of R&D and technological capabilities, the entrepreneurial firms committed a large amount of their resources to R&D and technology, while the non-entrepreneurial firms showed little interest in R&D spending (i.e. statement I6). The average score of the entrepreneurial firms on statement I6 is at its maximum (i.e. strongly agree=5) leading to quite a large difference between the two firm groups. Entrepreneurial firms invested the majority of their time and capital on product and process innovations, and they were identified as more technologically oriented than the non-

entrepreneurial firms. In general, innovation studies (Hirsch-Kreinsen, Jacobson, Laestadius, & Smith, 2005) considered the role of R&D and technological capabilities as proxies of firm innovativeness (Grunert et al., 1997). However, all innovative activities introduced by firms are not about R&D and technology where innovations can primarily be based on new combinations of resources, people, ideas, knowledge, and/or technologies (Karlsson & Tavassoli, 2016).

Out of four case firms, Spice Co. was identified as the most technology oriented, innovative firm. This can mainly be attributed to the engineering knowledge and experience of the owner. As explained earlier, the owner himself designed most of the processing equipment used in the firm and he used economical and environmentally friendly strategies. Export Co. was focused on R&D, introducing a large number of new products that used modern, but already available technologies. In contrast, the non-entrepreneurial firms rarely invested in R&D in order to introduce a new product or process innovations.

Statements 17, 18, and 19 are focused on the overall innovativeness and creativity of small businesses. On average, the entrepreneurial firms scored high on these statements compared to the non-entrepreneurial firms indicating that they are innovative across all aspects of the business. The entrepreneurial firms scored highest (i.e. 5) on these statements whereas the non-entrepreneurial firms scored much lower creating a considerable difference (2.0 – 2.5) between the two groups.

Entrepreneurs' personal traits are also being investigated as important determinants of firm innovativeness. In terms of the educational background and experience of the entrepreneur, it has been suggested that entrepreneurs with a post-school qualification are more innovative than other entrepreneurs (Avermaete et al., 2004). This suggestion in the literature is supported by the results of the case analysis where the owners of both entrepreneurial firms completed their formal education up to degree level while the owners of the non-entrepreneurial firms had no formal education beyond the school level. Leiponen (2000) noted that education not only contributes to the technical, communication, and social skills of entrepreneurs, but also improves their ability to learn which is crucial for innovation. In addition, studies have emphasised the importance of the entrepreneur's experience on firm innovativeness. However, there is little evidence to support that entrepreneurs of small firms with a higher number of years of working experience are more innovative than others (Romijn & Albaladejo, 2002). Interestingly, out of the four case firms, the owners of the non-entrepreneurial firms had more past experience while engaging in their businesses on a full-time basis whereas the entrepreneurial firm owners had only completed few years in their respective businesses and engaged with the business on a part-time basis. However, the data from four case firms is not adequate to make a solid statement about the relationship between business experience and the level

of innovativeness. The next section of the analysis focused on comparing the level of competitive aggressiveness between entrepreneurial and non-entrepreneurial firms.

5.3.3 Competitive aggressiveness

The competitive aggressiveness dimension recorded the third highest difference between entrepreneurial and non-entrepreneurial firms (Table 5.4). According to the average scores, entrepreneurial firms are more competitively aggressive than non-entrepreneurial firms. Table 5.7 shows the individual statements that were used to measure the competitive aggressiveness of the firm owners. Table 5.7 shows the average scores of entrepreneurial and non-entrepreneurial firms along with the difference in scores between the two firm types. The data for the competitive aggressiveness dimension showed important differences compared to the previously discussed EO dimensions. Two individual statements recorded negative differences indicating that non-entrepreneurial firms scored higher than entrepreneurial firms in this area (i.e. CA3 & CA4). The highest score difference was recorded for statement CA5 while the least was recorded for statement CA3. The activities and strategies adopted by the two types of firms to challenge and withstand competition from their rivals are compared below.

Table 5-7. The comparison of scores for the competitive aggressiveness statements

No	Statement	Avg. Score		Difference
		E	NE	E - NE
CA1	My firm typically seeks to a competitive “undo-the-competitors” posture	3.5	2	1.5
CA2	My firm is very aggressive and intensely competitive	4	2	2
CA3	My firm adopts a price-cutting strategy to enhance its competitive position [Reversed]	1	2	-1
CA4	My firm copies the business practices or techniques of successful competitors to enhance its competitive position [Reversed]	2	4	-2
CA5	My firm uses unconventional strategies to challenge competitors	5	2	3

As noted under the case description, the two types of firms were chosen from the same food processing industry even though they represented different firm types and product categories. Hence, all firms were in a relatively similar competitive market with a large number of sellers and homogenous products. It was interesting to note that both firm types tried to move away from the intense competition in this market and they managed to find market niches within the same food processing industry, but with less competition. Hence, the statement CA1 received a low average score from both firm types while the difference between two firm types was also low. The only exception was one non-entrepreneurial firm (i.e. Sesame Co.) that does not seek such a specific market niche.

Mr. Perera of Spice Co. explained how they tried to keep away from the highly competitive retail market and found a specific niche in the hotel sector.

“... We supply all the spice products that are needed by the hotel sector in Sri Lanka including Chilli powder, curry powder and all the other spices. Most of the competitors like ‘ABC products’ also produce the same range of products. But their main target market is the retail market whereas we take a different approach to marketing. Our main target is the star class hotels in Sri Lanka. We do cater for the retail shops but in very small quantities. The star class hotels have a requirement for high quality spices...” (Mr. Perera, Spice Co.)

As explained under the summary of the entrepreneurial cross-case analysis, in the marketing literature this strategy of finding markets with less intense competition is known as the “blue ocean strategy” (W. C. Kim & Mauborgne, 2004). Firms that adopt this strategy, chose to operate in an *unknown* market space, untainted by competition. All these firms except Sesame Co. managed to find their own blue oceans within the red ocean of the processed food industry. In detail, the entrepreneurial firms were players in the competitive processed spice market in Sri Lanka where Spice Co. chose domestic hotels as their primary market while Export Co. decided to market their spices through an online portal mainly targeting international customers. The blue ocean chosen by Export Co. is not completely a blue ocean considering the number of producers in both the local and international markets. However, the inherent reputation of the quality of Sri Lankan spices in international markets provided the necessary competitive advantage for this firm. In addition, the IT knowledge and expertise of the couple who owned Export Co. helped them to excel in the online market. One of the non-entrepreneurial firms (i.e. Snacks Co.) has also chosen to cater to a niche market based on geographic isolation (i.e. a rural area with not many other sellers). This can also be described as practicing the blue ocean strategy where that market was untapped by producers of similar products.

It was also interesting to note that these firms have used “product quality” as their main strategy against the competition regardless of their level of EO. Owners of both firm types were very confident about the quality of their products. Mrs. Silva of Export Co. claimed that their high-quality spices received good recognition among international buyers while Mr. Perera of Spice Co. explained how their high-quality spices received considerable recognition from the star-graded hotels in Sri Lanka. Even Mrs. Fernando of Sesame Co. expressed her confidence in the quality of both the raw material they use and their final product compared to that of their competitors.

“... We use the best local ingredients for our products. We use the best cinnamon grown in our own plantations in the Southern province. We always try to keep our image as a brand that sells high quality spices and dehydrated products. The quality of the product is what makes us unique and different from

other producers. We cannot sell these products to the local market at a high price as our local customers will not be able to afford them. But foreign people are usually willing to pay the best price for a quality product..." (Mrs. Silva, Export Co.)

"...Our main strategy is "product quality". We might get trapped with the competition, if we are trying to compete using "price" as a strategy. All our large-scale competitors are trying to provide products at a lower price. Also, those home-based micro scale spice manufacturers also market their products at a very low price. But the product quality of both of these categories is very low and customers are not satisfied with that..." (Mr. Perera, Spice Co.)

"... we use quality and the price of the product as our main strategy. We knew that our product quality was excellent compared to our competitors when we used traditional mortar and pestle for the production. But now, as we are using the machine, the taste is not similar to previous, but still better than our competitors. Because we use original quality jaggery whereas our large-scale competitors use cheap and poor-quality alternatives to jaggery..." (Mrs. Fernando, Sesame Co.)

According to the literature, factors other than product features and quality are used by firms to compete against their industry rivals. Pricing and advertising are two commonly employed strategies by firms (Aluf & Shy, 2001; Chaganti, Chaganti, & Mahajan, 1989). However, low product pricing was not identified as a common strategy against competition among the entrepreneurial firms. Entrepreneurial firm owners repeatedly emphasised that they never use a price cutting strategy as a mechanism against their competitors or even as a strategy to enter the market. These views are reflected in the previous quotations by the firm owners. Both firms stated that their products are high in quality and as a result high in price. Hence, they assumed that a typical customers may not be able to afford their products. They are targeting wealthy customers who can pay a high price for high quality products.

Not using price as a strategy is depicted by the lowest average scores recorded for statement CA3. Moreover, the statement CA3 recorded the least difference between the two firm types in the competitive aggressiveness dimension (Table 7). Despite the overall low scores, one of the non-entrepreneurial firm owners stated that they have used price-cutting as a strategy against the competition in the past.

"... The large-scale producers are able to market their products at a low price as they produce in large quantities. So, we also have to lower the price to compete with them. Customers these days tend to go for low priced products even if the quality is compromised. So, we keep prices similar to our competitors to survive in the market..." (Mrs. Fernando, Sesame Co.)

The others case firms did not employ this strategy even as a market entrant strategy for two reasons. One was that the entrepreneurial firms could not afford to deliver their products at a lower price because of the high cost of their raw materials and processing techniques. On the other hand, one of the non-entrepreneurial firms, (i.e. Snacks Co.) hesitated to adopt the price-cutting strategy as they perceived price as a proxy for product quality (Verma & Gupta, 2004).

“... We will never use low pricing as a strategy to beat the competition. Low price means low quality. We will never reduce but increase the price of our products...”

“... Our competition strategy is higher quality products. We keep very high standards in our quality where people ask for our products personally. Some days our phone rings continuously for the orders...”
(Mrs. Dias, Snacks Co.)

Statement CA4 showed some interesting differences between the two firm types as the non-entrepreneurial firms recorded a higher average score than the entrepreneurial firms (Table 5.7). Hence, the difference between the two firm types was recorded as a negative value. This was because the entrepreneurial firms rarely tried to entirely copy their competitors' strategies to maintain or enhance their competitive position in the market while the non-entrepreneurial firms accepted that they have copied certain good business practices of their competitors.

“... Other than that, we have changed our labelling pattern. This suggestion came through our retail shop owners. They showed us how other producers label and pack their products and asked us to do the same. That way was more attractive and eye catching than what we had. So, we recently changed our packaging and labelling method...” (Mrs. Fernando, Sesame Co.)

Moreover, none of the case firms have attempted to practice advanced advertising methods for their products even though the literature suggested a strong association between advertising and competition (Aluf & Shy, 2001; Erickson, 2003). This was a common practice among all the case firms regardless of their level of EO. It was found that the non-entrepreneurial firms had not adopted this strategy because they did not have the cash flow to afford advanced advertising methods. In contrast, the entrepreneurial firms did not utilise this strategy because they had more demand for their products than that they could cater for. Hence, they decided there was no need to use advertising to increase sales. The next section of this chapter will focus on the risk-taking aspects of entrepreneurial and non-entrepreneurial firms.

5.3.4 Risk-taking

Risk-taking is identified as the EO dimension with the second least average score difference between the entrepreneurial and non-entrepreneurial firms (Table 5.4). The scores suggest that the entrepreneurial firms are greater risk-takers than the non-entrepreneurial firms even though the score differences pertaining to the individual statements were relatively small for a number of statements (Table 5.8). These small differences in the scores suggest that entrepreneurial and non-entrepreneurial firms behave in a similar manner in relation to risk-taking for some aspects of their business, although even here, the entrepreneurial firms take a greater risk. The areas of risk taking where the differences in scores was quite small included RT5, RT6 and RT8. In contrast, the entrepreneurial firms scored significantly higher in terms of risk taking for actions such as RT1 and RT7. The entrepreneurial firms also scored moderately higher than the non-entrepreneurial firms for risk taking in relation to the adoption of bold wide-ranging acts, not operating in a gradual, timid and incremental manner and committing a large proportion of its resources into firm growth.

Table 5-8. The comparison of scores for the risk-taking statements

No	Statement	Avg. Score		Difference between E & NE
		E	NE	
RT1	My firm invests in high-risk projects (with the probability of a very high return)	3.5	1.5	2
RT2	My firm adopts bold, wide-ranging acts that are necessary to achieve the firm's objectives	4	3	1
RT3	My firm believes that it is best to explore the environment in a gradual, timid and incremental way [<i>Reversed score</i>]	2	3	-1
RT4	My firm commits a large portion of its resources in order to grow	4.5	3.5	1
RT5	My firm invests in major projects through heavy borrowing	3	2.5	0.5
RT6	In my firm, people in our business are encouraged to take calculated risks with new ideas	3.5	3	0.5
RT7	My firm emphasizes both exploration and experimentation for opportunities	5	3	2
RT8	My firm adopts a cautious 'wait-and-see' posture in order to minimize the probability of making costly decisions (the opposite to being bold and aggressive in exploiting opportunities) [<i>Reversed score</i>]	3	3.5	-0.5

The concept of opportunity *versus* necessity-based entrepreneurship can also be incorporated to explain the nature of risk-taking among the two types of firms. Block et al. (2015) claimed that necessity entrepreneurs are found to be more risk-averse compared to entrepreneurs who are motivated by opportunity and a high level of creativity. Hence, the data in Table 5.8 shows that the

entrepreneurial firms were greater risk-takers when compared to the non-entrepreneurial firms who started their business activities out of necessity.

Considering the highest positive score differences for statements RT1 and RT7, it can be said that entrepreneurial firms were more comfortable in accepting new opportunities and stepping outside of their comfort zone. These features have already been discussed under the proactiveness and innovativeness dimensions in relation to how Spice Co. and Export Co. seize opportunities for the purpose of growing their firms. They have always experimented with new products and production processes and are willing to take the risks in relation to this. This allowed them to become first movers in terms of introducing new products and processes. The spice based pharmaceutical products that Spice Co. planned to introduce is an excellent example for these two risk-taking statements. That project was a high-risk project because it was something entirely new to the Sri Lankan market and involved considerable cost. Yet, Mr. Perera expressed his willingness to take that risk as it could bring a good turnover for their company. On the other hand, the food supplementary capsules introduced by Export Co. was another risky endeavour that they decided to attempt. Based on the food habits of typical Sri Lankans, it was a risky decision to introduce a capsule and it involved a reasonable amount of capital for the firm. Yet, the family took the risk and was successful in their attempt, earning good returns and gaining popularity. Moreover, as stated in RT7, both entrepreneurial firms were into a process of continuous experimentation to introduce new products and processes.

Both the entrepreneurial and the non-entrepreneurial firms invested a lot of capital into the growth of their businesses except Sesame Co. Owners of both Sesame Co. and Export Co. reinvested returns from their secondary ventures into the growth of their primary ventures. Moreover, the owners of Snacks Co. had reinvested the proceeds of their previous business into the start-up and growth of their current firm. However, the perception that these firms undertook heavy borrowing and built up debt was not consistent across the two firm types (i.e. RT5). One firm from each category was not against borrowing while the other firm tried to not to take on debt. Mr. Perera of Spice Co. was keen to borrow money in order to develop his business. He recognised that the financial commitments and payback deadlines were motivators to keep him on track. However, the non-entrepreneurial firms were less motivated to invest in risky projects through heavy borrowing.

The statements RT3 and RT8 were reversed score statements, so although they showed a negative difference between the two groups, this was expected. The negative value for statement RT3 showed that the non-entrepreneurial firm believed that they needed to explore the market in a gradual and incremental way. In contrast, the entrepreneurial firms disagreed with the idea that they needed to explore the market in a gradual and incremental way. The responses for the statement RT8 followed

a similar pattern where the non-entrepreneurial firm agreed that they adopted a “cautious wait-and-see” posture when making costly decisions. The responses of entrepreneurial firms to this scenario was that they were *indifferent* towards taking a “cautious wait-and-see” approach when making a costly decision. The final sub-section of this chapter will compare and contrast the level of autonomy between entrepreneurial and non-entrepreneurial firms.

5.3.5 Autonomy

According to the average value differences of five EO dimensions depicted in Table 5.4, autonomy had the least difference between the entrepreneurial and non-entrepreneurial firms. Although the difference between the scores is 0.8, suggesting the entrepreneurial firms are more autonomous than the non-entrepreneurial firms, analysis of the individual scores showed that one of the non-entrepreneurial firms (Snacks Co.) had a higher score than one of the entrepreneurial firms (Export Co.). Table 5.9 compares the average scores of the entrepreneurial and non-entrepreneurial firms for the individual autonomy statements. The highest score difference was recorded for statement A2 while the lowest score difference was recorded for statement A5. Statement A5 showed no difference between the entrepreneurial and the non-entrepreneurial firms on average.

Table 5-9. The comparison of scores for the autonomy statements

No	Statement	Avg. Score		Difference between E & NE
		E	NE	
A1	My firm supports the efforts of individuals and/or teams that work autonomously	4	3	1
A2	In my firm, the best results occur when individuals and/or teams decide for themselves what business opportunities to pursue	3.5	1.5	2
A3	In my firm, individuals and/or teams pursuing business opportunities make decisions on their own without constantly referring to their supervisors	2	1.5	0.5
A4	In my firm, employee initiatives and input play a major role in identifying and selecting entrepreneurial opportunities	3	2.5	0.5
A5	My firm usually seeks advice from experts (eg: NEDA/SED officers) when making decisions [<i>Reversed score</i>]	3.5	3.5	0

According to the average scores calculated for statement A1, it appeared that both entrepreneurial and non-entrepreneurial firms support their employees or family workers who wanted to act autonomously (Table 5.9). However, the entrepreneurial firms scored one point higher than the non-entrepreneurial firms. Mr. Perera explained about the decision-making style at Spice Co. as follows.

“... Most of the time, things might not go as smooth as planned. In such situations, the board of directors has given their consent and full authority to the CEO (me) to take decisions as appropriate. However, when I take decisions I always make sure to get their opinion too...”

However, both types of firms maintained a good employer-employee relationship which was based on moral terms (H. R. Gamage, 2014). Employees were treated like family by the owner-managers.

“... Our staff members are two adult ladies with lots of experience with food preparations. They are loyal and treat the business like something of their own. So, we don't have to keep a close eye all the time. They even gave their opinions to improve our Murukku recipe...” (Mrs. Dias, Snacks Co.)

The collectivist culture is also shown in the decision-making aspects of these family and non-family firms regardless of their level of EO. Decisions of all firms were taken collectively either by husband and wife in family firms and or by the collaboration of board members. In addition to the family members, the firms sought expert advice for decision making to a certain extent (i.e. statement A5). However, it was also clear that none of the owners of these two firm types had autonomy as a start-up motive (Alstete, 2008; Van Gelderen & Jansen, 2006; Wilson, Marlino, & Kickul, 2004).

5.3.6 Summary

The chapter presented the findings of the qualitative phase of the study that mainly included the results of the final cross-case analysis: the inter-group comparison of entrepreneurial versus non-entrepreneurial firms. The findings of the case study analysis are also in line with the comparison of dimensional mean scores. According to the mean scores, entrepreneurial firms scored higher for all five dimensions compared to the non-entrepreneurial firms. The highest score difference was observed in the proactiveness dimension followed by innovativeness, competitive aggressiveness, risk-taking, and autonomy. The entrepreneurial firms scored highly on the proactiveness dimension as they placed high importance on forward-looking strategic planning and the capture of opportunities. Entrepreneurial firms showed a high innovative behaviour compared to non-entrepreneurial firms due to their technology-oriented nature and introduction of new products, processes, marketing, and organisational innovations. According to the average scores, entrepreneurial firms are more competitively aggressive than non-entrepreneurial firms where entrepreneurial firms claimed to use more unconventional methods in challenging their competition. However, being operated in the same food processing industry both firm types attempted to move away from the intense competition and tried to find market niches. The scores suggest that entrepreneurial firms are greater risk-takers than non-entrepreneurial firms even though the differences were not prominent compared to the previous three dimensions. Two firm groups scored

their least average difference on the autonomy dimension while non-entrepreneurial firms scored higher on certain individual items.

According to the case study analysis, it should also be acknowledged that even though these MSEs are classified into two distinctive firm groups for purpose of analysis, it is not always possible to identify a firm as solely entrepreneurial or *vice versa*. Entrepreneurial or strategic posture of a firm can be identified as a continuum ranging from a firm being completely conservative or non-entrepreneurial to a firm being completely entrepreneurial. Firms that lie between these two extreme ends of this continuum can share both entrepreneurial and non-entrepreneurial characteristics depending on their position along the continuum. For example, Snacks Co., one of the non-entrepreneurial firms used in the study showed higher score in competitive aggressiveness compared to the entrepreneurial firms. Even though Snacks Co. was classified as non-entrepreneurial based on the average EO score, the firm did show an inclination towards being entrepreneurial in relation to certain dimensions. The firm could be explained as more entrepreneurial in comparison to Sesame Co., but less entrepreneurial in comparison to other entrepreneurial firms.

Chapter 6 The Results of the Quantitative Phase of the Study

6.1 Introduction

The study focused on three key objectives. The first objective was to devise a method to differentiate entrepreneurs from non-entrepreneurial MSE firms in the agriculture processing sector in Sri Lanka. Upon this differentiation, the overarching research objective was to identify whether these entrepreneurial and non-entrepreneurial firms manage the risks they face any differently from each other by adopting different risk management strategies. Moreover, it was also intended to identify the factors that influence the adoption of these risk management strategies. The main factors identified were demographic factors including the firm and firm owner characteristics and two risk-related variables, the propensity to the risk and perceived sources of risks of these MSE firms.

In this chapter, the results of the quantitative phase of the study are presented. The response rate is evaluated, as well as the reliability and validity of the study constructs. This is followed by a descriptive analysis of the study variables as well as the results of the statistical data analysis.

6.2 Survey response rate

The response rate is explained as the extent to which the final data set include all sampled members (Orodho, 2003). Simply, it is the percentage of respondents who successfully responded to the survey carried out. In this study, out of 526 firms reached during the first phase of the survey (i.e. to evaluate the level of entrepreneurial orientation) through postal mode, 232 (44.1%) responses were received of which 210 (39.9%) were usable for the study. The aim of the researcher was to reach all 210 firms that responded to the first phase in person to gather data for the second phase. However, only 206 questionnaires were completed due to unavailability issues of the relevant MSMEs owners. Hence, the final response rate was calculated as 39.1%. The survey was completed by mid-December 2018.

The response rates obtained in previous research studies in the entrepreneurial and small business literature showed a diversity of values. However, it was clear that the response rate is largely dependent upon the country context and the survey mode used for the data collection. However, Kapurubandara and Lawson (2006) reported a response rate of 19% in a study conducted with SMEs in Sri Lanka regarding the usage of information technology and e-commerce services. This response rate was obtained by using a combination of five survey modes; personal, postage, mail, e-mail and telephone. Malkumari and Munasinghe (2012) in their study conducted on corporate social responsibility in SMEs in Sri Lanka reported a survey response rate of 41% which is relatively similar to the response rate obtained by the present study. The survey mode used by Malkumari and Munasinghe (2012) was postage.

Looking through the international literature, Yong and Panikkos (2010) in their study conducted on entrepreneurial family firms in United Kingdom reported a response rate of eight percent. The survey mode was postal and the researchers justified the low rate as “the family business sector is insular and secretive, not particularly willing to disclose business information to the public” (p. 377). Moreover, Shaker A. Zahra (2005) reported a response rate of 10.5% in a similar entrepreneurial manufacturing family firm study conducted in the USA. With reference to the above studies mentioned both locally and internationally, the current response rate of 39.1% is deemed to be acceptable for this study.

6.3 Analysis of entrepreneurial orientation data

The first section of the quantitative analysis focused on data related to the level of entrepreneurial orientation (EO) of the respondents. As noted under the methodology chapter, EO data were collected during both preliminary and main surveys. The EO data were gathered in a separate questionnaire to the main survey and the outcome was used as a screening test to determine the level of EO of respondents. The EO data were analysed using both descriptive and inferential statistics and the relevant results are discussed below.

The following section starts with the results of reliability analysis, the descriptive statistics of the sample including the proportionate distribution of entrepreneurs and non-entrepreneurs, and the mean score distribution of entrepreneurial orientation (EO) dimensions. The section also includes the results of independent sample t-tests carried out to understand whether there are any differences between entrepreneurial and non-entrepreneurial firms in relation to individual EO dimensions.

6.3.1 Reliability

Reliability is defined as the extent to which a variable or set of variables is consistent in what it is intended to measure (Hair et al., 2013). As suggested by the literature the items in the entrepreneurial orientation (EO) scale were tested with Cronbach’s alpha in order to evaluate the internal consistency of the measures. The Cronbach's Alpha analysis was conducted at two different points in time. The first was upon completion of the preliminary study in order to determine if changes were required. And the second point was after the main survey upon collecting all the questionnaires to get the final Cronbach's Alpha analysis.

Table 6.1 presents a comparison of Cronbach’s Alpha values obtained for both preliminary and main surveys for the EO scale. The Cronbach’s Alpha value for the preliminary survey items was 0.942 indicating the items are internally consistent. The “if item deleted values” were also around the overall Cronbach’s Alpha value hence, no changes were required. The Cronbach’s Alpha value for the main survey EO items was 0.928, again confirming the internal consistency of the measurements used.

Table 6-1. Comparison of Cronbach's Alpha if items deleted values for EO scale

Item	For preliminary survey	For main survey
INN1	0.938	0.925
INN2	0.935	0.925
INN3	0.935	0.924
INN4	0.941	0.925
INN5	0.945	0.926
INN6	0.935	0.923
INN7	0.938	0.923
INN8	0.938	0.924
INN9	0.939	0.924
RT1	0.937	0.924
RT2	0.941	0.924
RT3	0.940	0.931
RT4	0.940	0.924
RT5	0.936	0.926
RT6	0.942	0.926
RT7	0.939	0.923
RT8	0.943	0.930
PRO1	0.938	0.925
PRO2	0.937	0.924
PRO3	0.937	0.924
PRO4	0.937	0.924
PRO5	0.938	0.928
AUT1	0.942	0.929
AUT2	0.943	0.929
AUT3	0.946	0.928
AUT4	0.945	0.926
AUT5	0.937	0.934
CA1	0.936	0.927
CA2	0.936	0.926
CA3	0.948	0.933
CA4	0.943	0.926
CA5	0.945	0.927

6.3.2 The proportion of entrepreneurial and non-entrepreneurial firms

The purpose of the first phase of the survey was to classify the sample of firm owners into two groups entrepreneurs and non-entrepreneurial firm owners based on their level of entrepreneurial orientation (EO). The level of EO was measured using thirty-two items adapted from the literature (Chang et al., 2007; Covin & Slevin, 1989; Hongyun et al., 2014; Hughes & Morgan, 2007). The items

were categorized into five dimensions (i.e. innovations, risk-taking, autonomy, proactiveness and competitive aggressiveness) and scored on a five-point Likert scale ranging from strongly agree to strongly disagree. As mentioned in the methodology chapter, respondents that obtained an overall score of three or above out of a maximum potential score of five were classified as entrepreneurial and *vice versa*.

Based on the level of EO, 67.1 percent of the firm owners were identified as non-entrepreneurs while 32.9 percent of as entrepreneurial firm owners. However, it was difficult to locate similar empirical studies that classified a sample of small business owners into above two groups based on given criteria. Most of the studies have used already available entrepreneur and non-entrepreneur/manager groups for comparisons, where the entrepreneurs were identified as business starters and non-entrepreneurs as career professionals (Lago et al., 2018; McGrath, MacMillan, & Scheinberg, 1992). Hence, comparing the above figures to the literature for further interpretation was not achieved.

6.3.3 Mean and standard deviation of EO dimensions

As noted earlier, the level of EO was measured as a composite variable consist of five dimensions namely; (a) innovativeness, (b) risk-taking, (c) proactiveness, (d) autonomy and (e) competitive aggressiveness where the responses were gathered on each statement to indicate firms' level of agreement on a five-point Likert scale. The mean scores were calculated and displayed on Table 6.2 below as a comparison between entrepreneurial and non-entrepreneurial firms for five EO dimensions. In addition to the mean values, standard deviation was also calculated for the individual items and illustrated in Table 6.2. Standard deviation (SD) is the average distance of all of the scores in the distribution from the mean or central point of the distribution (Jackson, 2017). In simple terms, a small SD means that the values in the data set are close to the mean, and a large SD means that the values in the data set are farther away from the mean, on average. The SD can never be a negative value and zero is the smallest possible value (Jackson, 2017).

The data in Table 6.2 displays that entrepreneurial firms scored high on all thirty-two statements across five dimensions. The standard deviation values were ranging from 0.7 to 1.4 in the entrepreneurial group while from 0.8 to 1.3 in non-entrepreneurial groups indicating that the values were distributed around the mean. Within the innovativeness dimension, the item I9 (i.e. "My firm seeks out new ways to do things") recorded the highest mean score in both entrepreneurial and non-entrepreneurial groups and the lowest SD value in entrepreneurial group. The entrepreneurial group recorded the highest mean score for item I9 across all five EO dimensions indicating that they prioritise innovativeness over other aspects of EO. Under the risk-taking dimension RT2 (i.e. "My firm adopts a bold, wide-ranging acts necessary to achieve the firm's objectives") recorded the highest means score

in both entrepreneurial and non-entrepreneurial groups. Items P3 and P4 (i.e. “My firm is close monitoring of technological trends and identifying future needs of customers” and “My firm excel at identifying opportunities respectively”) recorded the highest mean scores of the proactiveness dimension.

Table 6-2. Mean scores and standard deviations of five EO dimensions among entrepreneurial and non-entrepreneurial firms

Dimension	Item	Entrepreneurial firms		Non-entrepreneurial firms	
		Mean	SD	Mean	SD
Innovativeness	I1	4.1	1.1	2.7	1.3
	I2	3.4	1.2	2.2	1.1
	I3	3.4	0.9	2.2	1.0
	I4	3.2	0.9	1.9	0.9
	I5	2.6	0.9	1.7	0.8
	I6	4.2	0.8	2.7	1.0
	I7	4.0	0.9	2.6	0.9
	I8	4.2	0.7	2.9	1.0
	I9	4.3	0.7	3.0	1.0
Risk-taking	RT1	3.6	1.1	2.1	1.0
	RT2	4.1	0.8	2.7	1.0
	RT3*	2.4	1.1	2.2	0.9
	RT4	3.9	1.0	2.4	1.0
	RT5	2.7	1.1	1.7	0.8
	RT6	3.5	1.0	2.0	1.0
	RT7	4.0	1.0	2.4	1.1
	RT8*	2.7	1.1	2.3	1.0
Proactiveness	P1	3.5	1.1	2.3	1.1
	P2	3.3	1.0	1.9	0.9
	P3	4.1	1.0	2.8	1.1
	P4	4.1	0.8	2.8	0.9
	P5*	3.6	1.2	2.6	1.1
Autonomy	A1	3.2	1.1	2.7	1.1
	A2	2.5	1.2	1.8	0.9
	A3	2.4	1.1	1.8	0.8
	A4	3.4	0.9	2.2	1.1
	A5*	2.6	1.4	2.5	1.3
Competitive aggressiveness	CA1	3.4	1.2	2.5	1.0
	CA2	3.4	1.2	2.2	0.9
	CA3*	3.2	1.4	3.1	1.3
	CA4	4.1	0.8	3.1	0.9
	CA5	3.4	1.1	2.5	1.0

* Reverse statements

The above trend of same item scoring high in both entrepreneurial and non-entrepreneurial group has changed with the autonomy dimension where, item A4 (i.e. “In my firm, employee initiatives and input play a major role in identifying and selecting the entrepreneurial opportunities”) scored highest in the entrepreneurial category while A1 (i.e. “My firm supports the efforts of individuals and/or teams

that work autonomously”) in the non-entrepreneurial category. Moreover, item A3 recorded the lowest mean score in the entrepreneurial group across five dimensions, indicating that firms do not let their employees make critical business decisions on their own without referring to the owners. The lowest mean scores for the non-entrepreneurial group were recorded for the items I5 and RT5 which was 1.7. Item I5 referred to the introduction of new administrative/ management innovations during the last five-year period while item RT5 emphasised on firm’s investments in major projects through heavy borrowing. The fifth dimension: competitive aggressiveness again same item C4 (i.e. “My firm copies the business practices or techniques of successful competitors to enhance a competitive position”) scored the highest mean value (Table 6.2).

Considering the pattern of mean scores across all five dimensions, it was evident that the values vary in the same pattern for the majority of the EO items except a few occasions. The autonomy dimension recorded the lowest scores among both entrepreneurial and non-entrepreneurial groups and the gap in mean scores between two groups was also low compared to the other dimensions. A similar pattern was also observed in the competitive aggressiveness dimension yet in a relatively lesser amount of gravity. The gap between the mean scores obtained for each statement of for first three dimensions, innovativeness, risk-taking and proactiveness was relatively high between entrepreneurial and non-entrepreneurial firms (Table 6.2).

6.3.4 Mean comparison of EO dimensions among entrepreneurial and non-entrepreneurial groups

Upon comparing the mean and standard deviation values among the two groups descriptively, the next step was to identify where there were any statically significant differences between the groups. The intension was to understand how entrepreneurial and non-entrepreneurial firm owners have perceived and responded to the five EO dimensions. In statistics there are many ways to compare the means for two populations or samples in order to understand the presence of significant differences. One sample t-test, independent sample t-test, paired sample t-test and one way analysis of variance (ANOVA) are such analytical techniques used by researchers to simply compare the means between two independent or correlated groups (Jackson, 2017). Given the fact that the two groups are unrelated to each other, the t-test appropriate to this analysis was the "independent sample t-test". The independent sample t-test is a parametric statistical test that compares the performance of two different samples of participants. The test was a better fit for a two-tailed approach rather one-tail since the intension was to identify the differences between the groups but unsure which group will perform better or worse (Jackson, 2017).

The hypotheses were derived separately for the five dimensions. The hypothesis for the innovative dimension is given below. The other four hypotheses follow the same structure.

H₀: The level of innovativeness is not significantly different between entrepreneurs and non-entrepreneurs ($\mu_1 = \mu_2$)

H₁: The level of innovativeness is significantly different between entrepreneurs and non-entrepreneurs ($\mu_1 \neq \mu_2$)

The t-value could be derived both manually and using a statistical software. However, this study used the SPSS statistical software for the t-test in order to derive t-values and the respective probability values.

Table 6-3. Outcome of independent sample t-test

Dimension	t-value	Probability value
Innovativeness	5.175	0.000
Risk-taking	4.394	0.001
Proactiveness	5.249	0.001
Autonomy	2.288	0.052
Competitive aggressiveness	3.453	0.009

Table 6.3 illustrates the outcome of the independent sample t-test conducted for five EO dimensions to understand the difference between entrepreneurial and non-entrepreneurial firm owner groups. The results indicated that the probability values for all dimensions except autonomy are less than the critical value of 0.05 indicating that there is not enough evidence to accept the null hypothesis. Hence, the alternative hypotheses that stated a potential significant difference between the two groups were supported under the innovative, risk-taking, proactiveness and competitive aggressiveness dimensions. Alternatively, there was no significant difference in the level of autonomy between the entrepreneurial and non-entrepreneurial firm owners.

The next section of this chapter focused on outlining the summary of the demographic parameters of the sample. Both firm and firm owner characteristics are summarised compared between entrepreneurial and non-entrepreneurial firms.

6.4 Descriptive statistics of the sample

This section describes the descriptive statistics of the sample related to firm and firm owner characteristics. Simple descriptive statistic tools such as percentages, means and standard deviations are used to compare the characteristics between entrepreneurial and non-entrepreneurial firms.

Further to these descriptive tools, simple non-parametric tests were used to compare between two firm groups and to statistically support and strengthen the descriptive results.

6.4.1 Firm owner characteristics

Descriptive parameters of the firm owners including their gender, age, education and years of experience are described in the section below (Table 6.4). Apart from simply comparing the frequencies and percentages of respective parameters, a statistical test (i.e. Mann-Whitney U test) was performed to compare those descriptive parameters between two groups of firm owners. The intention behind performing this test was to identify whether there are any statistically significant differences between entrepreneurs and non-entrepreneurial firm owners in terms of the distribution of gender, age, education and business-related experience.

The Mann-Whitney U test (also known as Wilcoxon rank-sum test) is the non-parametric alternative to the independent sample t-test (McKnight & Najab, 2010). It tests for differences between two groups on a single, ordinal variable with no specific distribution (Mann & Whitney, 1947). The independent samples t-test, requires the single variable to be measured at the interval or ratio level, rather than the ordinal level, and to be normally distributed (McKnight & Najab, 2010). Hence, the application of the independent sample t-test was not statistically appropriate as the descriptive data were ordinal in nature. The null and alternative hypotheses for the Mann-Whitney U test was set as follows.

H_0 : There is no difference between the distribution of scores (i.e. for each descriptive parameter) between entrepreneurs and non-entrepreneurs

H_1 : There is a difference between the distribution of scores (i.e. for each descriptive parameter) between entrepreneurs and non-entrepreneurs

Table 6.4 presents frequencies and percentages of distribution of gender, age, level of education and years of business experience among entrepreneurs and non-entrepreneurs along with the respective probability values obtained from the Mann-Whitney U test for each descriptive parameter.

Distribution of gender within the sample among two categories of firm owners showed noteworthy differences as the majority of entrepreneurial firm owners were male (52%) while female owners dominated the non-entrepreneurial group by representing 68% of the sample (Table 6.4). Moreover, the proportionate difference between male and female owner percentage in non-entrepreneurial group was particularly higher than that of entrepreneurial group. This notable difference observed among the percentages was also proven by the probability value resulted from Mann-Whitney U test.

The probability value was less than 0.05 confidence level indicating that there is not enough evidence to accept the null hypotheses.

The distribution of respondent's age as a comparison for two groups presented in Table 6.4 below. Similar to the gender variable, the probability value was less than 0.05 confidence level indicating a significant difference between the distribution of age between entrepreneurs and non-entrepreneurs. This difference was also noticeable from the percentage distribution of different age categories among the two groups. The highest percentage of entrepreneurial firm owners were recorded in the age category between 31 to 40 years while the highest percentage was observed in 41 to 50 years in the non-entrepreneurial category. The percentage values were 38.3 and 41.2 for the two groups respectively. Moreover, more than 57% of the entrepreneurial firm owners were categorised under below forty years old whereas the majority (68%) of non-entrepreneurial firm owners were found above 41-year-old categories. Further, it was interesting to note that there was a limited but considerable percentage (i.e. 23.4%) of entrepreneurs were found in age categories 51 years and above (Table 6.4).

Table 6-4. Percentage comparison of firm owner characteristics between entrepreneurial and non-entrepreneurial firm owners

Parameter		Entrepreneurs		Non-entrepreneurs		Probability value (Mann-Whitney U test)
		N	Percentage	N	Percentage	
Gender	Male	35	52.1	44	31.6	0.017*
	Female	33	47.9	94	68.4	
Age (years)	20-30	13	19.1	17	12.4	0.015*
	31-40	26	38.3	27	19.6	
	41-50	13	19.1	57	41.2	
	51-60	13	19.1	26	18.6	
	Above 61	3	4.3	11	8.2	
Level of education	Grade 1-5	4	6.3	3	2.0	0.034*
	Up to OL	16	22.9	62	44.9	
	Up to AL	33	47.9	58	41.8	
	Diploma	4	6.3	7	5.1	
	Degree	11	16.7	8	6.1	
Years of experience in business (years)	< 5	16	22.9	54	38.8	0.688
	5-10	34	50.0	44	31.6	
	11-15	9	12.5	14	10.2	
	16-20	7	10.4	15	11.2	
	> 21	3	4.2	11	8.2	

Note: * - significant at 0.05 confidence level

A similar study conducted by Fairoz et al. (2010) on the entrepreneurial orientation of Sri Lankan SME owners reported that the majority (28%) of the respondents were between 30-35 years, while 72% of

the respondents in the sample were less than 45 years old. However, it is also important to note that the geographical location, sampling method and criteria used by Fairoz et al. (2010) to define SMEs are different from the present study hence differences in the descriptive parameters could be observed. Fairoz et al. (2010) employed 25 manufacturing SMEs operating in Hambantota district (i.e. one of the districts in Southern Province in Sri Lanka) for their study where SMEs were chosen with total fixed assets of 20 Million Sri Lankan Rupees (LKR) or less, and the number of employees' ranged from 5 to less than 150.

The firm owner's highest level of formal education is also presented in Table 6.4. The scale was formed based on the Sri Lankan education system where grade 1-5 is considered at the primary level, grade 6-11 is at the secondary level where students must pass the General Certificate of Education (G.C.E)/ Ordinary Level (OL) to enter the post-secondary level; grade 12-13. In grade 13, students sit for the G.C.E. / Advanced Level (AL) examination which is considered the university entrance examination. Education levels above bachelor's degree is considered tertiary level where as diplomas fall into the category of vocational education (Anonymous, 2018).

The probability value of the Mann-Whitney U test ($p = 0.034 < 0.05$) confirms that the two groups of firm owners are significantly different from each other in terms of their levels of education. This difference is descriptively supported by the distribution of frequencies and the percentages among two groups. The highest qualification achieved by the majority of entrepreneurial firm owners was studying up to advanced level (47.9%) while it was up to the ordinary level for the non-entrepreneurial group (44.9%). The percentage of respondents who completed their schooling only up to grade five was the least for both entrepreneurial and non-entrepreneurial groups. Interestingly, the percentage of university graduates were also notably higher in the entrepreneurial category (16.7%) compared to the non-entrepreneurial category (6.1%) (Table 6.4). In comparison to the literature, Fairoz et al. (2010) reported that their sample consisted of 28% below OL, 28% up to OL, 40% up to AL and only 4% up to degree level.

The data on firm owner's years of experience in business management and ownership was collected through the questionnaire and the respective percentages are displayed in Table 6.4 above. This data presents the owner's business-related experiences gained through their entire past period, not only the current businesses they are engaged with. The business-related experiences were measured in number of years and categorised into five categories. It was interesting to note that the number of years of experience stays low for both groups of firm owners regardless of their level of entrepreneurial orientation. This statement was further supported by the probability value obtained from the Mann-Whitney U test where H_0 is accepted ($p = 0.688 > 0.05$) indicating that there is no

significant difference among entrepreneurs and non-entrepreneurs in terms of their experience in business.

According to the data, fifty percent of the entrepreneurial firm owners had five to ten years of business-related experiences in their past. The highest percentage (38.8%) of non-entrepreneurs had only less than five years of experience where the proportion of non-entrepreneurs with five to ten years of experience was also considerably high (31.6%). Moreover, the percentage of respondents with high number of years of experience in business was less for both groups. This was evident as only 4.2% of entrepreneurs and only 8.2% of non-entrepreneurs had more than 21 years of experience. However, this outcome might result by the nature of obtaining sampling frame for the study. The sampling frame was drawn from the contact details obtained from three government organizations which are working closely with the MSMEs. Most of the MSMEs work with these government bodies are newly formed with limited past experiences.

The level of business experience of the entrepreneurial group is compatible with their age distribution as the majority of entrepreneurs were belong to the lower age categories hence the limited years of experience. However, this phenomenon is quite different with the non-entrepreneurial group as majority of the non-entrepreneurs were above 41 years old but comprised a smaller number of years of experience in business (Table 6.4).

6.4.2 Firm characteristics

The respondents were asked to provide data regarding their current business venture in terms of where they place their business on the family business cycle, the approximate average annual turnover, the number of family and non-family employees engaged with the business and the proportion of family ownership of the business. The frequencies and percentage distribution of entrepreneurial and non-entrepreneurial firms against the respective parameters are presented in the Table 5 below. Similar to the firm-owner characteristics, the Mann-Whitney U test was also performed for the firm characteristics in order to understand whether there was any statistically significant difference between entrepreneurs and non-entrepreneurs among the descriptive parameters identified.

The distribution of respondents with respect to the stage of the family business cycle is presented in Table 3. The distribution pattern of the firms in both groups appeared similar across the five stages of the cycle. The majority of the firms were operated in the growth stage in both entrepreneurial (70.8%) and non-entrepreneurial (64.3%) groups. It was also noted that the percentage of firms in the entry stage were considerably high irrespective of their level of entrepreneurial orientation. However, the

proportion of the firms that entered into consolidation or to the next generation is significantly lower than the first two stages (Table 6.5).

Table 6-5. Comparison of firm characteristics between entrepreneurial and non-entrepreneurial firms

	Parameter	Entrepreneurial firms		Non-entrepreneurial firms		Probability value (Mann-Whitney U test)
		N	Percentage	N	Percentage	
Stage of family business	Entry	11	16.7%	31	22.4%	0.611
	Growth	48	70.8%	89	64.3%	
	Consolidation	3	4.2%	4	3.1%	
	Entry of the next generation	3	4.2%	8	6.1%	
	Exit	3	4.2%	6	4.1%	
Years of operation	< 5 years	35	52.1%	80	58.2%	0.740
	5-10 years	26	37.5%	28	20.4%	
	11-15 years	6	8.3%	20	14.3%	
	> 16 years	1	2.1%	10	7.1%	
Nature of ownership	Sole-proprietorships	65	95.8%	137	99.0%	0.207
	Partnerships	1	2.1%	1	1.0%	
	Private limited companies	1	2.1%	0	0.0%	
Annual turnover (LKR)	Less than Rs. 1 million	23	33.3%	96	69.4%	0.000*
	From Rs. 1 million to Rs. 5 million	24	35.4%	28	20.4%	
	From Rs. 5 million to Rs. 15 million	9	12.5%	13	9.2%	
	From Rs. 15 million to Rs. 50 million	11	16.7%	1	1.0%	
	From Rs. 50 million to Rs. 100 million	1	2.1%	0	0.0%	
	Above Rs. 100 million	0	0.0%	0	0.0%	
	Number of employees	< 5	38	56.3%	117	
5 - 10		17	25.0%	20	14.3%	
11 -50		13	18.8%	1	1.0%	

Note: * - significant at 0.05 confidence level

The years of operation showed a similar pattern of distribution of firms compared to the stage of business cycle. The figures indicated that majority of both entrepreneurial and non-entrepreneurial firms are new to the food processing industry with less than five years of operation history. In comparison, the entrepreneurial firms appeared to be with less number of years than that of non-entrepreneurial firms (Table 5). This outcome is compatible to the limited years of business experience of firm owners as shown in Table 4. As explained above these figures might have resulted by the nature

of obtaining sampling frame for the study as most of these MSMEs are newly formed with limited past experiences. Hence, most of them either on entry or growth stage of the life cycle with minimal number of years of operation. However, several Sri Lankan studies conducted on MSMEs noted that the lifespan of Sri Lankan MSMEs are limited and tend to fail within the first five years. Kumarasinghe (2017) stated that, “as per the SME Development Bureau, State Ministry of Youth Affairs, 80% of the SMEs are failed within the five years of started and operation in Western province in Sri Lanka” (p. 1097). Even though, it was difficult to locate the original reference to support the above statement made by Kumarasinghe (2017). Fairoz et al. (2010) also noted that the majority (44%) of the SMEs identified in their study were more than ten years old. Only 24% of the firms recorded 6-10 years old. However, the sample selected by F. M. Fairoz, T. Hirobumi, and Y. J. A. S. S. Tanaka (2010) consisted firms that have been in business for more than five years.

The data related to the nature of business ownership was collected under three categories; percentage of sole- proprietorships, partnerships with non-family members and private limited companies (Table 6.5). The results showed that majority of the firms are sole-proprietorships regardless of their level of entrepreneurial orientation. Only two percent of the entrepreneurial firms were identified as partnerships while other two percent was noted as private limited companies. This outcome is compatible with the findings of Fauzul Mafasiya Fairoz et al. (2010) where, their sample comprised of 76% sole-proprietorships, 08% partnerships, and 16% limited liability companies.

Average annual turnover is considered as an important objective measurement of business performance (Murphy, Trailer, & Hill, 1996). However, the data related to the annual turnover was collected as a categorical data as the firm owners were sensitive and reluctant to disclose the exact income figures. Accordingly, six categories were included in the questionnaire starting from less than one million rupees to above 100 million rupees. These two boundaries were selected based on the definition of MSEs based on the annual turnover given by the National Framework for SME Development, Sri Lanka (MIC, 2015). The results indicated that the majority of the firms earned low level of annual income under both entrepreneurial and non-entrepreneurial categories. However, the figures of the non-entrepreneurial group showed that 69.4% of the firms in the category of less than one million rupees and only 33% of the entrepreneurial firms in the same category. The highest percentage of entrepreneurial firms were found in the second income category of one million to five million rupees indicating that entrepreneurial firms receives a better income than that of non-entrepreneurial firms (Table 5). However, these results are compatible with the national income data in Sri Lanka. According the Department of Census and Statistics the mean household income per annum in Sri Lanka was Rs. 746,844 in 2016 (HIES, 2016) which is less than one million rupees.

The number of employees employed in both entrepreneurial and non-entrepreneurial firms were calculated and presented in Table 5. The definition of MSEs given by the National Framework for SME Development, Sri Lanka states that a firm which employ less than 10 employees considered as micro scale while less than 50 employees considered small in scale (MIC, 2015). Hence, the data in Table two are presented under two categories as firms with less than 10 employees and firms with more than or equal to 10 but less than or equal to 50 employees. This total number of employees comprised of both family and non-family employees. It was evident that majority of the firms in both groups employed less than 10 employees. However, a notable difference was observed in the 10-50 employee category where 20.8% of the entrepreneurial firms employed more than 10 employees while it was only two percent for the non-entrepreneurial group. In comparison to the literature, Fairoz et al. (2010) noted that there were only eight percent of the firms with less than ten employees while 88% of them with 10 -50 and four percent with 51-60 employees.

6.4.3 Firm type distribution within the sample

The questionnaire further included questions to gather data on the nature of production that firms are involved with. The Figure 1 along with the description below provide an overview of different firm types and respective products that are produced by the firms across the sample of firms surveyed.

The food processing firms in the sample were categorized into five categories namely; fruit and vegetable processing firms, essential oil processing firms, dairy processing firms, spice processing firms and firms that are producing other food items excluding the above-mentioned food items. Most of the firms in the sample produced a range of food items hence categorized under more than one category. According to the figure 6.1, the majority of the firms (32.2%) were identified as spice processors while 30.7% as firms that are processing other food products. The firms that are producing other processed foods vary in a wide range of food items including herbal supplements (plant based but not fruits or vegetables), traditional Sri Lankan foods, confectionary items, and bakery items. Apart from these two firm types, fruit and vegetable processing firms recorded a percentage of 26.6% while the percentage of oil processing firms recorded the lowest.

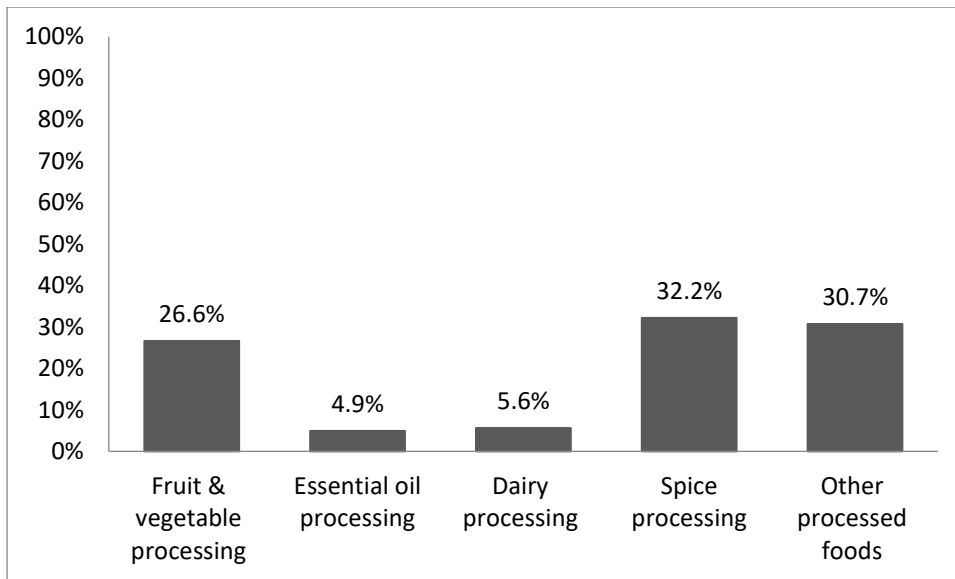


Figure 6-1. Distribution of firm types within the sample

The next section of this results chapter is focused on sharing results related to the risk behaviour aspects of the respondent firms. The results will be discussed under different risk behaviour aspects including; risk scenario observations, risk propensity attributes, perceived business environment risk (upside and downside) and adoption of risk management strategies.

6.5 Risk scenario observations

Once the background information on the firm and firm owner characteristics were collected, the next section of the questionnaire was focused on gathering data on the risk behaviour aspects of firm owners. The first section of risk related questions were comprised of two risk scenario questions adapted from Bernd Rohrmann (2002). The respondents ranked these scenarios on a scale ranging from “Definitely not” (i.e. 1) to “For sure” (i.e. 10) for each scenario to indicate how likely s/he would decide for the risky behaviour in such a situation (Bernd Rohrmann, 2002). The two risk scenario questions were on investing on a new product and investing in shares. The selected two risk scenarios were first analysed descriptively. The percentage responses were calculated separately for two risk scenarios and compared between entrepreneurial and non-entrepreneurial firms (Table 6.6 & Figure 6.2).

Table 6-6. Percentage of responses obtained for two risk scenarios

Response	1. Investing in a new product		2. Investing in shares	
	Entrepreneurial firms	Non-entrepreneurial firms	Entrepreneurial firms	Non-entrepreneurial firms
1	0.0%	27.6%	18.8%	59.2%
2	4.2%	13.3%	6.3%	14.3%
3	2.1%	6.1%	10.4%	6.1%
4	2.1%	8.2%	12.5%	6.1%
5	12.5%	20.4%	16.7%	3.1%
6	16.7%	10.2%	8.3%	3.1%
7	25.0%	7.1%	12.5%	5.1%
8	16.7%	3.1%	6.3%	1.0%
9	18.8%	4.1%	4.2%	2.0%
10	2.1%	0.0%	4.2%	0.0%

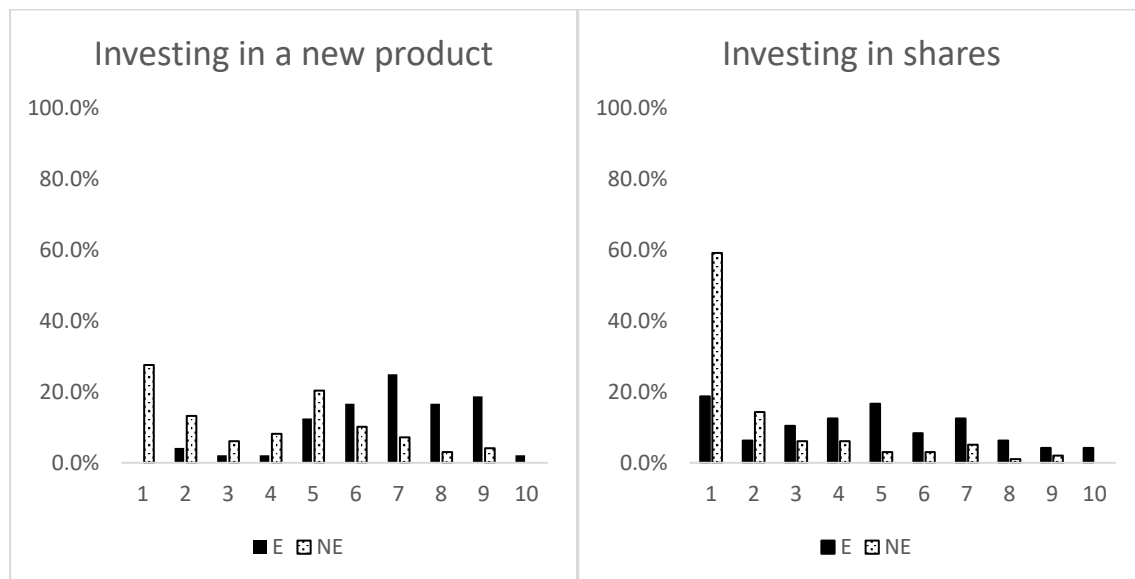


Figure 6-2. comparison of percentage responses between entrepreneurial and non-entrepreneurial firms

This descriptive comparison of risk scenarios between two firm types revealed that entrepreneurial firms scored highly on both risk scenarios compared to non-entrepreneurial firms. However, the majority of both firm types responded in favour of the first risk scenario while seemed to be reluctant to accept second scenario of investing in shares. This is shown by the percentage of respondents where, around 20% of entrepreneurs and more than half of the non-entrepreneurs scored “1” for the second scenario indicating they would definitely not decide to take that risk of investing in shares. This outcome can be attributed to the lack of awareness of Sri Lankans on share market and its benefits.

Majority of business owners are reluctant get involved with capital market activities regardless of their entrepreneurial orientation.

This behaviour of not accepting the risk of investing on shares but new product also reflects on the knowledge and experience of the business owners. it appeared that they take risks that are known to them and are manageable. Hence, they would decide to invest on a product but not on shares. As business owners, investing on product is something that they know and that they used to do. Whereas investing on shares is something unfamiliar and requires new knowledge. This behaviour appeared to be common for both firm types but especially for non-entrepreneurial firms.

As a part of the descriptive analysis, mean response scores for two risk scenarios were also calculated for two firm groups separately (Table 6.7). The mean scores also present the same idea implied through the percentage responses of two firm groups. The entrepreneurial firms scored higher in both scenarios while second scenario was less scored by both types of firms.

Table 6-7. Comparison of mean scores of two risk scenarios

	1. Investing in a new product		2. Investing in shares	
	Entrepreneurial firms	Non-entrepreneurial firms	Entrepreneurial firms	Non-entrepreneurial firms
Mean score	6.83	3.80	4.63	2.27

Apart from the descriptive analysis above, a simple statistical test was also carried out to confirm whether there are any statistically significant differences exist between two firm groups in responding to risky scenarios. Accordingly, a Mann-Whitney t test was performed separately for two risk scenarios and the results are displayed on Table 6.8.

Table 6-8. Results of Mann-Whitney U test

Scenario	Mann-Whitney U value	Z value	Probability value
1. Investing in a new product	776.00	-6.627	0.000*
2. Investing in shares	1117.50	-5.421	0.000*

**significant at 0.05 level*

As expected, the results of the Mann-Whitney t test have confirmed the differences observed through the descriptive analysis. The probability values ($p < 0.05$) confirmed that the behaviour of entrepreneurial firms in both risk scenarios is significantly different from non-entrepreneurial firms.

The next section of this chapter is focused on the risk propensity attributes of the firms. The results of both descriptive and inferential statistical analysis related to risk propensity attributes of entrepreneurial and non-entrepreneurial firms are discussed.

6.6 Risk propensity attributes

The questionnaire included nineteen risk propensity attributes (RPA) adapted from literature as well as derived based on the findings of the preliminary study. This section of the chapter first discusses the results of the descriptive analysis and then the results of further statistical analyses.

6.6.1 Descriptive analysis of risk propensity attributes

Under the descriptive analysis, the first step was to simply calculate the mean scores for each of the risk propensity attributes and compare between entrepreneurial and non-entrepreneurial firm groups (Table 9). The responses on these risk propensity items were gathered on a five-point Likert-scale ranging from strongly disagree (1) to strongly agree (5). Hence, the mean scores are also range on a 1-5 scale where a mean score closer to five indicate that particular firm group strongly agreed with that attribute and *vice versa*.

Table 6-9. Comparison of risk propensity attribute mean scores between entrepreneurial and non-entrepreneurial firms

No.	Risk propensity attribute	Mean score		Difference
		E	NE	E - NE
RPA1	I always take calculated risks in my business decisions	3.58	3.69	-0.11
RPA2	When introducing new products, I am always willing to accept a certain level of risk	4.23	3.28	0.95
RPA3	I never shy away from taking up an opportunity due to the risk of failure	4.02	3.42	0.6
RPA4	I always encourage employees to take risks without fear of punishment	3.52	2.62	0.9
RPA5	I always have a strong tendency, to commit a large amount of resources to high-risk projects	2.98	1.86	1.12
RPA6	I always aggressively exploit potential opportunities regardless of the level of uncertainty	3.23	2.34	0.89
RPA7	I always seek financial credit as a means of funding my business activities	2.69	2.50	0.19
RPA8	I always tend to venture into business areas that no one else has ventured into	3.75	2.65	1.1
RPA9	When it comes to business, I like to play it safe	4.08	4.39	-0.31
RPA10	I find planning difficult because the future is so uncertain	2.33	2.86	-0.53
RPA11	Even when I know that my chances are limited, I try my luck	2.94	2.90	0.04
RPA12	In my work, I only set small goals so that I can achieve them without difficulty	2.81	3.85	-1.04
RPA13	My decisions are always made carefully and accurately	4.25	4.20	0.05
RPA14	When there are a number of solutions to a problem, I find it difficult to make a choice	2.42	3.01	-0.59

RPA15	I always tend to imagine the unfavourable outcomes of my actions	2.96	3.52	-0.56
RPA16	I express my opinion even if most people have the opposite view	4.27	3.35	0.92
RPA17	I am not good at making sense of ambiguous and uncertain situations	2.35	3.12	-0.77
RPA18	I take up challenges more often than other small business owners do	4.19	2.99	1.2
RPA19	I postpone investments until they really need to be done	2.40	3.20	-0.8

Out of nineteen risk propensity attributes, different attributes had higher mean scores for entrepreneurial and non-entrepreneurial firms. The attribute RPA16 on “expressing their opinion even if most people have the opposite view” scored highest for the entrepreneurial group while playing safe at business (i.e. RPA9) scored highest for non-entrepreneurial firms. Both entrepreneurial and non-entrepreneurial firms seemed to agree strongly on “careful and accurate decision making” (i.e. RPA13) as that attribute scored as second highest for both firm groups. Moreover, higher mean scores recorded by entrepreneurial firms on attributes such as RPA2 and RPA18 are notable compared to non-entrepreneurial firms. These attributes reflect the risk seeking nature of firms and considerable score differences were noted between two firm groups (Table 6.9).

As noted earlier, non-entrepreneurial firms scored highest on the attribute RPA9 on ‘playing safe at doing business’ while the lowest mean score was recorded for the attribute RPA5 on ‘committing large amount of resources on high-risk projects (Table 6.9). These score differences show that non-entrepreneurial firms agreed more with risk averting or ‘playing it safe’ approaches compared to entrepreneurial firms that sought riskier approaches. In terms of the score differences between two firm types, RPA2 ‘accepting risk when introducing new products’ recorded the highest positive score difference indicating entrepreneurial firms accept more risk than their non-entrepreneurial counterparts (Table 9). On the other hand, RPA19 ‘postponing investments until they really need to be done’ resulted the highest negative difference among two firm types again indicating that entrepreneurial firms does not try to postpone their investments or wait for the right time opposed to their non-entrepreneurial counterparts. Moreover, the higher score difference resulted at attribute RPA17 also reflect on a similar situation where entrepreneurial firms said they could make sense of uncertain situations more than the non-entrepreneurial firms (Table 6.9).

Besides mean scores, it is important to look at the pattern of responses given by the respondents for different risk propensity attributes. The percentages of different responses (i.e. strongly disagree (1) to strongly agree (5)) provided for each attribute were calculated and compared between

entrepreneurial and non-entrepreneurial firms (Table 6.10). Understanding the cumulative percentages of 'agree' and 'disagree' are important as a descriptive measure to understand the different responses provided by two groups of firms.

The percentage differences of these responses mostly followed the same pattern as mean score differences displayed on Table 6.9. However, there are still noteworthy differences and similarities can be seen between two firm groups. For example, relatively similar percentages of both entrepreneurial and non-entrepreneurial firms 'agreed' and 'disagreed' to the attribute RPA1 on 'taking *calculated risk* in business'. This indicates that both firm types take calculated or known risks, against unfamiliar risks regardless of the being entrepreneurial or not.

Table 6-10. Percentage of responses by entrepreneurial and non-entrepreneurial firms

Statement No	Entrepreneurial firms							Non-entrepreneurial firms						
	(1+2)%	1	2	3	4	5	(4+5)%	(1+2)%	1	2	3	4	5	(4+5)%
RPA1	20.9%	4.2%	16.7%	10.4%	54.2%	14.6%	68.8%	18.3%	2.0%	16.3%	11.2%	51.0%	19.4%	70.4%
RPA2	2.1%	2.1%	0.0%	10.4%	47.9%	39.6%	87.5%	30.7%	3.1%	27.6%	15.3%	46.9%	7.1%	54.0%
RPA3	8.4%	2.1%	6.3%	8.3%	54.2%	29.2%	83.4%	23.4%	1.0%	22.4%	24.5%	37.8%	14.3%	52.1%
RPA4	16.7%	2.1%	14.6%	29.2%	37.5%	16.7%	54.2%	60.2%	10.2%	50.0%	13.3%	20.4%	6.1%	26.5%
RPA5	37.5%	4.2%	33.3%	27.1%	31.3%	4.2%	35.5%	88.8%	30.6%	58.2%	7.1%	3.1%	1.0%	4.1%
RPA6	25.1%	6.3%	18.8%	31.3%	33.3%	10.4%	43.7%	64.2%	17.3%	46.9%	20.4%	15.3%	0.0%	15.3%
RPA7	50.0%	16.7%	33.3%	25.0%	14.6%	10.4%	25.0%	48.9%	26.5%	22.4%	27.6%	21.4%	2.0%	23.4%
RPA8	18.7%	10.4%	8.3%	12.5%	33.3%	35.4%	68.7%	59.2%	13.3%	45.9%	11.2%	21.4%	8.2%	29.6%
RPA9	2.1%	0.0%	2.1%	20.8%	43.8%	33.3%	77.1%	2.0%	0.0%	2.0%	2.0%	51.0%	44.9%	95.9%
RPA10	56.3%	31.3%	25.0%	27.1%	12.5%	4.2%	16.7%	33.7%	13.3%	20.4%	33.7%	32.7%	0.0%	32.7%
RPA11	35.4%	14.6%	20.8%	29.2%	27.1%	8.3%	35.4%	39.8%	7.1%	32.7%	28.6%	26.5%	5.1%	31.6%
RPA12	39.6%	14.6%	25.0%	31.3%	22.9%	6.3%	29.2%	8.1%	1.0%	7.1%	12.2%	65.3%	14.3%	79.6%
RPA13	0.0%	0.0%	0.0%	8.3%	58.3%	33.3%	91.6%	0.0%	0.0%	0.0%	12.2%	55.1%	32.7%	87.8%
RPA14	58.3%	20.8%	37.5%	25.0%	12.5%	4.2%	16.7%	31.7%	8.2%	23.5%	34.7%	26.5%	7.1%	33.6%
RPA15	39.6%	12.5%	27.1%	20.8%	31.3%	8.3%	39.6%	18.4%	4.1%	14.3%	25.5%	37.8%	18.4%	56.2%
RPA16	4.2%	2.1%	2.1%	8.3%	41.7%	45.8%	87.5%	17.4%	3.1%	14.3%	36.7%	36.7%	9.2%	45.9%
RPA17	54.2%	22.9%	31.3%	37.5%	4.2%	4.2%	8.4%	26.5%	2.0%	24.5%	35.7%	34.7%	3.1%	37.8%
RPA18	6.3%	2.1%	4.2%	8.3%	43.8%	41.7%	85.5%	36.8%	3.1%	33.7%	27.6%	32.7%	3.1%	35.8%
RPA19	56.2%	20.8%	35.4%	27.1%	16.7%	0.0%	16.7%	26.5%	5.1%	21.4%	29.6%	35.7%	8.2%	43.9%

A similar observation could also be made at the attribute RPA11 with similar percentage responses for 'believing on luck'. This shows that firm owners regardless of their level of entrepreneurial orientation have mixed feelings about trying their chances and luck. The responses received for the attribute RPA7 follows the same pattern where the majority of both entrepreneurial and non-entrepreneurial firms 'disagreed' with 'always seeking financial credit as a method of funding' in their businesses. As noted under the mean scores, interesting similarities between responses of two firm groups can be seen at RPA13 where none of the respondents 'disagreed' with the fact that their 'decisions are made carefully and accurately' (Table 6.10).

6.6.2 Inferential analysis of risk propensity attributes

These risk propensity attributes were then subjected to a series of inferential statistical tests to broaden the understanding of differences between entrepreneurial and non-entrepreneurial firms. The statistical analysis began with independent sample t-tests to compare the means, principal component analysis (PCA) and chi-square tests to evaluate the association between risk propensity responses against their level of entrepreneurial orientation. As explained under the methods chapter the outcome of PCA was used to derive two indices to represent risk propensity attributes in further statistical analysis.

6.6.2.1 Results of the independent sample t-test

The results of t-test are presented in Table 6.11 followed by other statistical analysis. Out of nineteen variables subjected for the independent sample t-test, only four variables (i.e. RPA1, 7, 11 and 13) resulted in probability values exceeding 0.05 significance level indicating non-entrepreneurial firms do not significantly differ from entrepreneurial firms in those risk propensity attributes (Table 6.11). This result confirms that entrepreneurial firms differ from non-entrepreneurial firms for the majority of risk propensity attributes concerned. The probability values obtained are for two-tailed test, hence it is not possible to explain which firm type performs better in terms of their risk propensity attributes. The probability values also re-confirmed the distribution of 'agree' and 'disagree' responses depicted in Table 6.10 above.

According to the attributes tested, entrepreneurial firms were different from non-entrepreneurial firms in the way they accept risks while introducing new products (RPA2) even though both firm types agreed that they take calculated risks in their business decisions (RPA1). According to RPA1, both entrepreneurial and non-entrepreneurial firms mainly seemed to accept risks that they are aware of the outcome and not willing to take risks that they cannot calculate the probability of the outcome. However, all the other attributes such as RPA3, RPA4 and RPA5 clearly indicate differences of two firm types in their risk-taking behaviours.

Table 6-11. Results of the independent sample t-tests – mean comparison

Statement No	F value	Probability value
RPA1	0.177	0.548
RPA2	13.630	0.000*
RPA3	10.028	0.001*
RPA4	1.103	0.000*
RPA5	9.069	0.000*
RPA6	1.134	0.000*
RPA7	0.000	0.369
RPA8	0.015	0.000*
RPA9	0.816	0.014*
RPA10	2.342	0.006*
RPA11	0.800	0.837
RPA12	14.506	0.000*
RPA13	0.098	0.679
RPA14	0.659	0.002*
RPA15	0.962	0.005*
RPA16	1.531	0.000*
RPA17	1.614	0.000*
RPA18	1.267	0.000*
RPA19	0.000	0.000*

** Significant at 0.05 confidence level*

It was also noted that, entrepreneurial firms did behave differently from their non-entrepreneurial counterparts in terms of seizing opportunities amidst risk. This difference was made clear from the attributes of RPA3, RPA6, RPA8, RPA9 and RPA18 regarding accepting risk and challenges when exploring opportunities. This outcome can also be related with the higher levels of proactiveness observed among entrepreneurial firms. According to the EO dimension comparison results shown in Table 3, the level of proactiveness was also identified as significantly different among entrepreneurial and non-entrepreneurial firms. Proactiveness or seizing opportunities is always being identified as a key determinant of entrepreneurial behaviour (Kickul & Gundry, 2002; Lumpkin & Dess, 1996).

Moreover, significant differences were also observed at the risk propensity attributes reflected on risk behaviour of firms as they engage in short or long-term planning. The attributes; RPA10, RPA12, RPA14, RPA17 and RPA19 showed significant differences among two firm groups in terms of goal setting, planning in ambiguous situations and planning for future investments. The probability values of these risk propensity attributes are clear indications of differences between two firm types in their

strategic and tactical planning. In contrary, the probability value resulted for RPA13 showed that both firm types agreed that their “decisions are always made carefully and accurately”. However, according to RPA14, firms were significantly different from each other in the way they find it difficult or easy to make decisions in front of number of alternative solutions. Moreover, according to RPA 17, the two firm types were different from each other in their ability to sense ambiguous and uncertain situations (Table 6.11).

The probability values received for risk taking attributes related to financial risk taking showed some contradictory findings. The attribute RPA5 on committing large amount of resources on risky projects showed significant differences among two firm types while attribute RPA7 on seeking financial credit as a source of funding showed no difference (Table 6.11). The outcome of RPA7 indicated that both entrepreneurial and non-entrepreneurial firms had the same attitudes towards taking loans to fund their business activities. Both firm types indicated that they were reluctant to accept the risk of taking financial loans as a source of financing their businesses. This appeared to be a common attitude among Sri Lankan small business owners given the country’s economic state and operational difficulties in obtaining formal financial credit.

The 11th risk propensity attribute has resulted in no difference between the two firm groups. The attribute implies that business owners tend to try their “luck” even when they know their chances are limited. Both entrepreneurial and non-entrepreneurial firm owners showed no belief in luck or chance that occurs without proper reasoning (Table 6.11). Apart from these results, attribute RPA15 and RPA16 also resulted significantly different among two firm groups. These results confirm the differences of two firm types in the way how they tend to imagine unfavourable outcomes of their actions (RPA15) and how they express themselves in front of other people with contractor idea (RPA16).

The significant and non-significant probability values also compatible with the percentage agree-disagree responses received for each attribute (Table 6.10). As explained earlier, the attributes RPA1, RPA7, RPA11 and RPA13 were resulted insignificant from the t-test and showed fairly similar agree-disagree percentages during the descriptive analysis. The agree-disagree percentage responses of other attributes were notably different and resulted significantly different from the t-test (Table 6.10 & 6.11).

6.6.2.2 Results of the principal component analysis

The nineteen risk propensity attributes were subject to the principal component analysis (PCA) without considering to which firm group they belong to. The entire sample of 206 respondents were used in PCA together. The purpose of doing PCA on these risk propensity attributes was to see how

these attributes are categorised into different components so that they can be used as composite variables in further analysis. Hence, the PCA performed to identify the combination of variables (i.e. components) that adequately represent the idea of risk propensity attributes and use them to derive indices that can adequately represent the risk propensity attributes of these firm owners.

To ensure the appropriateness of principal component analysis, the Bartlett Test of Sphericity (BTS) and Kaiser-Meyer-Olkin (KMO) test of sampling adequacy were carried out accordingly (Table 6.12). The KMO value was 0.803, which exceeded the recommended value of 0.70. The KMO values for individual attributes were also above this 0.70 threshold level (Kaiser, 1970; Norman & Streiner, 2008). These values suggested that the sample is adequate to proceed with the PCA analysis. Moreover, the high chi-square value and the significant probability value associated with Bartlett's test of sphericity again confirmed the adequacy and suitability of data to proceed with PCA (Table 6.12). According to Norman and Streiner (2008) if the chi-square statistic is high and probability is less than 0.05 it is safe to proceed with PCA. The results of these two tests suggest that the data were suitable for the PCA technique.

Table 6-12. Results of KMO and Bartlett's test for

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0.803
Bartlett's Test of Sphericity	Approx. Chi-Square	839.065
	Probability value	0.000

The first step of the PCA is to determine the number of components to be retained. Literature elaborates on several different criteria to decide the number of retaining components including; Kaiser criterion, percentage of variance and scree test (details in methods chapter) (Hair et al., 2013; Norman & Streiner, 2008). In short, the Kaiser criterion recommended keeping components with eigen values greater than one while the percentage of variance suggest keeping components that explains a considerable amount of the total variance. All these methods have their own pros and cons and subjective to the sample size, number of variables used and research objectives. According to Norman and Streiner (2008) scree test is a somewhat better compared to other which shows the relationship between eigen values and the component extracted. The method is to retain the number of components just before the point where the curve breaks and levels off. If several breaks are in the descending line, usually the first one is chosen. Results pertaining all these criteria are presented below (Table 6.13 and Figure 6.3). However, as the purpose of conducting PCA on this data was mainly to identify the optimum number of components that can adequately represent the risk propensity attributes and use as composite indices in further analysis. Hence, only a manageable number of components are to be selected and retained.

Table 6-13. Total variance explained by the components extracted

Component	Initial Eigenvalues			Rotation Sums of Squared Loadings		
	Total	Percent of Variance	Cumulative % of variance	Total	Percent of Variance	Cumulative % of variance
1	5.250	27.632	27.632	3.959	20.835	20.835
2	2.069	10.887	38.519	2.528	13.305	34.140
3	1.455	7.659	46.178	2.009	10.571	44.711
4	1.277	6.720	52.898	1.335	7.025	51.737
5	1.076	5.662	58.560	1.296	6.823	58.560
6	0.988	5.199	63.759			
7	0.924	4.863	68.622			
8	0.770	4.054	72.675			
9	0.697	3.668	76.344			
10	0.658	3.463	79.807			
11	0.652	3.430	83.236			
12	0.575	3.025	86.261			
13	0.485	2.553	88.814			
14	0.430	2.263	91.077			
15	0.411	2.163	93.240			
16	0.383	2.018	95.258			
17	0.350	1.842	97.100			
18	0.299	1.573	98.673			
19	0.252	1.327	100.000			

The nineteen variables have resulted in nineteen components along with eigenvalues and variance explained by each component (Table 6.13). As the Kaiser criterion is applied for the above data, five components were identified with eigenvalues greater than one. These five components cumulatively explained 58.6% of the total variance. Rotation does not affect the total variance explained cumulatively by these five components, but it has changed the distribution of the variance across components. Rotation has made the distribution of variance more equitable across the components. In order to confirm the number of components to be retained, scree plot was also used (Figure 6.3). According to the scree plot, the curve appeared to be level off after the sharp elbow at the second component. Hence, retaining the first two components for further analysis is regarded as the best option according to the Scree test. The eigenvalues of the first two components are above two and more than 38% of the total variance is explained cumulatively (Table 6.13). This again is compatible with the purpose of conducting this PCA and using its outcome to derive indices. Since, these factors

are completely orthogonal of each other separate indices will be developed for each individual component and will be treated as separate variables in further analysis.

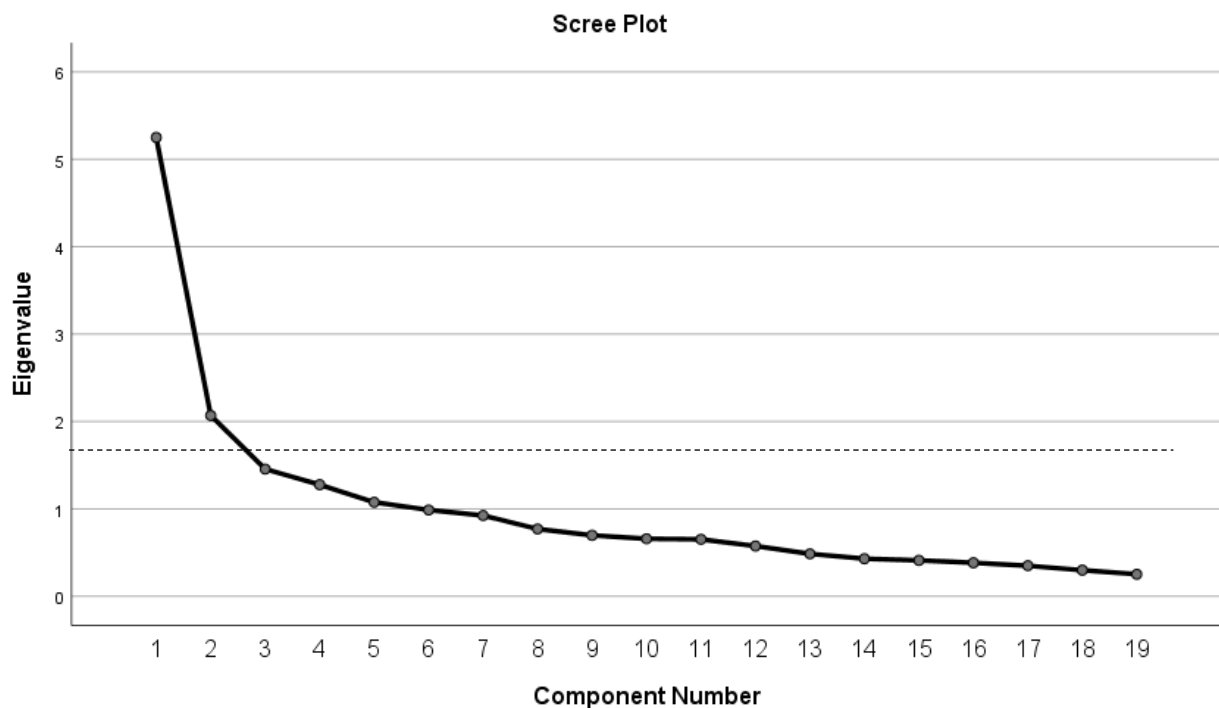


Figure 6-3. Scree plot – Risk propensity attributes

Once the components were extracted and decided how many to retain, next step is to interpret the components using component loading values displayed in the rotated component matrix. The of component matrix helps to determine which variables load on each factor. The strategy is to locate the highest loading for a given variable on any component. Hair et al. (2013) suggested that component loadings above ± 0.3 are considered to meet the minimal level for interpretation of structure. However, they have come up with more reasonable way of determining significant variables based on the sample size. Accordingly, for a sample size of 206 the cut off level is considered around ± 0.4 . When a variable is cross-loaded among more than one component, that variable was allocated to the component with highest loading value.

Table 6-14. Rotated component matrix - Risk propensity attributes

Risk propensity attribute	1	2	3	4	5
RPA1	-0.053	-0.156	0.767	0.169	0.076
RPA2	0.720	-0.157	0.215	0.260	-0.101
RPA3	0.711	-0.046	0.264	-0.184	-0.085

RPA4	0.703	-0.201	-0.081	-0.362	0.208
RPA5	0.637	-0.125	-0.296	0.334	-0.070
RPA6	0.722	-0.071	-0.302	-0.071	0.010
RPA7	-0.034	0.123	0.037	0.767	0.284
RPA8	0.516	-0.544	-0.012	0.004	-0.029
RPA9	-0.158	0.309	0.451	0.012	-0.361
RPA10	-0.193	0.710	-0.124	0.210	-0.045
RPA11	-0.067	0.056	0.051	0.155	0.826
RPA12	-0.373	0.270	0.372	-0.446	0.302
RPA13	0.105	-0.176	0.713	-0.146	0.052
RPA14	-0.156	0.754	-0.006	0.061	0.320
RPA15	-0.083	0.498	0.460	-0.118	-0.184
RPA16	0.516	-0.285	-0.089	0.027	-0.077
RPA17	-0.235	0.530	-0.163	-0.129	-0.067
RPA18	0.682	-0.333	0.004	0.181	0.104
RPA19	-0.457	0.332	-0.056	0.113	0.279

Eight attributes were strongly loaded to the first component with loading values above ± 0.4 . (Table 6.14). All attributes except RPA19 were loaded with a positive loading value. The negative sign of RPA19 indicated that it correlates negatively with the other attributes in the first component. The first component alone explained 28% of the total variance (Table 6.13). Five variables were strongly loaded to component two explaining 11% of the variance. The attribute eight was cross-loaded between component one and two with factor loading above ± 0.5 . According to the sign of respective factor loadings, RPA8 was positively correlated to the other attributes in the component one while it was negatively correlated to the attributes in component two. However, it was allocated to the second component as it has recorded the highest absolute loading value. Three factors were strongly loaded to the third component, two to the fourth and one to the fifth component respectively.

Since, it was decided to keep first two components for further analysis, it is important to understand more on the individual attributes extracted under these two components. Table 6.15 below lists all the attributes extracted under the first two components along with new names given for those components. These names are given based on the shared meaning of all attributes in a given component and are important when these components (or component-based indices) will be used as variables in further analysis.

Table 6-15. Attributes extracted under first two components

Component	Risk propensity attribute	Component loading	Name given
1	RPA2 When introducing new products, I am always willing to accept a certain level of risk	0.720	Entrepreneurial risk propensity attributes

	RPA3	I never shy away from taking up an opportunity due to the risk of failure	0.711	
	RPA4	I always encourage employees to take risks without fear of punishment	0.703	
	RPA5	I always have a strong tendency, to commit a large amount of resources to high-risk projects	0.637	
	RPA6	I always aggressively exploit potential opportunities regardless of the level of uncertainty	0.722	
	RPA16	I express my opinion even if most people have the opposite view	0.516	
	RPA18	I take up challenges more often than other small business owners do	0.682	
	RPA19	I postpone investments until they really need to be done	-0.457	
	RPA8	I always tend to venture into business areas that no one else has ventured into	-0.544	
	RPA10	I find planning difficult because the future is so uncertain	0.710	
2	RPA14	When there are a number of solutions to a problem, I find it difficult to make a choice	0.754	Non-entrepreneurial risk propensity attributes
	RPA15	I always tend to imagine the unfavourable outcomes of my actions	0.498	
	RPA17	I am not good at making sense of ambiguous and uncertain situations	0.530	

All the eight attributes strongly loaded to component one shares the same idea of actively seeking and accepting risk while the attributes in component two share the opposite-risk aversion (Table 6.15). Accordingly, the attributes in the first components were collectively identified and named as “entrepreneurial risk propensity attributes” whereas, the second component was named as “non-entrepreneurial risk propensity attributes”. Attributes RPA19 and RPA8 share different meanings from rest of attributes in its components thus, resulted with negative factor loadings. Hence, they were negatively correlated to the meaning of their respective components. According to the sign of RPA19 that belong to the entrepreneurial group can be interpreted as entrepreneurial firms do take the risk of investing on opportunities when they appear and not wait for until they really need to be done. On the other hand, the attribute RPA8 can be explained as non-entrepreneurial firms never tend to venture into business areas that no one else has ventured into.

It was also noted that, none of the attributes resulted with no significant differences between two firm groups from the t-test were not categorised under the first two components (Table 6.11 & 6.14). Therefore, naming these first two components as “entrepreneurial” and “non-entrepreneurial” risk propensity attributes seemed appropriate as two firm types were significantly different from each other for all the 13 attributes. It is also noted that, out of those four non-significant attributes, RPA1 and RPA13 resulted higher mean scores (i.e. greater than 3.0) for both firm types whereas RPA7 and RPA11 resulted lower means cores for both firm types (Table 6.9). But, none of these attributes were extracted under the first two components under consideration.

Moreover, looking back at the descriptive analysis it was also clear that the attributes that were categorised into a given component show a similar pattern. For example, the eight attributes that were strongly loaded to the first component received high mean values above 0.3 from entrepreneurial group except for attribute RPA19. The low mean value for RPA19 could be understood since the attribute recorded a negative loading value under the first/entrepreneurial component. Similarly, the five attributes extracted under the second component showed relatively high mean scores from the non-entrepreneurial group compared to entrepreneurial group. The only exception was the attribute RPA8 resulted with a negative factor loading from PCA (Table 6.15). Based on the above explanations, it is clear that the attributes extracted under the first two components provide an adequate representation and a clear differentiation between the risk propensity attributes of entrepreneurial and non-entrepreneurial firms.

6.6.2.3 Results of chi-square statistic

Chi-square test was performed for a set of selected risk propensity attributes. The purpose of the test was to investigate and confirm whether there is an association between the risk propensity responses and the entrepreneurial or non-entrepreneurial status of firms. The variables loaded to the first two components with component loading above 0.6 were considered for the Chi-square test. Accordingly, eight variables were subjected to the test and respective chi-square and probability values were obtained. (Table 6.16).

The probability values for all attributes were recorded less than 0.05 confidence level. This outcome confirmed that there is an association between the entrepreneurial status and risk propensity attributes among these small-scale food processing firms. Hence, again confirmed that entrepreneurial and non-entrepreneurial firms differ in their risk propensity attribute responses.

Table 6-16. Results of the Chi-square test

Variable	Chi-square value	Probability value
RPA2	35.990	0.000*

RPA3	15.996	0.002*
RPA4	25.853	0.000*
RPA5	45.607	0.000*
RPA6	25.616	0.000*
RPA10	14.628	0.000*
RPA14	10.772	0.028*
RPA19	49.797	0.000*

**significant at 0.05 confidence level*

The next section of this chapter is focused on the second risk behaviour aspect; perceived business environment risk.

6.7 Perceived business environment risk

Thirty-one sources of risks were identified based on the literature and through the case study interviews. These sources were categorised into nine categories including; hazard, strategic, financial, operational, HR, market (product-related and input-related), regulatory/legal, and political risks (Table 6.17). The purpose was to evaluate firm's risk perception in relation to whether a source of risk could provide an opportunity (i.e. upside risk) or a threat (i.e. downside risk) to their businesses. All responses were gathered in a five-point Likert scale. Accordingly, the data were gathered on both the perceived impact of the given source of risk as an opportunity or a threat (i.e. on a scale ranging from very low to very high) and the perception on the likelihood of this potential opportunity or threat to happen within next one to five-year period (i.e. on a scale ranging from rare to almost certain).

Table 6-17. Sources of risk included in the study and their respective risk categories

Category of risk	Code	Source of risk/ Change in business environment
Hazard risks	SR1	Climate
Strategic risk	SR2	Business relationships (within supply chain)
	SR3	Reputation & image
Financial risk	SR4	Interest rate volatility
	SR5	Access to finance
	SR6	Access to specialty loans/grants for SMEs
Operational risk	SR7	Seasonality of crops
	SR8	Perishability
HR risk	SR9	Availability of trustworthy people as labour
	SR10	Availability of labour with the right attitude
	SR11	Employee safety
	SR12	Technology changes
Market risk – product related	SR13	Finding new markets
	SR14	Local demand
	SR15	Competition
	SR16	Domestic economy fluctuations
	SR17	Purchasing power of consumers
	SR18	Consumer knowledge about brands/brand names

Market risk – input related	SR19	Raw material costs
	SR20	Labour costs
	SR21	Quality of raw materials
	SR22	Agreements with input suppliers
	SR23	Capital cost of processing equipment
	SR24	Input availability
Regulatory and Legal risk	SR25	Waste disposal
	SR26	Health regulations
	SR27	Quality standards
	SR28	Tax rates
Political risk	SR29	Change in leadership that revises economic policies
	SR30	Change in leadership that revises trade policies
	SR31	Corruption

Similar to the other risk-related aspects, these risk perception data were also analysed using both descriptive and inferential statistics. The descriptive analysis with mean scores and percentage responses were carried out similar to other risk aspects. However, based on the nature of this perception data, the inferential analysis was performed slightly different to the other risk aspects. As noted earlier, risk perception data were gathered under two facets; opportunity (upside) and threat (down-side) where for each facet data were gathered on both its perceived impact and perceived likelihood of occurrence. Therefore, rather considering impact and likelihood as separate variables, a risk perception score was developed but combining these two variables. Thereby, two risk perception scores were developed separately for opportunity and threat risk perceptions and these risk perception scores were used in statistical data analysis including t-tests, PCA and chi-square analysis.

6.7.1 Descriptive analysis of perceiving sources of risks as opportunities or threats to the business

Similar to other risk-related variables, the descriptive analysis involved calculation and comparing response mean scores against entrepreneurial and non-entrepreneurial firms. The mean scores were obtained for both opportunity and threat risk perceptions in terms of both their impact and likelihood of occurrence in long-term. The mean score differences related to all above scenarios were also calculated to facilitate the comparison between two firm groups (Table 6.18).

Table 6-18. Comparison of mean scores between entrepreneurial and non-entrepreneurial firms

(comparison includes perception on both impact and likelihood of occurrence of both opportunity and threat perspective of sources of risk)

Category of risk	Code	Opportunity (Upside risk)						Threat (Downside risk)					
		Impact		Difference	Likelihood		Difference	Impact		Difference	Likelihood		Difference
		E	NE	E-NE	E	NE	E-NE	E	NE	E-NE	E	NE	E-NE
Hazard risks	SR1	1.8	1.4	0.4	1.6	1.4	0.2	3.0	2.9	0.1	2.7	2.8	-0.1
Strategic risk	SR2	3.9	3.7	0.2	3.8	3.7	0.1	2.0	2.3	-0.3	2.1	2.2	-0.1
	SR3	4.0	3.7	0.3	4.0	3.7	0.3	2.0	2.3	-0.3	2.1	2.2	-0.1
Financial risk	SR4	2.3	2.0	0.3	2.3	2.1	0.2	3.4	3.3	0.1	3.3	3.3	0
	SR5	2.9	2.4	0.5	2.9	2.5	0.4	3.1	3.3	-0.2	2.9	3.3	-0.4
	SR6	2.7	2.2	0.5	2.4	2.3	0.1	3.1	3.2	-0.1	3.0	3.1	-0.1
Operational risk	SR7	1.7	1.3	0.4	1.7	1.4	0.3	2.6	2.3	0.3	2.6	2.1	0.5
	SR8	1.5	1.4	0.1	1.5	1.4	0.1	3.6	3.1	0.5	3.7	3.2	0.5
HR risk	SR9	2.7	2.3	0.4	2.6	2.4	0.2	3.2	2.5	0.7	3.2	2.4	0.8
	SR10	2.8	2.3	0.5	2.7	2.3	0.4	3.0	2.5	0.5	3.1	2.5	0.6
	SR11	3.5	3.5	0	3.4	3.4	0	2.4	2.2	0.2	2.4	2.2	0.2
	SR12	3.4	2.7	0.7	3.2	2.7	0.5	2.3	2.0	0.3	2.2	2.0	0.2
Market risk	SR13	3.6	3.2	0.4	3.5	3.1	0.4	2.4	2.9	-0.5	2.3	2.9	-0.6
– product	SR14	3.9	3.6	0.3	3.9	3.7	0.2	2.2	2.5	-0.3	2.3	2.6	-0.3
related	SR15	2.3	1.8	0.5	2.2	1.8	0.4	3.8	4.1	-0.3	3.9	4.1	-0.2
	SR16	2.8	2.4	0.4	2.7	2.5	0.2	3.4	3.5	-0.1	3.4	3.6	-0.2
	SR17	3.3	2.9	0.4	3.6	2.9	0.7	2.7	3.1	-0.4	2.8	3.1	-0.3

	SR18	3.7	3.0	0.7	3.7	3.0	0.7	2.3	2.9	-0.6	2.4	3.0	-0.6
Market risk	SR19	2.0	1.7	0.3	2.1	1.7	0.4	4.0	4.1	-0.1	3.9	4.2	-0.3
– input	SR20	2.0	1.8	0.2	2.0	1.8	0.2	3.7	3.1	0.6	3.7	3.2	0.5
related	SR21	3.6	3.4	0.2	3.6	3.5	0.1	2.4	2.5	-0.1	2.5	2.5	0
	SR22	3.6	3.4	0.2	3.5	3.4	0.1	2.4	2.4	0	2.4	2.3	0.1
	SR23	1.9	1.5	0.4	1.9	1.5	0.4	3.3	2.9	0.4	3.1	2.7	0.4
	SR24	3.7	3.6	0.1	3.9	3.6	0.3	2.4	2.2	0.2	2.5	2.2	0.3
Regulatory	SR25	2.3	2.3	0	2.3	2.3	0	2.0	1.6	0.4	1.9	1.6	0.3
and Legal	SR26	2.9	2.3	0.6	2.8	2.2	0.6	3.0	3.4	-0.4	3.0	3.4	-0.4
risk	SR27	2.8	2.3	0.5	2.8	2.2	0.6	2.9	3.3	-0.4	3.0	3.3	-0.3
	SR28	1.6	1.7	-0.1	1.7	1.7	0	4.0	3.8	0.2	4.0	3.8	0.2
Political risk	SR29	2.5	2.3	0.2	2.4	2.2	0.2	2.9	2.8	0.1	3.0	2.7	0.3
	SR30	2.5	2.3	0.2	2.4	2.2	0.2	2.9	2.8	0.1	3.0	2.7	0.3
	SR31	1.6	1.8	-0.2	1.6	1.8	-0.2	3.5	3.2	0.3	3.4	3.1	0.3

According to the mean scores provided by the respondent firms, it appeared that responses for both perceived impact and perceived likelihood followed the same pattern across both firm types. When a source of risk was perceived as with low impact, they were perceived as less likely to occur too. This pattern was common to both entrepreneurial and non-entrepreneurial firms. Moreover, both firm types showed a similar pattern of perceiving the impact of sources of risks as opportunities or threats. For example, both entrepreneurial and non-entrepreneurial firms perceived changes in climate (SR1) as more of a threat to their businesses than as an opportunity. Also, they both perceived that the changes in climate is less likely to affect their businesses as a threat or an opportunity in long-term (Table 6.18). As Sri Lanka is a tropical country with no drastic changes of climate, it is reasonable for firms to not to perceive climate as a threat for them in long run. Both firm types perceived a medium level of negative impact from the most common climate changes; precipitation and pro-longed droughts yet, did not foresee a long-term negative effect.

The perception of strategic risk sources was slightly different among two firm groups. Both firm types perceived business relationships (SR2) and reputation and image (SR3) are more as opportunities for their firms along with high likelihood of occurrence in long-term (Table 6.18). In line with that, the mean scores of both firm types for perceiving SR2 and SR3 as threats were less than average. But, in comparison of two firm groups, mean scores of non-entrepreneurial firms were slightly higher than that of entrepreneurial firms indicating they did perceive those strategic changes as threats to their businesses with slightly higher possibility of occurrence. A similar observation was also made at two financial sources of risks (i.e. SR5 and SR6) where the mean scores provided by non-entrepreneurial firms were slightly higher than that of entrepreneurial firms. The mean score differences suggested that, the non-entrepreneurial firms perceived the changes in accessibility to finance (SR5) and accessibility to SME specific loans (SR6) more negatively compared entrepreneurial firms while they also expected detrimental effects from these changes in long-term. However, perception of both firm types showed that they see threats but no opportunities from these financial sources of risks (Table 6.18).

According to the mean score comparisons, none of the sources of risks received score differences greater than ± 1 indicating both firm types perceive the impact as well as likelihood of occurrence in a fairly similar manner. If a mean score difference exceeded ± 1 , that would indicate that the perception of one firm group is different from at least one level of impact or likelihood (i.e. based on 1 to 5 scale). Among thirty-one sources of risks, the highest score differences were observed at downside risk perception of SR9 on 'availability of trustworthy people as labour' (Table 6.18). Entrepreneurial firms perceived this as a threat with moderate-level impact on potential lost while non-entrepreneurial firms perceived as a low-level threat. Moreover, the mean score difference between two firm types

under the perceived likelihood of occurrence was 0.8, indicating that entrepreneurial firms foresaw the negative impact of changes in availability of trustworthy people as labour. However, both firm types perceived the (un)availability of trustworthy labour as a potential threat to their businesses in future. Similar mean score differences were observed at SR12, on perceived opportunities of technology changes and at SR18 on perceived opportunities and likelihood of occurrence of changing consumer knowledge about brand names (Table 6.18). At both these instances the perception score of entrepreneurial firms were slightly higher than their non-entrepreneurial counterparts.

Based on this moderate understanding of risk perception differences between two firm types, the next section of the chapter explains how statistical measures were used to broaden the understanding and to identify most significant sources of risks that could be used to distinguish between them.

6.7.2 Development of risk perception scores

The approach taken to develop these risk perception scores was not explained under the research methodology chapter, as this section is unique to risk perception data. As noted above, the risk perception scores were first calculated for 'each respondent' from the multiplication of impact scores and likelihood scores. The scores were developed for both entrepreneurial and non-entrepreneurial firms and used in further statistical analysis including independent sample t-test and PCA.

6.7.3 Results of the independent sample-tests

An independent sample t-test was conducted to understand whether the risk perception scores of entrepreneurial and non-entrepreneurial firms differ from each other in terms of their perception of opportunities and threats arising from the changes in the respective business environments. The probability values were compared against the 0.05 significance level. If the probability value is less than 0.05 (typically $p \leq 0.05$), it indicates strong evidence against the null hypothesis, as there is less than a 5% probability the null is correct. Hence is null is rejected indicating that there is a statistically significant difference between entrepreneurial and non-entrepreneurial groups.

Out of the 31 sources of risks, eleven were perceived differently among two firm groups with probability values less than 0.05 each under perceived opportunity and threat categories respectively. Further to above 0.05 significance level, 0.1 level was also used to identify significantly different variables given there are several variables with probabilities less than 0.1 but greater than 0.05. Accordingly, nine significantly different variables were identified under the under the opportunity category and three under the threat category. Out of the variables showed significance at 0.05 level, seven were found to be different between two groups when they were perceived as both opportunities and threats. By combining both significance levels, 20 variables under opportunity category and 14 variables under threat category were found significantly different between two firm

groups. However, the discussion will mostly be limited to the perception differences that were significant at 0.05.

Table 6-19. Results (i.e. probability values) of the independent sample t-test conducted on risk perception scores

Category of risk	Code	Opportunity	Threat
Hazard risks	SR1	0.066**	0.671
Strategic risk	SR2	0.241	0.145
	SR3	0.085**	0.112
Financial risk	SR4	0.145	0.839
	SR5	0.006*	0.032*
	SR6	0.099**	0.355
Operational risk	SR7	0.068**	0.140
	SR8	0.439	0.038*
HR risk	SR9	0.091**	0.000*
	SR10	0.026*	0.004*
	SR11	0.958	0.261
	SR12	0.002*	0.263
Market risk – product related	SR13	0.015*	0.006*
	SR14	0.092**	0.186
	SR15	0.012*	0.097**
	SR16	0.019*	0.384
	SR17	0.000*	0.023*
	SR18	0.000*	0.000*
Market risk – input related	SR19	0.063**	0.094**
	SR20	0.073**	0.013*
	SR21	0.458	0.494
	SR22	0.422	0.797
	SR23	0.001*	0.146
	SR24	0.313	0.246
Regulatory and Legal risk	SR25	0.831	0.041*
	SR26	0.000*	0.023*
	SR27	0.018*	0.047*
	SR28	0.726	0.265
Political risk	SR29	0.213	0.124
	SR30	0.213	0.129
	SR31	0.080**	0.087**

* significant at 0.05 confidence level ** significant at 0.1 level

Two out of three financial sources of risks, two were perceived differently among two firm groups (Table 6.19). Out of the two, SR5 on changes in access to finance was perceived differently among two firm groups under both opportunity and threat categories at 0.05 confidence level. Referring back to mean score differences, it can be explained as entrepreneurial firms perceived more opportunities

arise from changes in access to finance whereas non-entrepreneurial firms perceived more threats from changes in access to finance. This explanation is further strengthened by the mean score differences between two firm types where, entrepreneurial firms scored higher under the opportunity category while non-entrepreneurial firms scored higher under the threat category. Out of two operational sources of risk, SR8 on perishability resulted significant differences among two firm groups under the threat perception category. The probability value indicates that there is a significant difference between entrepreneurial and non-entrepreneurial firms how they perceive the downside risks of perishability of their products including raw material and finished goods. Being food processing firms, perishability is an unavoidable operational risk for both types of firms. However, the mean score differences shown at Table 6.18, showed that entrepreneurial firms perceived its negative impacts more compared to non-entrepreneurial firms.

Out of four HR-related sources of risks, three were resulted with significantly different perception differences between two firm groups. Downside risk perceptions on availability of trustworthy people as labour (SR9) were found significantly different among entrepreneurial and non-entrepreneurial firms (Table 6.19). Based on the mean scores shown at Table 6.18, it was clear that both firm types perceived the changes in trustworthy workforce as a threat to their businesses while entrepreneurial firms perceived it as a moderate level threat where as non-entrepreneurial firms as a low level threat. The survey data revealed that both firm types employed their family members as labourers in their firms. This feature was common to both firm types regardless of their nature of EO. The second HR-related source of risk (SR10) was also related to an attribute of workforce; the availability of labour with right attitude (Table 6.19). Significant differences for this source of risk were observed under both opportunity and risk perceptions. Similar to SR9, both firm types perceived these changes of favourable attitudes of workforce as a threat to their businesses (Table 6.18). Collectively, it appeared that both firm types suffered from the lack of quality workforce in terms of their trustworthiness and right attitudes, but entrepreneurial firms perceived the respective threats and opportunities more vigorously compared to the non-entrepreneurial firms. The opportunities arise from the source of risk SR12 on technology changes were also perceived differently between two firm types (Table 6.19). Referring back to the mean score comparisons at Table 6.18, entrepreneurial firms' opportunity perception level seemed much higher than that of non-entrepreneurial firms. Therefore, it can be explained as entrepreneurial firms perceived changing technology as an opportunity for their growth while considering it as an alternative to the HR and workforce-related risks faced by them.

Next category of risk perceptions was focused on market risks under two categories; product and input (Table 6.19). All six product-related market risks were perceived differently among two firm groups when they were perceived either as opportunities or risks or as both. All six showed significant

differences at 0.05 level except SR14 at 0.1 level. Out of six variables; SR13 (i.e. finding new markets), SR17 (i.e. purchasing power of consumers) and SR18 (i.e. consumer knowledge about brands) showed significant differences when they were perceived as both opportunities and threats (Table 6.19). Going back to the mean score comparisons, all these changes were perceived more as opportunities by both firm types yet, entrepreneurial firms scored higher on the opportunity perception and lower on the threat perceptions. The significant differences were results of entrepreneurial firms perceiving more opportunities and less threats compared to non-entrepreneurial firms at all three sources of risks.

The next set of market risk sources were focused on the input-side of the firms. Out of six sources of risks three were resulted as significantly different among two firm groups. Out of these three, only SR20 and SR23 were significant at 0.05 level. The threats of source of risk SR20 on changes in labour costs and opportunities of changes in capital cost of processing equipment (SR23) were perceived significantly different among two firm groups (Table 6.19). According to the mean score comparison data shown on Table 6.18, both firm types perceived SR20 as a threat to their businesses while mean score of entrepreneurial firms was higher than that of non-entrepreneurial firms. It was not surprising to see firms perceiving changing (mostly increasing) labour costs as a threat for their businesses irrespective of being entrepreneurial or not. Similarly, according to the mean scores both firm types perceived SR23 as a more of a threat to their businesses, yet the t-test has identified significant differences among two groups when it was perceived as an opportunity (Table 6.19).

Four sources of risks were identified under the regulatory and legal risk category where three of them were found statistically significant among two firm groups at 0.05 confidence interval (Table 6.19). The threats pertaining to the first source of risk on regulations related to waste disposal (SR25) were perceived differently among two firm groups. According to the mean scores calculated for this source of risk (Table 6.18), it was neither perceived as a strong opportunity or a threat by the firms. Scores at both opportunity and threat perceptions were relatively low indicating less impact on changing these regulations. The opportunity perception scores were identical between two firm types whereas, threat perception score of entrepreneurial firms was slightly higher than their non-entrepreneurial counterparts. Thereby, it is safe to assume that entrepreneurial firms tend to perceive more negative impacts of changing waste disposal regulations on their firms.

The other two regulation-related sources of risks were also perceived differently when they were perceived as both opportunities and threats. The two variables reflected on the risks associated with changing health regulations (SR26) and regulations related to quality standards (SR27). The pattern of mean scores were fairly similar between two sources of risks when they were perceived both as opportunities and threats (Table 6.18). According to the mean scores, both sources were perceived more as threats than opportunities. However, unlike previous sources of risks, perceived threat mean

scores of non-entrepreneurial firms were higher than that of entrepreneurial firms indicating non-entrepreneurial firms perceived negative impacts of these regulation changes strongly than that of entrepreneurial firms. On the other hand, entrepreneurial firms scored higher under opportunity perceptions reflecting that they did perceive the positives of such regulation changes (Table 6.18).

The above discussion provided a combined explanation to both t-test and mean score comparison results. It was also intended to provide explanations on differences between entrepreneurial and non-entrepreneurial firms when different sources of risks were perceived as opportunities and/or threats. With that understanding of the perception differences of two firm types, the next step of the analysis was carrying out PCA to explore how these sources of risks were categorised into different groups. The next section of this chapter includes results of PCA including extracting most important variables to proceed for further analysis.

6.7.4 Results of the PCA analysis

Risk perception scores (i.e. impact*likelihood) developed for each respondent were used for the PCA. The entire sample of 206 respondents were considered for the PCA without considering their level of EO and the entire set of 31 variables were used without considering pre-identified categories of risk.

Two PCAs were performed separately for two categories of perceptions; when risk sources were perceived as opportunities and when they were perceived as threats. The results pertaining to the opportunity or upside risk perceptions are displayed first and the PCA results of perceived risk sources as threats are discussed later.

6.7.4.1 Results of PCA –perceived opportunities of risk sources

Thirty-one variables were subjected to the PCA. The variables were the risk perception scores generated using the data when sources of risks were perceived as opportunities. According to the general procedure of PCA, 31 components were generated based on the 31 variables used. As the first step of interpreting PCA results, the eigenvalues and respective percentages explained by each component were obtained (Table 6.20). Out of the 33 components generated, only ten were resulted with eigenvalues greater than one. The cumulative variance explained by these ten components was 71% of the total variance. As explained under the methodology chapter, based on the research questions and considering the ability of using components as variables in further analysis, only the first two components were selected from these ten components. According to the analysis, the first component showed a higher eigenvalue compared to the rest of the components and it explained 18% of the variance. The first two components cumulatively explain almost 28% of the total variance (Table 6.20).

Table 6-20. Total variance explained – PCA for perceived opportunities of risk sources

Component	Initial Eigenvalues			Rotation Sums of Squared Loadings		
	Total	Percent of variance	Cumulative % variance	Total	Percent of Variance	Cumulative % of variance
1	5.513	17.784	17.784	3.901	12.585	12.585
2	3.152	10.167	27.951	2.502	8.071	20.656
3	2.688	8.669	36.620	2.388	7.702	28.358
4	2.296	7.406	44.026	2.311	7.456	35.814
5	1.805	5.822	49.848	2.276	7.341	43.155
6	1.584	5.109	54.957	2.263	7.300	50.454
7	1.458	4.705	59.662	2.068	6.672	57.127
8	1.299	4.191	63.853	1.489	4.802	61.928
9	1.163	3.750	67.603	1.435	4.629	66.557
10	1.053	3.398	71.001	1.378	4.444	71.001

The variables extracted under these components were later used to derive indices to be used in further analysis. As explained under the methodology chapter, the components extracted through PCA are completely orthogonal of each other. Hence, the indices derived from the selected first two components are treated as two separate variables at the next step of the analysis.

Once the components are extracted and decided on the number of components to retain for further analysis, the next step is to interpret the component loading matrix. The component matrix contains the factor (component) loadings for each variable on each component. Component loadings are the correlation of each variable and the component and thereby indicate the degree of correspondence between the variable and the component, with higher loadings making the variable representative of the component. Altogether, component loadings are the means of interpreting the role each variable plays in defining each component (Hair et al., 2013). According to the selection criteria given in Hair et al. (2013), loading value ± 0.4 was used as the cut off value to allocate a variable to a given component. When a variable is cross-loaded among more than one component, that variable was allocated to the component with highest loading value.

Based on the above criteria, six variables were selected as strongly loaded to each of the first two components (Table 6.21). All six variables in the first component were belong to the same risk category identified through literature. Accordingly, the first component was named as ‘product-related market risk sources’ (Table 6.22). The second component was also comprised of six strongly loaded variables, yet from different pre-identified risk categories (Table 6.21). The six variables included two strategic, two input-related market, one HR and one regulation-related source of risk.

Table 6-21. Rotated component matrix - PCA for perceived opportunities of risk sources

Risk Category	Code	1	2	3	4	5	6	7	8	9	10
Hazard risks	SR1			0.670							
Strategic risk	SR2		0.744								
	SR3		0.663								
Financial risk	SR4				0.725						
	SR5				0.804						
	SR6				0.771						
Operational risk	SR7			0.583							
	SR8								0.769		
HR risk	SR9					0.924					
	SR10					0.928					
	SR11									-0.708	
	SR12		0.487								
Market risk – product related	SR13	0.752									
	SR14	0.751									
	SR15	0.590									
	SR16	0.782									
	SR17	0.694									
	SR18	0.680									
Market risk – input related	SR19							0.751			
	SR20							0.845			
	SR21				-0.518						
	SR22		0.650								
	SR23		0.444								
	SR24								0.676		
Regulatory and Legal risk	SR25		0.525								
	SR26									0.566	
	SR27									0.585	
	SR28										0.730
Political risk	SR29						0.973				
	SR30						0.973				
	SR31										0.457

Based on the magnitude of the component loading values the second component was named as strategic and input-related market sources of risk (Table 6.22). All twelve variables of both components were loaded with positive loading values indicating their positive correlation to the components as well as to the other variables loaded into the same component.

Table 6-22. Variables extracted under the first two components - PCA for perceived opportunities of risk sources

Component		Source of risk	Component loading	Name given
1	SR13	Finding new markets	0.752	Product-related market sources of risk
	SR14	Local demand	0.751	
	SR15	Competition	0.590	
	SR16	Domestic economy fluctuations	0.782	
	SR17	Purchasing power of consumers	0.694	
	SR18	Consumer knowledge about brands	0.680	
2	SR2	Business relationships (within supply chain)	0.744	Strategic and input-related market sources of risk
	SR3	Reputation & image	0.663	
	SR12	Technology changes	0.487	
	SR22	Agreements with input suppliers	0.650	
	SR23	Capital cost of processing equipment	0.444	
	SR25	Waste disposal	0.525	

6.7.4.2 Results of PCA –perceived threats of risk sources

The second PCA was performed on risk perception scores calculated for the data when sources of risks were perceived as threats. Similar to the previous PCA, risk perception scores of thirty-one sources of risks were used without categorising them to the pre-determined risk categories. Further, data from both entrepreneurial and non-entrepreneurial firms were analysed together considering the whole sample of 206 respondents. Similar to first PCA on perceived opportunity, the first step was to identify the number of components extracted through the process and decide on the number of components retained for further analysis.

The thirty-one sources of risk subjected to PCA resulted with 31 components with different eigenvalues and explained different proportions of total variance. Based on Kaiser criterion, ten components were identified with eigenvalues greater than one and based on percentage of variance criterion these ten components explained 71% of the total variance of the data. However, as noted earlier this chapter as well as under the methodology chapter, only first two components were selected for further analysis. These first two components cumulatively explained 29.6% of the total variance and were resulted with higher eigenvalues compared to the other components (Table 6.23).

Table 6-23. Total variance explained – PCA for perceived threats of risk sources

Component	Initial Eigenvalues			Rotation Sums of Squared Loadings		
	Total	Percent of variance	Cumulative % variance	Total	Percent of Variance	Cumulative % of variance
1	5.223	16.848	16.848	3.526	11.374	11.374
2	3.955	12.759	29.608	2.552	8.232	19.606
3	2.853	9.204	38.812	2.366	7.631	27.237
4	2.034	6.560	45.372	2.288	7.381	34.618
5	1.899	6.127	51.498	2.135	6.886	41.504
6	1.491	4.809	56.307	1.958	6.316	47.820
7	1.438	4.640	60.947	1.909	6.159	53.979
8	1.294	4.175	65.122	1.842	5.943	59.922
9	1.112	3.588	68.710	1.815	5.855	65.777
10	1.078	3.476	72.186	1.716	5.535	71.312

The next step is the interpretation of rotated component matrix (Table 6.24). Based on the recommendations given by Hair et al. (2013) variables with loading values above ± 0.4 were considered as strongly loaded to the given component. Accordingly, six variables were strongly loaded to the first component while three variables were strongly loaded to the second component. All nine variables showed positive component loading values indicating their positive correlation to the respective components and to the other variables in those components (Table 6.24). These nine variables are summarised at Table 25 along with the given component names to be used in further analysis. As noted earlier, the risk perception scores pertaining to these variables were used to derive indices for each of the components.

It was also observed that most of the variables were strongly loaded into the components complied to their original classification of risk sources (Table 6.24). All six product-related market risk sources were loaded into the first component, all three political risk sources were loaded into the second. Similar patterns were observed at third, fourth and fifth components where financial, HR and regulation and legal sources of risks were strongly loaded separately (Table 6.24). It was also interesting to note that, all six product-related market risks sources were strongly loaded to the first component of both PCAs carried out for opportunity and threat perceptions. It also confirmed that these product-related market risk sources explain the majority of the variance of the risk perception data (Table 6.20 & 6.23).

Table 6-24. Rotated component matrix – PCA for perceived threats of risk sources

Risk Category	Code	1	2	3	4	5	6	7	8	9	10	11
Hazard risks	SR1						0.477					
Strategic risk	SR2								0.730			
	SR3								0.488			
Financial risk	SR4			0.780								
	SR5			0.790								
	SR6			0.844								
Operational risk	SR7									0.704		
	SR8									0.620		
HR risk	SR9				0.913							
	SR10				0.903							
	SR11											0.697
	SR12						0.642					
Market risk – product related	SR13	0.750										
	SR14	0.634										
	SR15	0.667										
	SR16	0.689										
	SR17	0.612										
	SR18	0.757										
Market risk – input related	SR19									-0.520		
	SR20										0.738	
	SR21							0.730				
	SR22								0.755			
	SR23						0.849					
	SR24							0.810				
Regulatory and Legal risk	SR25									0.545		
	SR26					0.870						
	SR27					0.922						
	SR28										0.452	
Political risk	SR29		0.961									
	SR30		0.962									
	SR31		0.563									

Table 6-25. Variables extracted under the first two components - perceived threats of risk sources

Component		Source of risk	Component loading	Name given
1	SR13	Finding new markets	0.750	Product-related market sources of risk
	SR14	Local demand	0.634	
	SR15	Competition	0.667	
	SR16	Domestic economy fluctuations	0.689	
	SR17	Purchasing power of consumers	0.612	
	SR18	Consumer knowledge about brands	0.757	
2	SR29	Change in leadership that revises economic policies	0.961	Political sources of risk
	SR30	Change in leadership that revises trade policies	0.962	
	SR31	Corruption	0.563	

The next section of this this chapter presents the analysis and results of the last risk behaviour aspect; risk management strategies.

6.8 Adoption of risk management strategies

Fifty-five risk management strategies were identified based on literature, case-study analysis and pilot survey. The responses were collected on a three-point Likert-scale build on 'yes (2)' 'no (1)' and 'not-applicable (0)'. These data were analysed following a similar procedure to the other risk behaviour aspects. First the data were subjected to descriptive analysis procedures such as comparing mean scores and percentage responses between entrepreneurial and non-entrepreneurial firm groups. Inferential statistical analyses were then employed to understand the differences and similarities between two firm groups in adopting risk management strategies.

6.8.1 Descriptive analysis of adopting risk management strategies

As noted earlier, 55 risk management strategies were included in the study under ten categories of risk (Table 6.26). As the first step, the percentage of 'yes/ no/ not-applicable' responses were calculated and compared among entrepreneurial and non-entrepreneurial firms (Figure 6.4).

Table 6-26. Risk management strategies along with respective categories and individual codes

Category	Strategy	Code
Managing Hazard Risk	Insurance against hazard risks	S1
	Adjusting the production according to the weather conditions	S2
Managing Strategic Risk	Diversifying into related business ventures	S3
	Diversifying into unrelated business ventures	S4
	Multiple income sources	S5
	Producing number of product lines	S6
	Planning resource allocation	S7
	Involving family over the longer term	S8

	Collective decision making among partners (family or board members)	S9
	Limiting family involvement	S10
	Planning capital spending	S11
	Using SWOT	S12
	Having a good business vision	S13
	Using business plans	S14
	Using long and short-term plans	S15
	Using external advice and mentors	S16
	Continuous product innovation	S17
Managing financial risk	Managing debt	S18
	Keeping debt low	S19
Managing knowledge risk	Study in business management	S20
	Study in the technical domain	S21
	Use of workshops and programmes	S22
	Obtaining support from government organisations	S23
	Sourcing expert knowledge (eg: development officers)	S24
Managing Operational/ production risk	Keeping stocks (both raw material and final product) low due to perishability	S25
	Maintaining adequate stocks	S26
	Producing only for the orders received	S27
	Keeping stocks low at the retailers to reduce losses	S28
	Installing CCTV to prevent theft	S29
Managing HR risk	Using contract instead of permanent labour	S30
	Process automation and modern technology	S31
	Involvement of the family for labour	S32
Managing Market risk – product prices	Monitoring customer satisfaction	S33
	Monitoring market trends	S34
	Monitoring competitor activities	S35
	Spreading sales	S36
	Using social networks for marketing	S37
	Monitoring technology changes	S38
	Using market surveys prior to introducing products	S39
	Use high quality (+health benefits) to compete	S40
	Using low price as a market entrance strategy	S41
	Keeping product price high as a marketing strategy	S42
	Selling products on credit to attract retailers	S43
	Developing agreements with buyers	S44
Managing market risk - input prices and quality	Using local inputs	S45
	Purchasing inputs using credit	S46
	Purchasing raw material in bulk	S47
	Utilising a network or hub of suppliers to ensure quality	S48
	Vertical coordination	S49
	Re-using wastewater	S50

Managing Regulatory and Legal Risk	Re-using solid waste for energy production	S51
	Ensuring clean/standard production processes (for health regulations)	S52
	Proper reporting and compliance	S53
Managing Political Risk	Doing nothing/stay neutral of political changes	S54
	Using bribes	S55

Bar charts were used to descriptively illustrate the different responses given by entrepreneurial and non-entrepreneurial firms in relation to adoption of different risk management strategies. Separate graphs were used for individual risk categories (Figure 6.4a&b). Two risk management strategies were identified under the category of hazard risk (Table 6.26). Both firm types responded in a more similar manner to these two strategies (i.e. S1 & S2). Majority of both entrepreneurial and non-entrepreneurial firms claimed that they did not adopt 'insurance' as a hazard risk management strategy. It is interesting to note this lack of interest on insurance even though insurance is identified as one of the most commonly used strategies in the risk management literature (Falkner & Hiebl, 2015). However, the percentage of entrepreneurial firms adopted insurance as a risk management strategy is slightly higher than non-entrepreneurial firms (Figure 6.4a). On the other hand, hazard risks were not considered as a major risk for these small-scale food businesses. Sri Lanka being a small island located near equator, the occurrence of natural hazards is relatively uncommon. Moreover, the risk of accidents occurring due to heavy machinery, chemicals, fire or electricity were also not common in these small-scale food processing firms. Majority of these firms were operated home-based with minimum number of employees and using simple machinery. Frequent precipitation, humidity and certain dry periods were identified as most common natural hazards faced by these small businesses. Hence, a small percentage of both type of firms used to adjust their production according to the prevailing weather conditions (S2, Figure 6.4a). This was mainly dependent on the type of product produced by those firms. Especially, spice producers used to adjust their production as heavy precipitation and humidity could cause mould growth in their products.

Fifteen strategies were identified as strategic risk management practices adopted by these small-scale firms (Table 26). Out of which S13 and S15 were identified as the most commonly adopted strategies by entrepreneurial firms (i.e. over 90% for both strategies). However, it was interesting note that only 45-50% of non-entrepreneurial firms claimed to adopt each of these strategies. Both strategies reflected on having a clear business vision and using both short and long-term plans to pursuer that vision. These higher adoption rates give a clear idea that entrepreneurial firms are more strategically orientated than their non-entrepreneurial counterparts. On the other hand, the highest adoption percentage from non-entrepreneurial group was recorded at S6 and S9 respectively. Around 70% of

non-entrepreneurial firms responded 'yes/adopted' for each of these strategies. Both types of firms tried to produce more than one main product in order to diversify their risks. Especially, firms in processing fruit and vegetables needed to diversify their product lines as they need to keep their businesses running even in off-season. Collective decision making (S9) was also a highly adopted strategy among both firm types. This is a common feature among family businesses to make decisions with the insights and agreement of both spouses. In broader sense, the entrepreneurial firms always recorded higher adoption percentages for all the strategic risk management practices compared to non-entrepreneurial firms (Figure 6.4a).

Responses were also gathered on two financial risk management strategies (i.e. S18 & S19) (Table 6.26). Majority of both firm types responded 'yes' to adoption of S19 on 'keeping debt low' (i.e. 75% from each group). During the survey, the respondents made clear that they would not go for financial credit unless it was necessary. This is related to the perception of high interest rates and perceived difficulties to obtain formal financial credit. They were mostly unaware of the credit schemes especially available for the MSMEs and other credit subsidies provided by the government. Sixty-eight percent of the entrepreneurial firms claimed to manage their debt (S18) too. Majority of non-entrepreneurial firms (59%) said they do not manage their debt even though they keep it low (Figure 6.4a).

Five strategies were identified as adopted by firms to manage their knowledge-related risk (Table 6.26). Similar to strategic risk management strategies, entrepreneurial firms always showed higher adoption percentages for all five strategies compared to non-entrepreneurial firms. In contrary, more than 50% of non-entrepreneurial firms responded 'not adopted' four strategies except S22. The strategy S22 on 'use of workshops and programmes' is the only strategy that recorded a higher adoption percentage for non-entrepreneurial firms. It appeared that majority (57.1%) of non-entrepreneurial firms took the advantage of workshops and programmes organized by MSME-related government organizations. These workshops usually provided the firm owners with knowledge on product development, production processes, marketing, accounting, quality certification and various other business-related aspects. Surprisingly, both firm types resulted higher non-adoption percentages for strategy S20 and S21 on studying on business management and technical domains (Figure 6.4a). It appears that both firm types were not very keen on pursuing long-term formal education to get their knowledge but to learn them through short-term workshops and programmes.

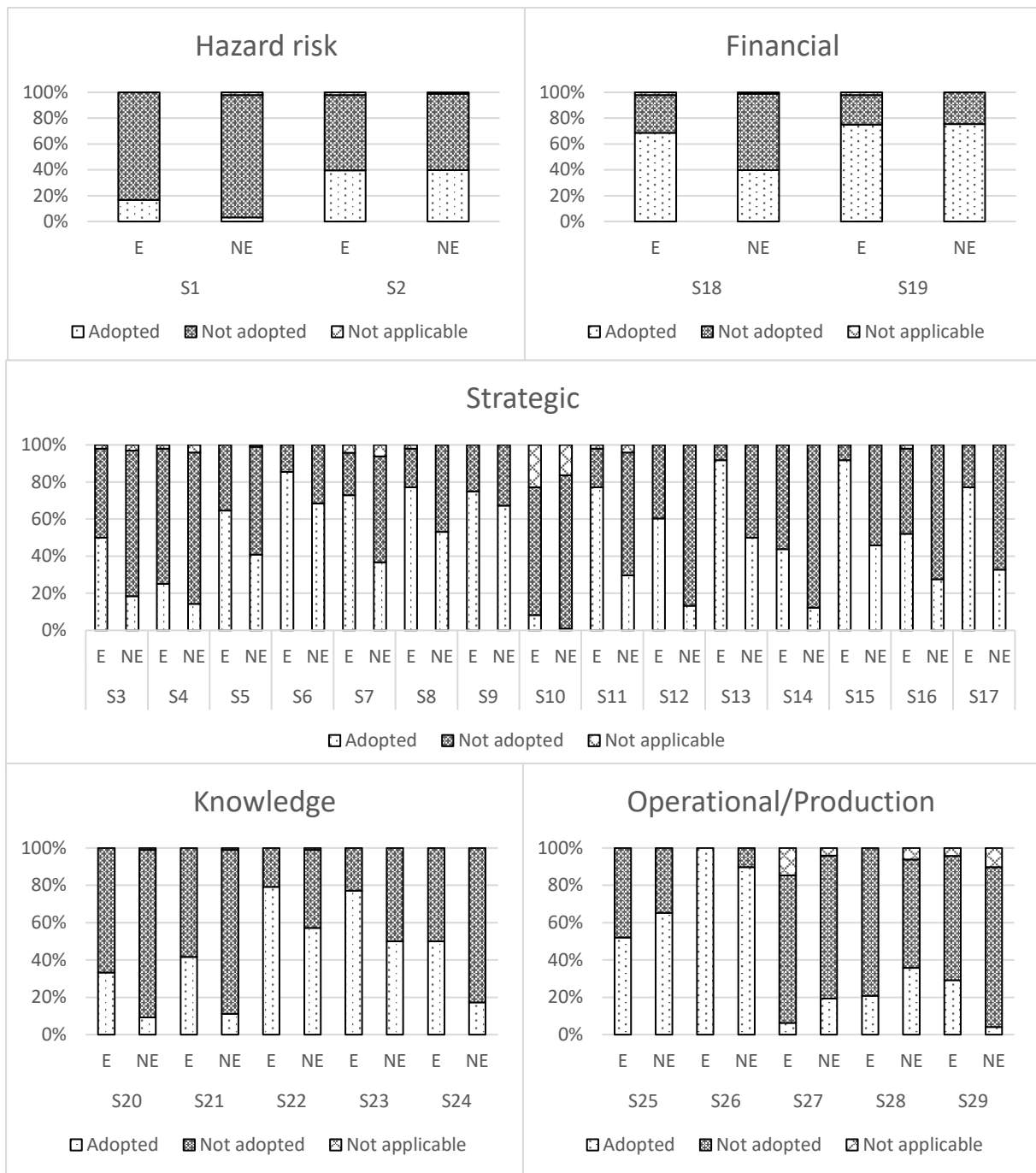


Figure 6-4a. Percentage of responses on adoption of risk management strategies

Another five strategies were identified under operational and production risk (Table 6.26) and the responses were compared against two firm groups. The adoption and non-adoption percentages were not consistent among the strategies (Figure 6.4a). The strategy S26 on 'maintaining adequate stocks' resulted surprisingly higher rate of adoption by both firm groups where 100% of entrepreneurial and 90% of non-entrepreneurial firms responded 'yes' for the adoption. In contrary, the strategy S27 on 'producing only for the orders received' recorded the lowest adoption rate (6.3%) out of all 55 risk management strategies. Usually firms can either produce their products at their own pace and deliver

to the market at regular intervals or they limit their production only to the direct orders received from their customers. Meaning that there is absolutely no production without an order in place. Usually the owners of these types of firms do have another supplementary source of income apart from their business. It appeared that both firm types follow the first approach of producing and supplying products at their own pace to cater the market demand. The high non-adoption percentage at strategy S29 on 'using CCTV as a measure to prevent threat' shows that theft was not identified as a serious issue in these family businesses mostly operated inside or around of their households. Moreover, these small family businesses were not heavily technology oriented and most were not financially stable enough to handle the cost of installing a surveillance system.

The sixth risk category HR included three risk management strategies (Table 6.26). Both firm types recorded higher adoption percentages for strategies S30 and S32 on 'using contract labour instead of permanent' and 'using family labour' (Figure 6.4b). Hence all most all these businesses are small family businesses; it was always profitable for them to use family labour as mostly these family workers were not paid in-cash. On the other hand, if non-family workers were employed, they are recruited on contract basis rather than as permanent workers. That is supposed to take away the hassle of binding into regulations such as employee benefits. Moreover, the owners could easily terminate these contract workers when the workload is low. Strategy S31 on using 'process automation and modern technology' showed a considerably different adoption percentage among two firm groups (Figure 6.4b). Sixty-nine percent of the entrepreneurial firms claimed to adopt S31 while 79% of non-entrepreneurs did not adopt modern technology as a strategy for managing their HR-related risk. Most of their production work were still confined to manual labour-based methods.

Twelve risk management strategies were included in the product price-related market risk management category (Table 6.26). Again, the adoption percentages shown by entrepreneurial firms were higher than non-entrepreneurial firms for each strategy (Figure 6.4b). Out of 12 strategies, S33 on 'monitoring customer satisfaction' was the mostly adopted strategy by both firm groups. ninety-four percent of entrepreneurial and 72% of non-entrepreneurial firms mentioned that monitoring the level of customer satisfaction was adopted by their firms as a strategy for managing market risk. In contrary, S39 on 'using market surveys before introducing new products' was resulted as the least adopted strategy by both firm types in managing product-market risks. In fact, this was one of the least adopted out of all 55 strategies among non-entrepreneurial firms. Owners of these small firms were not equipped with enough knowledge or financial capacity to implement these kind of market surveys. Only a small percentage of entrepreneurial firms (i.e. 16.7%) adopted this strategy, which could afford the cost and understood the process and benefits of conducting market surveys.

However, most of them used to get opinion form their retail shops before introducing a new product to the market.

Input price-related market risks were identified as another separate set of market risks and firms used different strategies to manage them. Five strategies were identified as firms adopted to manage these risks (Table 6.26). The first strategy S45 on 'using local inputs' resulted the highest adoption percentage within the category among both firm types. Both firm types used locally obtained inputs for their production. This is a common strategy adopted by all food businesses as they can easily find fruits, vegetable, spices, nuts and grain from their local environment opposed to importing raw material. This provided them with the advance of low cost of production and high-quality end product as a result of using fresh raw material. Non-entrepreneurial firms showed slightly higher adoption rate compared entrepreneurial firms for strategy S46 on 'purchasing input on credit'. However, the non-adoption percentage for this strategy exceeded the adoption percentage for both firm types showing that neither of them relied much upon buying raw material on credit (Figure 4b). Entrepreneurial firms showed high adoption percentages across all strategies compared to non-entrepreneurial firms except S46 explained above (Figure 6.4b).

Regulatory and legal aspects were also identified as a risk faced by these small food businesses and four strategies were identified that were used by firms to manage them (Table 6.26). Again, entrepreneurial firms reported higher adoption percentages across all four strategies compared to non-entrepreneurial firms (Figure 6.4b). Strategy S50 and S51 on 'reusing liquid and solid waste' recorded high non-adoption percentages among both firm types. A small percentage from both firm types mentioned that they have reused their liquid and solid waste. Cost of water purification units and bio-gas units (for solid waste) seemed too expensive for these small firms as they appear to limit their capital expenditure on machinery that are essential for production. Strategy S52 resulted with high adoption percentages from both firm types (Figure 6.4b) as they all try to 'ensure clean and standard production procedures'. The health regulations on food processing sector are rigid and it is necessary for these firms to adhere to those regulations. Public health officers visit these production premises and retail shops frequently and monitor whether the regulations are followed.

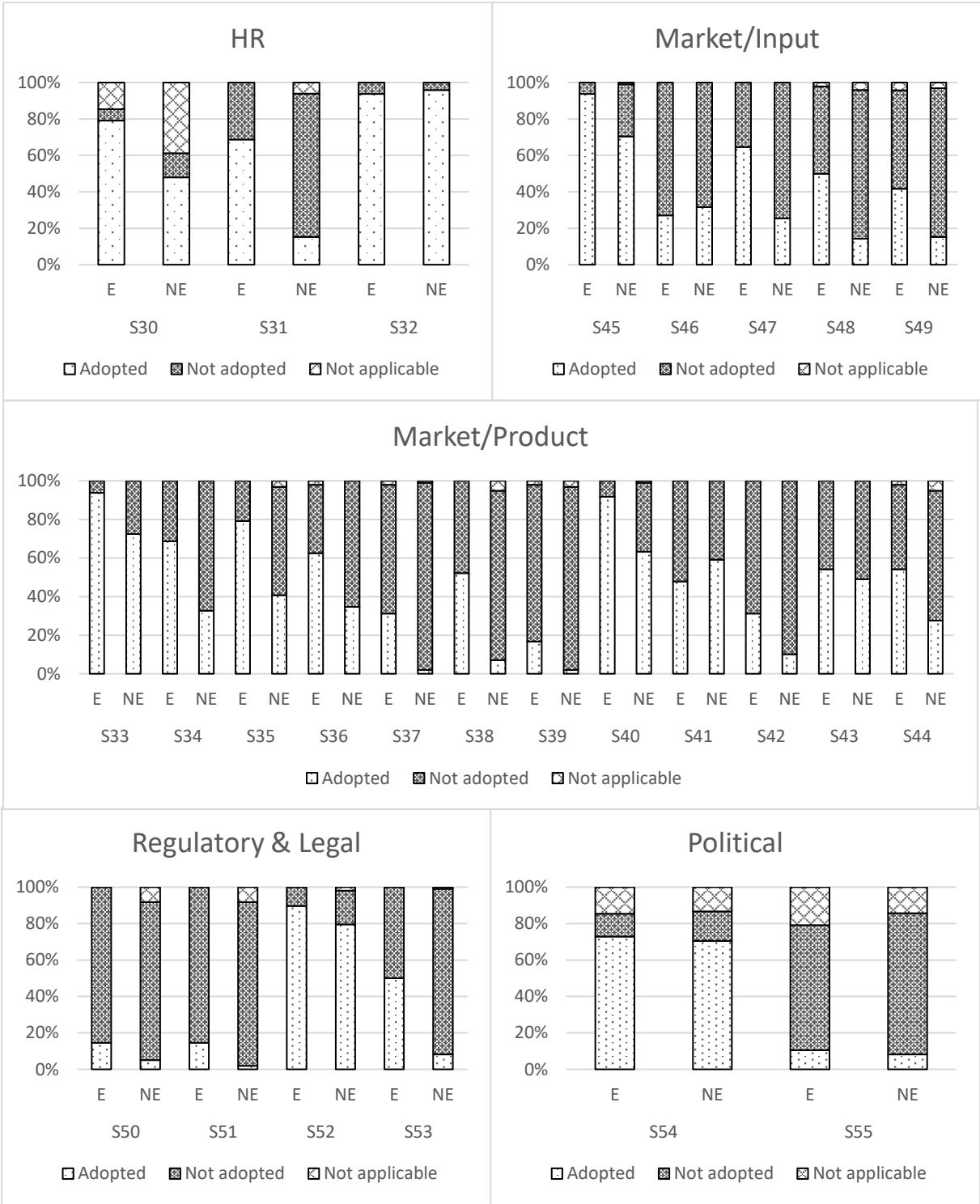


Figure 4b. Percentage of responses on adoption of risk management strategies

Both entrepreneurial and non-entrepreneurial firms responded in a relatively similar manner to the political risk management strategies (Figure 6.4b). Majority of both firm types adopted S54 ‘staying neutral of political changes’ while a considerable percentage also responded that political changes were ‘not applicable’ for their business. Further, majority of both firm types stated they did not use ‘bribes (S55)’ as a strategy to manage political risk. Again, a considerable percentage claimed using

bribes is not considered as an applicable strategy to their business. Most of the respondents claimed that they were not really concerned about the changes in governments or political parties as they received no support or benefit from whichever the party that were in power. Hence, it was considered as 'not applicable' paying attention to the political changes. Moreover, respondents explained that 'using bribes' was something against their values and religious beliefs. So, majority of them either non adopted it or considered as not applicable.

6.8.2 Inferential analysis of risk management strategies

Once the descriptive analysis was completed the risk management data were then subjected to the same statistical analysis performed for other risk behaviour aspects. The analysis included individual sample t tests to compare the adoption/non-adoption data among two groups, principal component analysis to combine strategies to form variables and chi-square tests to again confirm the association between adoption responses and firm's entrepreneurial status.

6.8.2.1 Results of the independent sample t-test

Independent sample t-test was used as the first statistical tool to investigate differences or similarities on the adoption of risk management strategies between entrepreneurial and non-entrepreneurial firms (Table 6.27). The results of the test mostly confirmed the differences and similarities shown through the descriptive analysis of the data. Out of 55 risk management strategies tested, 41 strategies (75%) showed significant differences among two groups whereas only 14 were resulted with probability values greater than 0.05. The adoption/non-adoption decisions made by entrepreneurial firms were not significantly different from non-entrepreneurial firms for these fourteen risk management strategies. The results of t-test are not interpreted in detail here as these interpretations are based on the same reasons explained above under the descriptive analysis.

Table 6-27. Results of independent sample t-test for risk management strategy adoption

Category	Strategy (Code)	t value	Probability value	Non-significant strategies
Managing Hazard Risk	S1	3.122	0.002*	
	S2	-0.140	0.889	Adjusting production according to the weather conditions
Managing Strategic Risk	S3	3.885	0.000*	
	S4	1.652	0.101	Diversifying into unrelated business ventures
	S5	2.796	0.006*	
	S6	2.228	0.027*	
	S7	3.784	0.000*	
	S8	2.511	0.013*	
	S9	0.943	0.347	Collective decision making among partners
	S10	0.092	0.927	Limiting family involvement
	S11	5.496	0.000*	
	S12	6.733	0.000*	
	S13	5.348	0.000*	

	S14	4.540	0.000*	
	S15	5.889	0.000*	
	S16	2.639	0.009*	
	S17	5.523	0.000*	
Managing financial risk	S18	3.085	0.002*	
	S19	-0.325	0.746	Keeping debt low
Managing knowledge risk	S20	3.832	0.000*	
	S21	4.503	0.000*	
	S22	2.690	0.008*	
	S23	3.212	0.002*	
	S24	4.358	0.000*	
Managing Operational/ production risk	S25	-1.540	0.126	Keeping stocks (both raw material and final product) low due to perishability
	S26	2.319	0.022*	
	S27	-2.922	0.004*	
	S28	-0.939	0.349	Keeping stocks low at the retailers to reduce losses
	S29	4.108	0.000*	
Managing HR risk	S30	3.612	0.000*	
	S31	7.348	0.000*	
	S32	-0.573	0.568	Involvement of the family for labour
Managing Market risk – product prices	S33	3.067	0.003*	
	S34	4.356	0.000*	
	S35	4.641	0.000*	
	S36	2.933	0.004*	
	S37	4.966	0.000*	
	S38	6.967	0.000*	
	S39	2.951	0.004*	
	S40	3.741	0.000*	
	S41	-1.285	0.201	Using low price as a market entrance strategy
	S42	3.264	0.001*	
	S43	0.586	0.559	Selling products on credit to attract retailers
	S44	3.151	0.002*	
Managing market risk - input prices and quality	S45	3.278	0.001*	
	S46	-0.560	0.577	Purchasing inputs using credit
	S47	4.892	0.000*	
	S48	4.617	0.000*	
	S49	3.051	0.003*	
Managing Regulatory and Legal Risk	S50	2.765	0.006*	
	S51	3.569	0.000*	
	S52	1.622	0.107	Ensuring clean/standard production processes (for health regulations)
	S53	6.447	0.000*	
Managing Political Risk	S54	0.093	0.926	Doing nothing/stay neutral of political changes
	S55	-0.487	0.627	Using bribes

* significant at 0.05 confidence interval

6.8.2.2 Results of the principal component analysis

Similar to the previous risk behaviour aspects discussed, risk management strategy adoption data were also subjected to a principal component analysis. The analysis was carried out for the entire

sample of respondents without considering their entrepreneurial or non-entrepreneurial status. Moreover, the pre-defined risk categories were also disregarded for the analysis in order to see how strategies are categorised as components through the analysis.

Following the regular procedure, the first step to PCA was determining the adequacy and appropriateness of data for the analysis. KMO and Bartlett's test were used for this purpose (Table 6.28). The KMO value was greater than 0.7 and the chi-square statistic pertaining to Bralette's test was also significant at 0.05 confidence interval. Hence, the sample is adequate and appropriate to proceed with PCA.

Table 6-28. Results of KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0.738
Bartlett's Test of Sphericity	Approx. Chi-Square	4225.564
	Probability value	0.000*

* *significant at 0.05 confidence interval*

When 55 strategies were subjected to PCA, the analysis usually results 55 components. The decision on how many to retain was made based on the eigen values, variance explained as well as the practicability of using them in further analysis. As the first step of interpreting results of PCA, eigen values and the percentage explained by each component were obtained (Table 6.29). The analysis resulted eighteen components with eigen values greater than one. These 18 components were able to explain almost 75% of the total variance in data. The first component alone explained more than 21% of the variance and resulted a considerably higher eigen value compared to the rest of the components extracted. The variance explained after rotation seemed to equally be distributed among the components, while cumulative variance explained by all 18 components remain unchanged (Table 6.29). Scree plot has also drawn to get a better understanding about this distribution of eigen values and variance explained by the components extracted (Figure 6.5). According to the scree plot, a clear elbow is visible after the third component where the curve starts to flatten.

However, since the purpose of doing PCA is to retain the optimum number of components that can be used as variables in further analysis, it was decided to keep first two components explaining 28% of the variance.

Table 6-29. Total variance explained by the principal components extracted

Component	Initial Eigenvalues			Rotation Sums of Squared Loadings		
	Total	Percent of Variance	Cumulative % of variance	Total	Percent of Variance	Cumulative % of variance
1	11.522	20.950	20.950	5.120	9.310	9.310
2	3.777	6.867	27.817	3.275	5.954	15.264
3	3.115	5.663	33.479	2.911	5.292	20.556
4	2.247	4.086	37.565	2.666	4.848	25.404
5	2.080	3.782	41.347	2.656	4.828	30.232
6	1.873	3.405	44.752	2.362	4.295	34.528
7	1.767	3.212	47.965	2.167	3.941	38.468
8	1.632	2.968	50.932	2.127	3.868	42.336
9	1.557	2.830	53.763	2.123	3.859	46.195
10	1.496	2.721	56.483	1.973	3.587	49.782
11	1.396	2.538	59.022	1.960	3.563	53.345
12	1.384	2.516	61.538	1.874	3.408	56.753
13	1.344	2.444	63.982	1.800	3.273	60.026
14	1.279	2.325	66.307	1.671	3.039	63.065
15	1.146	2.083	68.390	1.608	2.924	65.989
16	1.092	1.985	70.375	1.590	2.891	68.880
17	1.057	1.923	72.298	1.590	2.890	71.770
18	1.022	1.857	74.155	1.312	2.385	74.155

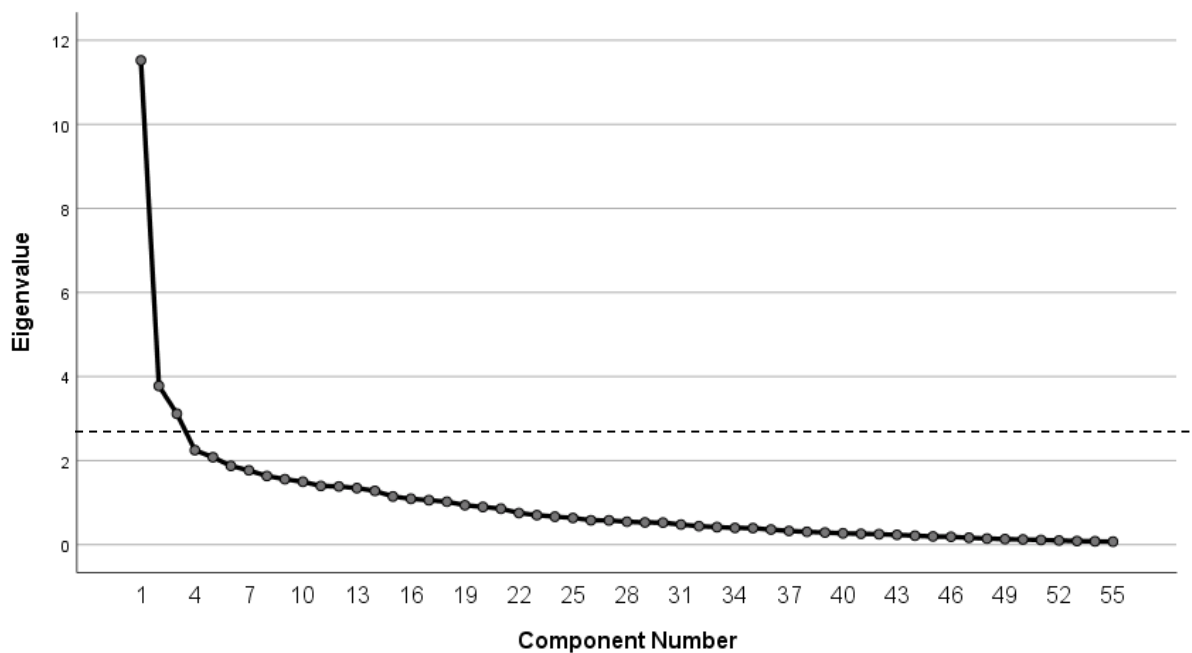


Figure 6-5. Scree plot for risk management strategy adoption data

After deciding on the number of components to retain, the next step is to identify the strategies that are categorised under each of these components. The values resulted in the rotated factor loading matrix are used for this purpose (Table 6.30).

Table 6-30. Rotated component matrix – risks management strategy adoption data

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
S1	0.067	0.099	0.077	0.068	0.106	0.759	-0.075	-0.086	-0.048	0.017	0.345	-0.021	-0.056	0.011	-0.009	0.017	-0.034	-0.042
S2	0.010	-0.031	-0.068	0.016	0.019	-0.042	0.108	0.110	-0.068	-0.028	-0.035	0.164	0.120	-0.093	-0.089	0.799	-0.050	-0.031
S3	0.136	-0.017	0.272	-0.059	0.129	0.090	-0.019	-0.014	-0.056	0.358	0.214	-0.218	0.176	0.141	0.121	0.377	0.368	0.002
S4	0.164	0.012	-0.026	0.130	0.143	-0.089	0.007	-0.013	0.104	0.782	0.100	0.030	-0.072	0.043	0.140	0.019	-0.015	-0.021
S5	0.026	0.111	0.320	-0.109	-0.082	0.209	0.063	0.062	-0.098	0.699	0.040	-0.050	-0.064	-0.059	-0.117	-0.042	0.061	-0.007
S6	0.027	0.011	0.141	0.775	-0.068	0.148	0.196	-0.060	-0.051	0.066	-0.048	-0.115	0.126	0.036	-0.085	0.154	0.090	0.081
S7	0.140	0.478	0.208	0.267	0.181	0.167	-0.075	-0.009	0.260	0.216	0.012	0.157	-0.104	-0.061	0.232	-0.076	-0.051	-0.130
S8	0.118	0.058	0.124	0.404	-0.112	0.069	-0.108	0.260	-0.176	0.002	-0.007	0.058	-0.062	0.400	0.183	0.180	0.165	0.262
S9	0.092	-0.023	0.311	-0.055	0.068	0.055	0.033	-0.027	0.069	0.099	-0.128	0.347	0.053	0.365	-0.071	-0.003	0.211	0.468
S10	-0.078	-0.045	-0.006	0.000	-0.034	-0.034	-0.104	0.050	0.139	0.051	0.124	0.020	0.068	0.051	0.783	-0.075	-0.212	0.148
S11	0.331	0.395	0.404	0.062	0.090	0.371	0.053	0.054	0.014	0.164	-0.146	-0.086	0.011	0.010	0.277	0.061	-0.075	-0.103
S12	0.666	0.328	0.281	0.054	0.023	0.075	0.069	0.157	0.003	0.004	0.051	-0.097	-0.064	0.080	-0.195	0.004	0.002	-0.001
S13	0.142	0.315	0.726	0.178	0.150	0.089	0.111	0.073	0.018	0.108	0.111	0.045	0.014	0.034	-0.031	-0.088	-0.002	-0.078
S14	0.699	0.035	0.327	0.022	0.092	0.097	0.058	-0.037	-0.045	-0.038	0.196	-0.094	0.123	-0.028	-0.063	-0.165	0.057	0.053
S15	0.179	0.257	0.664	0.228	0.239	0.088	0.070	0.032	0.077	0.096	0.059	-0.012	-0.012	0.166	-0.059	-0.066	0.046	-0.036
S16	0.476	0.270	0.056	0.004	-0.215	0.199	0.424	0.120	0.012	-0.080	0.032	-0.036	0.108	-0.071	0.064	0.253	0.192	-0.029
S17	0.164	0.254	0.164	0.667	0.097	0.118	0.089	0.154	-0.118	0.033	0.175	-0.033	0.023	0.094	0.085	-0.077	0.010	0.009
S18	0.208	0.483	0.320	-0.003	-0.131	0.151	0.245	-0.036	0.057	0.049	0.471	0.108	0.077	0.113	0.006	0.088	0.073	-0.052
S19	-0.055	0.100	-0.072	-0.019	-0.024	-0.007	0.172	0.154	-0.107	-0.044	0.011	0.768	-0.032	-0.016	0.015	0.160	0.099	0.011
S20	0.782	0.032	-0.079	-0.051	0.045	0.201	0.019	-0.003	0.081	0.174	-0.007	0.093	0.067	0.140	0.064	0.107	0.043	0.011
S21	0.788	0.085	0.158	0.125	-0.093	-0.033	0.212	-0.069	0.035	0.072	0.007	0.102	-0.034	-0.034	0.114	0.014	-0.080	-0.140
S22	0.100	0.083	-0.014	0.101	-0.105	-0.014	0.820	0.127	0.073	0.051	0.105	0.088	0.024	-0.047	-0.075	0.124	-0.033	0.118
S23	0.247	-0.037	0.109	0.097	0.087	-0.106	0.815	0.076	-0.004	-0.015	-0.055	0.130	-0.053	-0.067	-0.061	-0.036	0.008	0.064
S24	0.726	0.158	0.092	0.082	0.075	-0.017	0.223	0.014	-0.060	-0.119	0.282	-0.003	0.039	0.084	-0.024	0.033	0.104	0.145
S25	0.028	0.060	-0.114	0.076	-0.045	0.013	0.150	-0.121	0.034	-0.043	0.024	-0.022	-0.006	-0.091	0.155	-0.032	-0.008	0.797
S26	0.021	0.032	0.257	0.224	0.025	0.103	0.219	0.290	0.180	0.160	-0.005	0.416	0.451	0.102	-0.203	-0.081	0.091	0.063
S27	-0.041	-0.038	-0.060	-0.044	0.045	-0.091	-0.192	-0.746	-0.094	-0.030	0.079	-0.024	-0.107	0.001	0.003	-0.187	0.121	0.123
S28	-0.033	0.069	0.105	-0.031	-0.317	-0.098	0.109	0.075	0.087	0.043	0.109	0.304	0.304	0.289	-0.441	-0.027	-0.183	-0.086
S29	0.102	0.007	0.101	0.180	0.161	0.756	-0.047	0.098	0.148	0.028	-0.075	0.103	0.045	0.193	-0.019	-0.003	-0.071	0.073

S30	0.046	-0.126	0.143	0.228	0.466	0.203	-0.037	0.214	0.113	0.099	-0.053	0.130	0.035	0.194	0.064	-0.225	-0.171	-0.047
S31	0.326	0.060	0.521	0.193	0.238	0.254	-0.136	0.149	0.110	0.158	0.026	-0.048	-0.156	-0.168	0.131	0.072	-0.228	0.009
S32	0.013	0.012	-0.058	0.166	-0.062	-0.046	-0.012	-0.007	0.007	0.010	-0.134	0.147	-0.010	-0.029	-0.180	-0.052	0.823	0.039
S33	0.089	0.200	0.229	0.441	0.392	0.002	0.060	-0.002	0.188	-0.019	0.152	0.237	0.141	0.125	-0.067	-0.285	-0.029	-0.058
S34	0.297	0.680	0.213	0.114	0.141	0.116	0.089	0.210	0.082	-0.040	0.167	-0.007	-0.032	0.094	0.044	-0.120	0.051	0.205
S35	0.338	0.510	0.305	0.149	0.168	0.048	-0.009	0.123	0.350	0.055	0.111	0.131	-0.112	0.094	0.073	-0.019	0.045	-0.124
S36	0.276	0.752	0.117	0.087	0.155	0.016	0.020	0.125	0.016	0.053	0.000	0.078	0.092	0.042	-0.194	0.013	-0.026	0.075
S37	0.625	0.226	-0.046	0.195	0.020	0.078	-0.052	0.118	-0.110	0.337	-0.071	-0.037	-0.111	-0.074	-0.084	-0.039	-0.269	0.092
S38	0.496	0.179	0.000	0.216	0.306	0.078	0.042	0.256	0.107	0.186	0.290	-0.208	-0.043	-0.020	-0.051	0.044	0.176	0.141
S39	0.493	0.190	-0.041	0.141	0.007	0.004	-0.162	0.016	0.005	0.419	0.060	0.061	-0.171	-0.101	-0.175	-0.298	-0.347	-0.052
S40	0.241	0.126	0.182	0.503	0.053	-0.069	-0.132	0.353	0.058	-0.172	0.206	0.264	-0.132	0.223	0.008	-0.141	0.119	-0.094
S41	-0.037	-0.059	-0.019	-0.150	-0.106	-0.140	0.140	0.018	-0.029	0.044	-0.106	-0.016	0.099	-0.820	0.011	0.076	0.043	0.048
S42	0.021	0.347	0.103	0.044	0.260	-0.065	0.280	0.155	0.079	0.119	-0.167	-0.323	-0.037	0.445	0.041	-0.202	0.022	-0.146
S43	-0.021	-0.036	-0.143	0.005	-0.102	-0.082	-0.030	0.339	-0.082	-0.048	0.081	-0.104	0.772	-0.041	-0.093	0.123	0.035	-0.023
S44	0.062	0.455	0.147	0.197	0.403	-0.064	-0.089	-0.074	0.275	0.085	0.106	-0.015	-0.045	-0.046	-0.351	0.147	-0.192	0.025
S45	0.057	0.276	0.082	0.102	-0.026	0.003	0.084	0.647	-0.109	0.019	0.071	0.306	0.106	0.049	0.078	-0.069	0.127	-0.034
S46	0.048	0.041	0.037	0.141	-0.074	-0.022	-0.035	-0.192	-0.122	-0.202	-0.262	0.091	0.715	-0.159	0.227	0.094	-0.016	0.023
S47	0.330	0.081	0.445	0.154	0.075	0.180	0.014	0.266	0.046	-0.130	0.263	-0.190	-0.118	0.019	-0.115	0.210	-0.226	0.248
S48	0.236	0.205	0.220	0.049	0.223	0.018	0.002	0.329	0.061	0.159	0.542	-0.163	-0.083	-0.081	-0.158	-0.086	-0.124	0.096
S49	0.214	0.024	0.030	0.179	0.073	0.151	0.011	-0.103	-0.099	0.115	0.716	0.100	-0.081	0.087	0.192	-0.025	-0.146	-0.039
S50	0.025	0.387	0.049	-0.076	0.742	0.272	0.038	-0.066	-0.018	0.052	0.041	-0.004	-0.076	0.001	0.035	-0.019	0.020	0.017
S51	0.041	0.091	0.224	0.010	0.801	0.095	-0.061	-0.057	-0.076	0.012	0.097	-0.070	-0.096	0.083	-0.019	0.094	-0.010	-0.034
S52	0.148	0.090	-0.040	0.474	0.165	0.015	0.114	0.076	0.471	0.107	0.191	0.319	0.125	0.007	-0.016	-0.270	0.057	0.084
S53	0.430	0.145	0.184	-0.001	0.208	0.629	0.044	0.212	0.053	0.053	-0.006	-0.139	-0.142	-0.041	0.012	-0.124	0.154	0.060
S54	0.056	0.038	0.067	0.008	-0.132	-0.071	0.024	0.125	0.823	-0.011	-0.139	0.001	-0.065	0.066	0.040	-0.078	-0.006	0.059
S55	-0.120	0.150	0.013	-0.155	0.100	0.227	0.040	-0.150	0.765	0.002	0.072	-0.162	-0.065	-0.045	0.060	0.030	-0.005	-0.018

Following the recommendations of Hair et al. (2013) strategies with factor loading ± 0.4 were chosen as strongly loaded to the given component. However, quite a few numbers of strategies were resulted with cross loading values among different components. The same procedure was employed to manage these cross loaded strategies. The given cross loaded strategy was allocated to the component with highest loading value. After following the above steps, nine strategies were identified under the first components and six were under the second component (Table 6.31). All the strategies were resulted with positive component loadings indicating they are positively correlated with the other strategies within the component. The components were given with new identifications based on the type of the risk represented by the majority of the statements. These identifications are to be used in further analysis once the indices are created.

Table 6-31. Summary of strategies in the first two components

Component	Risk management strategy	Component loading	Name given
1	S12 Using SWOT	0.666	Strategic/knowledge/ Product price-related market risk management strategies
	S14 Using business plans	0.699	
	S16 Using external advice and mentors	0.476	
	S20 Study in business management	0.782	
	S21 Study in the technical domain	0.788	
	S24 Sourcing expert knowledge	0.726	
	S37 Using social networks for marketing	0.625	
	S38 Monitoring technology changes	0.496	
	S39 Using market surveys	0.493	
2	S7 Planning resource allocation	0.478	Product price-related market risk management strategies
	S18 Managing debt	0.483	
	S34 Monitoring market trends	0.680	
	S35 Monitoring competitor activities	0.510	
	S36 Spreading sales	0.752	
	S44 Developing agreements with buyers	0.455	

Going back to the results obtained from the independent t-test analysis, it appears that all these fifteen strategies were resulted with significant differences among entrepreneurial and non-entrepreneurial firms in terms of their adoption decisions. Hence, use of these variables in indices will provide a proper differentiation between two firm types. Before these variables are used in index development, their adoption responses were subjected to chi-square analysis to understand and re-confirm the association with the entrepreneurial or non-entrepreneurial status of the firms (Table 6.32). The cross tabulation was between three levels of strategy adoption (i.e. Yes/No/Not applicable) and two levels of entrepreneurial orientation (i.e. entrepreneurial and non-entrepreneurial).

According to the outcome of the chi-square test, it was understood that the risk adoption choices were associated with firm's entrepreneurial or non-entrepreneurial status.

Table 6-32. Results of the Chi-square test

Component	Code	Risk management strategy	Chi-square value	Probability value
1	S12	Using SWOT	34.956	0.000
	S14	Using business plans	18.281	0.000
	S16	Using external advice and mentors	11.069	0.004
	S20	Study in business management	13.560	0.001
	S21	Study in the technical domain	18.124	0.000
	S24	Sourcing expert knowledge	17.010	0.000
	S37	Using social networks for marketing	27.268	0.000
	S38	Monitoring technology changes	38.987	0.000
	S39	Using market surveys	10.839	0.004
2	S7	Planning resource allocation	17.123	0.000
	S18	Managing debt	11.630	0.003
	S34	Monitoring market trends	16.997	0.000
	S35	Monitoring competitor activities	19.351	0.000
	S36	Spreading sales	12.913	0.002
	S44	Developing agreements with buyers	10.012	0.007

6.9 Development of indices

Based on the literature, the research questions and considering the feasibility of handling variables, it was decided to use only the first two components of the PCA for further analysis. Accordingly, the first two components of each risk aspect (i.e. propensity attributes, perception and adoption of management strategies) were selected to develop two component-based indices to be used in further analysis. The PCs are uncorrelated and orthogonal from each other, thus need to consider individual variables. Therefore, using more than two components from each risk aspect would complicate the data handling and interpretation of further statistical procedures.

Table 6.33 shows the percentage of total variance explained by the first two components of each risk behaviour aspect. However, it may appear that the first two components of each risk aspect explained relatively less percentage of the total variance. According to Hair et al. (2013) resulting first few components of PCA can represent a substantial portion of the total variance across all the variables. The authors further noted that the first component is viewed as the single best summary of linear relationships exhibited in the data where the second component is the second-best linear combination of the variables. Hence, a study may retain only very few factors and still adequately represent the entire set of variables. Further, Hair et al. (2013) noted that there is no absolute threshold given for all applications and disciplines. Moreover, when too many variables are included

in the analysis the variance explained by the first few components can be limited. Therefore, considering the number of variables of each risk aspect, selecting the first two components can reasonably be justified for this study.

Table 6-33. Percentage of variance explained by the first two PCs

Risk aspect	No. of variables considered for PCA	No. of variables extracted under two components		Variance explained by individual components		Cumulative variance explained by the 1 st and 2 nd components
		First	Second	First	Second	
Risk propensity attributes	19	9	4	27.63%	10.89%	38.52%
Perceived risk – Opportunity	31	6	6	17.78%	10.17%	27.95%
Perceived risk – Threat	31	6	3	16.85%	12.76%	29.61%
Risk management strategies	55	9	6	20.95%	6.87%	27.82%

According to the literature the component-based indices can be developed in two ways. The first is to simply use the factor scores estimated by the statistical software. During this method, the software considers all the variables regardless of whether they were loaded strongly or weakly to the given component. Pett et al. (2003) noted that the use of estimated factor scores can be clumsy because they are usually generated from all the items in the item pool. Even items that load very low on a component (e.g., <0.30) could be included in factor score estimations. On the other hand, the researcher may develop component-based indices by using component score coefficients as weights and raw scores provided by the respondent (Equation 6.1). The advantage of this method is that the researcher can select variables that were strongly loaded to a given component. In this study, the variables loaded with a component loading above 0.4 were considered as strongly loaded to the given component. In situations where a variable is cross-loaded between multiple components, the variable was allocated to the component with the highest component loading value.

$$RI_i = \sum \frac{((CL_a * SS_a) + (CL_b * SS_b) + \dots + (CL_n * SS_n))}{n} \dots \dots \dots \text{Equation 6.1}$$

RI_i: Risk index of the *i*th respondent (i.e. Risk propensity index, Perceived risk index for opportunity or threat, Risk management index)

CL: Component score coefficient

SS: Raw score provided by the respondent

a, b, ..., n: number of variables strongly loaded to the component (i.e. component loading >0.4)

As the first step, the indices were developed following both procedures noted above. The estimated factor scores and personally developed Risk Index (RI) values were obtained for both entrepreneurial and non-entrepreneurial firms. Later both types of indices were separately subjected to independent sample t-tests in order to examine whether there is a difference between entrepreneurial and non-entrepreneurial firms (Table 6.34). If the probability values resulted are less than 0.05 significance level, it indicates strong evidence against the null hypothesis, as there is less than a 5% probability the null is correct. Therefore, when probability is less than 0.05, the null hypothesis is rejected indicating that there is a statistically significant difference between entrepreneurial and non-entrepreneurial firms for that specific risk index.

Table 6-34. Results of the independent sample t-tests carried out for the two indices

Risk aspect	Type of index	Principal component	Probability value (p)
Risk propensity attributes	Estimated factor scores	For the 1 st component	0.000*
		For the 2 nd component	0.000*
	Risk propensity index	For the 1 st component	0.000*
		For the 2 nd component	0.000*
Perceived risk – Opportunity	Estimated factor scores	For the 1 st component	0.002*
		For the 2 nd component	0.370
	Perceived risk index - Opportunity	For the 1 st component	0.000*
		For the 2 nd component	0.047*
Perceived risk – Threat	Estimated factor scores	For the 1 st component	0.011*
		For the 2 nd component	0.246
	Perceived risk index – Threat	For the 1 st component	0.002*
		For the 2 nd component	0.126
Risk management strategies	Estimated factor scores	For the 1 st component	0.000*
		For the 2 nd component	0.392
	Risk management index	For the 1 st component	0.000*
		For the 2 nd component	0.000*

* *significant at 0.05 confidence level*

These probability values can be used as an important determinant of selecting an appropriate index for further statistical analysis. For risk propensity attributes, both types of indices showed significant differences among the two groups (i.e. $p \leq 0.05$) (Table 6.34). However, for the remaining risk aspects, the estimated factor scores were not able to find significant differences among the two firm groups, especially with related to the second principal component. The indices derived based on Equation 6.1

were able to note differences among the two groups for both components except downside/threat risk perceptions. According to the results presented in Table 6.34, Equation 6.1 based indices can pick the differences between two groups hence, more suitable to use in further statistical analysis.

Table 6.35 below lists all the variables extracted through PCAs under the first and second components of all four risk behaviour aspects. The indices were developed based on these variables and used in further statistical procedures. For the purpose of easy interpretation and understanding; these factor indices are re-named based on the variables included in each factor.

Table 6-35. Variables extracted under the first and second components of all risk behaviour aspects

Risk aspect	Principal component	Code	Variable	Name given	
Risk propensity attributes	First component	RPA2	When introducing new products, I am always willing to accept a certain level of risk	Entrepreneurial risk (seeking) propensity attributes	
		RPA3	I never shy away from taking up an opportunity due to the risk of failure		
		RPA4	I always encourage employees to take risks without fear of punishment		
		RPA5	I always have a strong tendency, to commit a large amount of resources to high-risk projects		
		RPA6	I always aggressively exploit potential opportunities regardless of the level of uncertainty		
		RPA16	I express my opinion even if most people have the opposite view		
		RPA18	I take up challenges more often than other small business owners do		
	RPA19	I postpone investments until they really need to be done (-)			
	Second component	RPA8	I always tend to venture into business areas that no one else has ventured into		Non-entrepreneurial risk (averting) propensity attributes
		RPA10	I find planning difficult because the future is so uncertain		
		RPA14	When there are a number of solutions to a problem, I find it difficult to make a choice		
		RPA15	I always tend to imagine the unfavourable outcomes of my actions		
		RPA17	I am not good at making sense of ambiguous and uncertain situations		
	Perceived risk – Opportunity	First component	SR13		Finding new markets
SR14			Local demand		
SR15			Competition		
SR16			Domestic economy fluctuations		
SR17			Purchasing power of consumers		

		SR18	Consumer knowledge about brands	
	Second component	SR2	Business relationships (within supply chain)	Strategy & input-related market risk sources
		SR3	Reputation & image	
		SR12	Technology changes	
		SR22	Agreements with input suppliers	
		SR23	Capital cost of processing equipment	
		SR25	Waste disposal	
Perceived risk – Threat	First component	SR13	Finding new markets	Product price-related market risk sources
		SR14	Local demand	
		SR15	Competition	
		SR16	Domestic economy fluctuations	
		SR17	Purchasing power of consumers	
		SR18	Consumer knowledge about brands	
	Second component	SR29	Change in leadership that revises economic policies	Political risk sources
		SR30	Change in leadership that revises trade policies	
		SR31	Corruption	
	Risk management strategies	First component	S12	Using SWOT
S14			Using business plans	
S16			Using external advice and mentors	
S20			Study in business management	
S21			Study in the technical domain	
S24			Sourcing expert knowledge	
S37			Using social networks for marketing	
S38			Monitoring technology changes	
S39			Using market surveys	
Second component		S7	Planning resource allocation (strategic)	Product price-related market risk management strategies
		S18	Managing debt (Financial)	
		S34	Monitoring market trends	
		S35	Monitoring competitor activities	
		S36	Spreading sales	
		S44	Developing agreements with buyers	

The entrepreneurial and non-entrepreneurial firm groups were already compared against these individual aspects of risk management behaviour and demographic parameters. Independent sample t-tests, chi-square tests and certain non-parametric tests were used to identify these differences. In addition, statistical tools such as multiple linear regression (MLR) can be used to understand the relationship between those key aspects of risk management behaviour (i.e. risk propensity, perception and adoption of management strategies) with demographic parameters such as age, gender, level of education and experience of firm owners. The indices can be used as the response variables of risk behaviour aspects.

In addition to all the above tests, as the final step of the analysis, it is important to understand demographic variables and risk behaviour aspects are unique for entrepreneurial and non-entrepreneurial firms. For this purpose, Binary Logistic Regression (BLR) was identified as the appropriate statistical technique to filter the most important variables that contribute towards the difference between two firm types.

6.10 Results of Binary logistic regression analysis

The goal of BLR is to find the best fitting and most parsimonious model to describe the relationship between the response variable and a set of explanatory variables (Perme, Blas, & Turk, 2004). This technique is appropriate when the dependent variable is a categorical variable and the independent variables are metric or nonmetric variables (Hair et al., 2013). According to Bian (2018), the ultimate goal of BLR is to determine the probability of a case belonging to the one category of the dependent variable or the probability of an event occurring for a given set of predictors. Accordingly, the categorical dependent variable and the set of predictors used in BLR are listed in Table 6.36 below.

Table 6-36. Description of variables for BLR analysis

Variable name		Type	Description
Dependent variable		Dichotomous	Entrepreneurial – 1
		Nominal	Non-entrepreneurial – 0
Predictor variables			
Firm owner characteristics / Demographic parameters	Gender	Dichotomous (Categorical)	Male – 1 Female – 0
	Years of formal education	Scale	
	Age	Scale	
	Years of experience	Scale	
Risk behaviour aspects	Risk Propensity-Component1	Scale	Indices developed based on Equation 1
	Risk Propensity- Component2	Scale	
	Perceived opportunities of risk-Component1	Scale	
	Perceived opportunities of risk-Component2	Scale	
	Perceived threats of risk-Component1	Scale	
	Perceived threats of risk-Component2	Scale	
	Risk management strategies Component1	Scale	
	Risk management strategies Component2	Scale	

As already explained under the methodology chapter, the advantage of BLR compared to discriminant analysis and even multiple regression is the lack of general assumptions required in the analysis. It does not require any specific distributional form of the independent variables and issues such as heteroscedasticity are not concerned (Bian, 2018; Hair et al., 2013). It does not require linear relationships between the independent variables yet sensitive to the multicollinearity between independent variables. Based on the correlation values the demographic variable “age” appeared to be correlated with “years of experience”. The BLR test performed by using these two variables alternatively showed better results when “years of experience” is removed from the model. Hence, it was decided to remove years of experience instead of the age of the firm owner. The section below outlines the results of the BLR model.

6.10.1 Model fit statistics

The test results illustrated below (Table 6.37a, b & c) are to determine whether the model adequately describes the data.

Table 6-37a. Omnibus Tests of Model Coefficients

	Chi-square	df	Probability value
Step	90.772	11	0.000*
Block	90.772	11	0.000*
Model	90.772	11	0.000*

* Significant at 0.05 significance level

Chi-square value is based on the null hypothesis that all the coefficients are zero. The null hypothesis is rejected (Probability<0.05). This confirms the significance of the model fit (Table 6.37a).

Table 6.37b. Model Summary

	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
Step 1	94.152a	0.463	0.645

Nagelkerke R Square shows the amount of variance explained by the model. According to Table 6.37b, 64.5% of the variance in the dependent variable is explained by the model. A model explaining more than 60% of the variance is considered as a good model for statistical analysis.

Table 6.37c. Hosmer and Lemeshow Test

	Chi-square	df	Probability value
Step 1	2.874	8	0.942*

* insignificant at 0.05

Hosmer and Lemeshow test assess whether the predicted probabilities match the observed probabilities. Probability is greater than 0.05 means the set of independent variables accurately predict the actual probabilities. Again, confirms the suitability of the model (Table 6.37c). Moreover, the overall predictive accuracy is 84.9% (Table 6.38). In the constant only model (i.e. Block 0) this figure

was 67.1%. This is a notable increase in prediction after adding the independent variables. It also shows that model is appropriate in predicting entrepreneurial and non-entrepreneurial firms.

Table 6-38. Classification table (Block 1)

Observed		Predicted		
		E or NE		Percentage Correct
		NE	E	
NE or E	NE	90	8	91.8
	E	14	34	70.8
Overall percentage				84.9

The Table 6.39 below shows the results of the BLR model. According to Table 6.39, none of the firm owner characteristics was significantly associated with the odds of a firm being entrepreneurial. Hence, the age, gender or their years of formal education provide no statistically significant contribution towards the probability of a firm being entrepreneurial. On the other hand, out of the eight risk behaviour indices; risk seeking propensity attributes, perceived opportunities of strategy and product price-related market risk sources, adoption of strategic and knowledge risk management strategies and adoption of product price-related market risk management strategies showed statically significant association with higher odds of being entrepreneurial.

The equation for this BLR model;

$$\text{Ln [odds]} = -16.743 + 13.44 \text{ Risk seeking propensity attributes} - 0.886 \text{ Perceived opportunities of strategic and product-related market risk sources} + 17.638 \text{ Adoption of strategic and knowledge risk management strategies} + 11.157 \text{ Adoption of product price-related market risk management strategies}$$

As noted earlier, the BLR model was used as a mean to identify the most important variables that contribute towards the probability of a firm being entrepreneurial. By looking at the odds ratios, it is clear that four risk-related variables contribute towards this objective. Among the others, the adoption of strategic and knowledge risk management strategies appeared to be the most important variable contributing towards a firm being entrepreneurial followed by adopting product price-related market risk management strategies and risk-seeking propensity attributes. Perceived opportunities of strategy and product-related market risk sources, on the other hand, is contributing more towards a firm being non-entrepreneurial.

Table 6-39. Results of BLR analysis

Variable	Coefficient	Odds ratio (Exp β)	Probability value	95% C.I. for EXP(B)	
				Lower	Upper
Age	-0.013	0.987	0.870	0.924	1.054
Gender	-0.802	0.449	0.146	0.152	1.321
Years of formal education	-0.198	0.821	0.220	0.598	1.125
Entrepreneurial risk (seeking) propensity attributes	13.440	686,879.305	0.000*	903.579	522,149,170.200
Non-entrepreneurial risk (averting) propensity attributes	0.527	1.693	0.725	0.090	31.737
Perceived opportunities of product-related market risk sources	0.613	1.846	0.195	0.730	4.673
Perceived opportunities of strategic and input-related market risk sources	-0.886	0.412	0.041*	0.176	0.964
Perceived threats of product-related market risk sources	-0.436	0.647	0.278	0.294	1.421
Perceived threats of political risk sources	0.129	1.138	0.335	0.875	1.481
Adoption of strategic & knowledge risk management strategies	17.638	45,739,046.282	0.020*	15.304	136,702,381,845,903.000
Adoption of product price-related market risk management strategies	11.157	70,042.402	0.004*	32.789	149622863.159
Constant	-16.743	0.000	0.001*		

* Significant at 0.05 significance level

Based on the results above, it is clear that the entrepreneurial firms are different from non-entrepreneurial firms in terms of 'what they are doing' rather than 'what they are thinking or perceiving'. The adoption of risk management strategies revealed contributing more towards the probability of a firm being entrepreneurial rather than their perceived opportunities and threats of different sources of risks. In terms of the risk propensity attributes, entrepreneurial or risk-seeking attributes seemed to contribute more towards a firm being entrepreneurial rather than non-entrepreneurial risk averting propensity of these firms. Therefore, it is important to expand the understanding of these variables that are contributing heavily towards the entrepreneurial or non-entrepreneurial status of a firm. Hence, further statistical tests were performed to find out what are factors associated with the adoption of different risk management practices and risk-seeking attributes of these small-scale firms. A series of multiple linear regression models were employed to understand the factors that could influence the adoption of risk management strategies and the entrepreneurial risk propensity of firms.

6.11 Results of multiple linear regressions analyses

Accordingly, the first multiple linear regression (MLR) analysis was performed to identify the factors influencing adoption of risk management strategies and the second MLR was performed to identify the factors influencing entrepreneurial risk propensity attributes. Moreover, two separate MLR analyses were performed for the two risk management indices. Thereby, the risk management indices were treated as outcome variables while demographic parameters (i.e. age, gender and years of formal education), firms entrepreneurial/non-entrepreneurial status and other risk indices (i.e. risk propensity and risk perception) were identified as predictor variables (Table 6.40).

The table below shows the results of two regression analyses carried out for two outcome variables. The results include, regression coefficients for individual predictor variables, probability values, model fit statistics including R square and model probabilities. According to the results, the entrepreneurial status of the firm, years of formal education of firm owner, non-entrepreneurial risk propensity attributes and perceived opportunities of strategy/ product-related market risk sources were significantly associated with the adoption of strategic and knowledge-related risk management strategies. All the variables except non-entrepreneurial risk propensity attributes were positively associated with the dependent variable (Table 6.40). In the second MLR where the outcome variable was adoption of product-price related market risk management strategy index, entrepreneurial/non-entrepreneurial status of the firm, both risk propensity attribute indices, perceived opportunities of strategic and input-related market risk sources and perceived threats of product-related market risk sources were resulted significant. However, both risk propensity indices were negatively associated

with the adoption of product price-related market risk management strategy index. Based on the R squared value the first regression model for strategic and knowledge risk management strategies, the model was significant and was able to explain 43% of the variance of the outcome variable while the second model for product price-related market risk management strategy index, the model was again significant yet explained only 31% of the variance (Table 6.40).

Table 6-40. Factors influencing adoption of risk management strategies

Outcome variable	Adoption of strategic and knowledge risk management strategies		Adoption of product price-related market risk management strategies	
	Unstandardized coefficient (B)	Probability value	Unstandardized coefficient (B)	Probability value
Constant	0.231	0.000*	0.472	0.000*
E or NE status	0.035	0.000*	0.064	0.000*
Age	0.000	0.728	-0.001	0.277
Gender	0.001	0.928	0.001	0.938
Years of formal education	0.006	0.001*	9.092E-05	0.978
Entrepreneurial risk propensity attributes	0.018	0.559	-0.120	0.047*
Non-entrepreneurial propensity attributes	-0.047	0.007*	-0.075	0.025*
Perceived opportunities of product-related market risk sources	-0.002	0.732	0.013	0.312
Perceived opportunities of strategic & input-related market risk sources	0.018	0.000*	0.038	0.000*
Perceived threats of product-related market risk sources	0.006	0.207	0.021	0.032*
Perceived threats of political risk sources	-0.001	0.493	0.000	0.878
R squared & Probability values	42.9%	0.000*	30.8%	0.000*
Model significance		0.000*		0.000*

* Significant at 0.05 level

As per the results of BLR, risk-seeking propensity attributes resulted as the second most important variable in determining the probability of a firm being entrepreneurial. Therefore, it is important to understand what factors are associated with a firm pursuing entrepreneurial or risk-seeking propensity attributes. Hence, the next MLR analysis was performed by considering entrepreneurial risk propensity attribute index as the outcome variable. The predictor variables included in the model were, entrepreneurial/non-entrepreneurial status of the firm, age, gender, years of formal education, perceived risk indices and risk management indices (Table 6.41).

Table 6-41. Factors influencing entrepreneurial risk propensity attributes

Predictor variable	Unstandardized coefficient (B)	Probability value
Constant	0.484	0.001*
E or NE status	0.134	0.000*
Age	-0.003	0.013*
Gender	0.006	0.752
Years of formal education	-0.001	0.921
Perception on opportunities of product price-related market risk sources	0.028	0.143
Perception on opportunities of strategy/ product price-related market risk sources	-0.005	0.704
Perception on threats of product price-related market risk sources	0.001	0.954
Perception on threats of political risk sources	0.000	0.945
Adoption of strategic/ knowledge risk management strategies	0.625	0.019*
Adoption of product price-related market risk management strategies	-0.262	0.059**
R squared & Probability values	38%	0.000*
Model significance		0.000*

* Significant at 0.05 level ** Significant at 0.1

According to the results, the entrepreneurial risk propensity attributes were significantly associated with the entrepreneurial status of the firm, the age of the firm owner, and the adoption of different risk management strategies. Both age and adoption of product price-related market risk management strategies are negatively related to the entrepreneurial risk propensity index. Based on the R squared, the model was able to explain 38% of the variance of the outcome variable (Table 6.41).

Chapter 7 Discussion

7.1 Introduction

In this chapter, the findings from the study are compared to the literature. Findings from both the quantitative and qualitative phases will be used in the discussion. The study set out to answer the overarching research question “Do the entrepreneurial firms in agriculture food processing sector in Sri Lanka manage the risks they face any differently from other non-entrepreneurial MSEs operating in the sector?”. In order to answer this question, it was first necessary to determine the existence of such entrepreneurial firms within the sector. Hence, the first research question addressed by this study was: “Do entrepreneurial MSEs operate in the agricultural food processing sector in Sri Lanka?”. Having confirmed the existence of entrepreneurial firms, the next research question that addressed was: “What factors influence the adoption of risk management strategies by entrepreneurial and non-entrepreneurial MSEs in the agricultural food processing sector in Sri Lanka?” This question was asked to understand and compare the overall risk management behaviour of entrepreneurial and non-entrepreneurial SMEs in the agricultural food processing sector.

This chapter discusses the findings from the study, but before this is presented, Section 6.2 provides an overview of the key characteristics of the research context to help the reader better understand and interpret the key findings from the study. Section 6.3 discusses how entrepreneurial firms differ from their non-entrepreneurial counterparts in relation to their adoption of risk management strategies. Then in Section 6.4 the factors that influence the adoption of risk management strategies by entrepreneurial and non-entrepreneurial food processing MSEs in Sri Lanka is discussed. Section 6.5 provides a summary of the chapter.

7.2 The important characteristics of the research context

There are a number of theoretically important characteristics to do with this study that need to be highlighted. First, this study is conducted in a developing country as opposed to a developed country context. Even though entrepreneurship and small businesses are identified as the key drivers of economic growth in developing countries, (Anokhin et al., 2008; A. Gamage, 2003) the number of empirical studies found in the entrepreneurial literature are mostly from developed countries compared to developing countries. Both Anokhin et al. (2008) and Vivarelli (2012) quoted the Global Entrepreneurship Monitor (GEM) to highlight that entrepreneurship and self-employment are already high in developing economies. However, these entrepreneurs are not quite frequently investigated compared to the developed economies. Therefore, this discussion chapter highlights the

contribution of this study in terms of its empirical findings to the entrepreneurship and small business literature from a developing and Asian country context.

The firms considered in this study were either micro or small in their scale of operation. The MSEs were defined based on the definition by the National Policy Framework for SME development, Sri Lanka (MIC, 2015). Accordingly for the manufacturing sector, micro-scale firms employing less than 10 persons and small-scale firms employing 11-50 persons were selected for the study (MIC, 2015). This definition of micro and small-scale firms is mostly context-driven as it differs from country to country. Based on the definitions used, the MSEs from one country can be different from the MSEs in another country. These differences are prominent among MSEs operating in developed and developing economies. In terms of risk and risk management, MSEs are frequently challenged with major sources of risks compared to their medium and large-scale counterparts. Compared to larger firms, MSEs profit less often from economies of scale, and fewer have access to a wide resource base (Lavia López & Hiebl, 2015). Due to the low equity ratio of MSEs, they are relatively vulnerable to external events compared to large-scale firms (Falkner & Hiebl, 2015). Thus, the scale of operation of firms studied is an important context-related variable that further increase its contribution to the literature.

Lastly, the firm type also identified as an important contextual information relevant for the discussion of results. As noted, the firm were selected from the agricultural food processing sector, which is one of the key industry sectors in the manufacturing sub-sector of Sri Lankan economy. Highlighting the industry sector is important for the discussion as the sources of risk and risk management strategies applicable to the food processing sector as quite different from other manufacturing and service sectors. For example, the nature of entrepreneurs and risk-related aspects of hospitality (Wagener, Gorgievski, & Rijdsdijk, 2010) or apparel sectors (Priyanath, 2010) are different from the sources of risks and risk management strategies adopted by the entrepreneurial firms in the food processing sector. In certain situations, the sources of risks and risk management strategies adopted in this sector can be related to the studies found in the farm management literature rather than in the business management literature.

This section has highlighted some of the important theoretical characteristics of the study so that when the results are compared to other studies in different contexts, this information will help the reader understand any differences between the studies. The next section will address the overarching research question about whether entrepreneurial MSEs manage risk differently to non-entrepreneurial MSEs.

7.3 A comparison of the management of risk by entrepreneurial and non-entrepreneurial SMEs

This section presents the results from the study and compares them to the literature, both normative and empirical. Because there is limited literature on the topic in relation to the risk management practices of entrepreneurial and non-entrepreneurial SMEs in developing country context, the discussion has also drawn on studies from a developed country context. Differences between entrepreneurial and non-entrepreneurial SMEs risk management behaviour are discussed in relation to the analysis of the survey results and supported with results from the case study where appropriate. Section 7.3.1 discusses the high-level results from the survey comparing the risk management strategies adopted by entrepreneurial and non-entrepreneurial SMEs in the food processing sector in Sri Lanka.

7.3.1 A comparison of the risk management strategies adopted by entrepreneurial and non-entrepreneurial SMEs

Based on the popular notion of entrepreneurs tolerate more risk than general population, a number of studies have been carried out since the early literature that compare risk-taking of entrepreneurs with managers, SME owners and with other professionals such as academicians, undergraduates who are non-business owners (Brockhaus, 1980; Carland III et al., 1995; Carland et al., 1984; Covin, 1991; Stewart Jr & Roth, 2001; Stewart et al., 1999). However, both normative and empirical studies conducted to postulate and investigate the risk management differences between these groups were extremely scarce compared to the above studies investigate the differences in risk-taking. Thus, the findings of this study contribute to the literature not only by comparing the risk management aspects of entrepreneurial and non-entrepreneurial firms but also proving empirical results from a developing country context.

The study considered fifty-five risk management strategies that were classified under ten categories. The ten risk management categories included management strategies for hazard risks (n=2), strategic risks (n=15), financial risks (n=2), knowledge risks (n=5), operational risks (n=5), HR risks (n=3), product (n=12) and input-related (n=5) market risks, regulatory and legal risks (n=4) and political risks (n=2) groups (Table 6.1). Several other studies have classified their risk management strategies into similar categories to those used in this study (Belás, Macháček, Bartoš, Hlawiczka, & Hudáková, 2014; Ekwere, 2016; Falkner & Hiebl, 2015; Gilmore et al., 2004; Henschel, 2008; Hudáková & Dvorsky, 2018; Jayathilake, 2012), but none of these studies have compared the adoption rates of the risk management strategies between entrepreneurial and non-entrepreneurial firms. For example, Hudáková and Dvorsky (2018) carried out a study to assess the sources of risks faced by and the rate

of implementing the risk management process of SMEs in Slovakia using a sample of 487 SMEs in a variety of industry sectors. The authors identified a list of market, economic, financial, operational, HR, security and legal sources of risks and assessed those sources in dependence on the rate of implementing the risk management process. Even though Hudáková and Dvorsky (2018) identified a similar categories of risks that are used in this study, the authors made no attempt to differentiate these SMEs based on their entrepreneurial or non-entrepreneurial nature. In contrast to the approach used by Hudáková and Dvorsky (2018), this study explored and compared how sources of risks were perceived by entrepreneurial and non-entrepreneurial MSEs along with the risk management strategies adopted. Hudáková and Dvorsky (2018) did not consider individual risk management strategies for each of these categories of risks, instead investigated the dependence of overall risk management process adopted by the SMEs.

The analysis of survey data showed that entrepreneurial firms managed their risks differently from their non-entrepreneurial counterparts. Out of the 55 risk management strategies, the adoption rate of 41 strategies were significantly different between entrepreneurial and non-entrepreneurial firm groups. Moreover, out of these 55 risk management strategies, the proportion of entrepreneurial firms adopting these strategies was always higher compared to the proportion of non-entrepreneurial firms except few instances. The percentage adoption of non-entrepreneurial firms was only higher at eight out of 55 risk management strategies. The highest percentage difference was calculated at S31, using process automation and modern technology to manage HR-related risks. However, as there is little written in the literature on studies that compared this proportionate adoption of risk management strategies between entrepreneurial and non-entrepreneurial firms.

The 55 risk management strategies were also ranked based on the adoption as well as non-adoption percentages separately for the entrepreneurial and non-entrepreneurial firms. The ranks were obtained by calculating the adoption and non-adoption percentages separately for entrepreneurial and non-entrepreneurial firm groups. The strategy that received highest adoption (non-adoption) percentage of each firm group was ranked as number one and *vice versa*. Thereby, maintaining adequate stocks (S26) was ranked as number one strategy adopted by entrepreneurial firms while re-using wastewater (S50) and solid waste (S51) were ranked as the first among the strategies that were not adopted by the entrepreneurial firms. Similarly, involvement of family labour (S32) was ranked as the number one among the strategies adopted by non-entrepreneurial firms while using social networks for marketing (S37) was ranked as number one among the strategies that were not adopted. Ranking of risk management strategies is commonly found in farm management literature (Ayinde, Omotesho, & Adewumi, 2008; Shadbolt et al., 2010) while similar empirical evidence was rarely found in the business management literature related to MSMEs. Ayinde et al. (2008) used ranking approach

to investigate the risk attitudes and risk management strategies adopted by small-scale crop producers in Nigeria using a sample of 250 farmers producing a variety of food crops. Ayinde et al. (2008) ranked nine risk management strategies adopted by these farmers where crop diversification was ranked as the number one strategy adopted. However, the authors have not either categorised these risks into different categories or compared the rankings among different farmer groups. Therefore, this study contributes to the literature by adding empirical knowledge related to how risk management strategy adoption is ranked between entrepreneurial and non-entrepreneurial firm groups.

Table 7-1. A summary of results of the adoption of selected risk management strategies

Category	Code	Strategy	P value of the t- test	% adoption difference (E – NE)	Rank based on adoption %		Rank based on non-adoption %	
					E	NE	E	NE
Managing Strategic Risk	S3	Diversifying into related business ventures	0.000*	31.60%	33	35	22	19
	S4	Diversifying into unrelated business ventures	0.101	10.70%	47	39	7	16
	S5	Multiple income sources	0.006*	23.80%	24	20	30	33
	S6	Producing number of product lines	0.027*	17.00%	9	8	45	47
	S7	Planning resource allocation (PC2)	0.000*	36.20%	19	24	37	35
	S8	Involving family over the longer term	0.013*	24.00%	13	14	41	41
	S9	Collective decision making among partners (family or board members)	0.347	7.70%	17	8	36	46
	S10	Limiting family involvement	0.927	7.30%	54	55	9	14
	S11	Planning capital spending	0.000*	47.50%	13	30	41	29
	S12	Using SWOT (PC1)	0.000*	47.10%	27	41	29	11
	S13	Having a good business vision	0.000*	41.70%	5	15	48	39
	S14	Using business plans (PC1)	0.000*	31.60%	38	42	17	8
	S15	Using long and short-term plans	0.000*	45.80%	5	19	48	37
	S16	Using external advice and mentors (PC1)	0.009*	24.50%	30	31	26	24
	S17	Continuous product innovation	0.000*	44.40%	13	27	37	26
	S20	Study in business management (PC1)	0.000*	24.10%	42	45	12	5

Managing knowledge risk	S21	Study in the technical domain (PC1)	0.000*	30.50%	39	43	15	8
	S22	Use of workshops and programmes	0.008*	22.10%	10	13	41	42
	S23	Obtaining support from government organisations	0.002*	27.10%	13	15	37	39
	S24	Sourcing expert knowledge (PC1)	0.000*	32.70%	33	36	20	14
Managing Market risk – product prices	S33	Monitoring customer satisfaction	0.003*	21.40%	2	5	51	49
	S34	Monitoring market trends (PC2)	0.000*	36.10%	21	27	33	26
	S35	Monitoring competitor activities (PC2)	0.000*	38.40%	10	20	41	36
	S36	Spreading sales (PC2)	0.004*	27.80%	26	26	30	30
	S37	Using social networks for marketing (PC1)	0.000*	29.30%	43	52	12	1
	S38	Monitoring technology changes (PC1)	0.000*	45.00%	30	48	22	8
	S39	Using market surveys prior to introducing products (PC1)	0.004*	14.70%	49	52	4	2
	S40	Use high quality (+health benefits) to compete	0.000*	28.40%	5	10	48	44
	S41	Using low price as a market entrance strategy	0.201	-11.30%	37	12	19	43
	S42	Keeping product price high as a marketing strategy	0.001*	21.10%	43	44	9	5
	S43	Selling products on credit to attract retailers	0.559	5.20%	28	17	26	38
S44	Developing agreements with buyers (PC2)	0.002*	26.60%	28	31	26	26	

Note: probability (p) value less than 0.05 shows significant differences

Adoption rank: 1 – highest adoption percentage; 55 - lowest adoption percentage

Non-adoption rank: 1 – highest non-adoption percentage; 55 – lowest non-adoption percentage

PC 1 – Strategies that were extracted under the first component from PCA analysis

PC 2 - Strategies that were extracted under the second component from PCA analysis

Going forward, this section of the discussion focuses on selected categories of risk management strategies and how differently these strategies were adopted by the entrepreneurial and non-entrepreneurial firms (Table 7.1). Out of the 41 strategies that were significantly different between entrepreneurial and non-entrepreneurial groups, 15 strategies were extracted under the PCA analysis representing three main risk management categories namely, knowledge, strategic, and product-price related market risk management strategies. Thereby, the main focus of this section is to discuss three knowledge-related risk management strategies, four strategic risk management strategies, and seven product-related market risk management strategies (Table 7.1). Other risk categories and

management strategies that had notable adoption differences are also discussed where appropriate. In the discussion, because of the paucity of literature that compares entrepreneurial and non-entrepreneurial firms, the findings are compared to the literature in a range of different ways. It is compared to the empirical literature that has compared entrepreneurial and non-entrepreneurial firms. It is also compared to the empirical literature that has investigated small businesses without differentiating them on the basis of their entrepreneurial behaviour. It is compared to the normative literature that has compared entrepreneurial and non-entrepreneurial firms. It is also compared to the normative literature about the risk management of either entrepreneurial firms or non-entrepreneurial firms.

7.3.1.1 Managing knowledge-related risk

The aim of this section is to compare the findings from this study on the knowledge-related risk management strategies adopted by entrepreneurial and non-entrepreneurial firms to the literature. Knowledge-related risk management strategies are one of the ten high level risk management categories, and it comprises five different strategies. It was found that for all five risk management strategies that made up this category, there was a significant difference in the adoption rate between entrepreneurial and non-entrepreneurial firms. This was the only risk management category that exhibited this. The other high-level categories contained risk management strategies where no significant difference in adoption rates between entrepreneurial and non-entrepreneurial firms were exhibited. Hence, knowledge-related risk management strategies could be identified as one of the most important categories of risk management strategies for differentiating between entrepreneurial and non-entrepreneurial firms. The survey data showed that the percentage adoption of knowledge-related risk management strategies was significantly higher for entrepreneurial firms as compared to non-entrepreneurial firms. Although this study showed a much greater adoption of knowledge-related risk management strategies by entrepreneurial firms as compared to non-entrepreneurial firms, little has been written about this in the literature. The extant literature suggests that there is a paucity of research concerning knowledge risk management in general and in the SMEs domain in particular (Durst, Bruns, & Henschel, 2018; Durst & Henschel, 2015; Firestone, McElroy, & Neef, 2005; Massingham, 2010). Verbano and Venturini (2013) in their review article on the management of risk by MSMEs also highlighted that little has been written about the management of knowledge-related risk in the literature. In a later review article by Durst et al. (2018), they also confirmed that even though the relevance of knowledge to business management is generally acknowledged in the literature, there is a paucity of research concerning the management of the risks related to knowledge. Not only is there a paucity of empirical research comparing the knowledge risk management strategies of entrepreneurial and non-entrepreneurial SMEs, but there is little in the normative literature that

has postulated that there would be a significant difference in the adoption of knowledge-related risk management strategies between entrepreneurial and non-entrepreneurial firms.

The normative literature on entrepreneurship has always recognised entrepreneurs as being highly knowledge-focused compared to the general population and wage workers (Aldrich & Yang, 2014; Dumitrasciuc, 2019) and several authors have suggested that entrepreneurs will also tend to pursue life-long learning through both formal and informal learning modes (Kolstad & Wiig, 2015; Unger & Homburg, 2006). The knowledge-intensive nature of entrepreneurs has been investigated empirically in relation to their proactiveness at the start-up stage (i.e. seizing opportunities) (Aldrich & Yang, 2014) and their ability to innovate (Gielen, Hoeve, & Nieuwenhuis, 2003; Smith, 2013). However, there is little written about how this knowledge-orientation is connected to entrepreneurs' ability to take or manage risk. To extend these normative views about entrepreneurs and their knowledge-orientations this study investigated a set of knowledge-related risk management strategies and compared their adoption between entrepreneurial and non-entrepreneurial firm groups. The results of this study support the normative view that entrepreneurs are more knowledge-oriented compared to their non-entrepreneurial counterparts. Most importantly, the findings of this study link the knowledge-orientation of entrepreneurial firms in terms of how it's being used to manage the knowledge-related risks compared to less knowledge-oriented non-entrepreneurial firms.

This study considered five knowledge-related risk management strategies and the strategy that showed the greatest difference in adoption rate between entrepreneurial and non-entrepreneurial firms was the strategy of "sourcing expert knowledge" (i.e. 50% E firms vs 17% NE firms) followed by the strategies of "studying in a technical domain" (i.e. 42% E firms vs 11% NE firms) and "studying in business management" (i.e. 33% E firms vs 9% NE firms). These three strategies stand out among five knowledge-related risk management strategies as they were also extracted under the first component of the PCA analysis conducted on the adoption of risk management strategies by these MSEs. Thus, the following discussion section will focus more on explaining the adoption differences of between these three strategies compared to other two strategies which were use of workshops and programmes and obtaining support from government organizations. The study also showed that entrepreneurial firms also recorded significantly higher adoption percentages for the other two strategies of "obtaining support from government organisations" (i.e. 77% E firms vs 50% NE firms) and "use of workshops and programmes" (i.e. 79% E firms vs 57% NE firms). In summary, entrepreneurial firms make much greater use of external knowledge sources by sourcing expert knowledge and adopting formal education methods compared to non-entrepreneurial firms. Moreover, obtaining government support and participation in workshops and programmes are adopted by both entrepreneurial and non-entrepreneurial firms. But again, a greater adoption rate is

undertaken by entrepreneurial firms. Although some studies (Crovini, Santoro, & Ossola, 2020; Gao et al., 2013; Gilmore et al., 2004) have investigated the adoption of knowledge-related risk management strategies by SMEs, they have not compared the adoption rate between entrepreneurial and non-entrepreneurial firms. The relevance of these studies to the findings of this current study is discussed in the following paragraphs.

In terms of the five knowledge-related risk management strategies investigated in this study, it was found that “sourcing expert knowledge” showed the highest absolute percentage adoption difference between two firm groups. Entrepreneurial firms are three times more likely to source expert knowledge to manage their knowledge-related risks compared to non-entrepreneurial firms. As revealed during the qualitative phase, entrepreneurial firms sourced knowledge from different subject experts through consultancy services. These consultants represented both private entities and MSME-related government organizations such as the Small Enterprise Development Division (SEDD) and the National Enterprise Development Authority (NEDA), Sri Lanka. This strategy is different from obtaining government support as firms had to pay a certain fee to obtain these services. As revealed during the case study analysis, the consultancy services obtained by entrepreneurial firms were mainly related to accounting and financial services and legal services. For example, they had obtained advice from their legal advisors when they upgraded their business from a sole proprietorship to a private limited company. However, non-entrepreneurial case firms did not obtain these legal expert services as they were much small in operation skill compared to entrepreneurial case firms. They claimed to have no interest or financial capability to upgrade their businesses. In addition, both entrepreneurial and non-entrepreneurial firms sourced expert knowledge related to production and marketing from both private consultancy firms as well as government organisations as noted above. According to the survey results, more entrepreneurial firms have adopted this strategy compared to non-entrepreneurial firms. Even though outsourcing knowledge and expertise is a common phenomenon in business, little has been investigated on its use as a risk management strategy in relation to SMEs. Crovini et al. (2020) adopted a multiple case study approach using three Italian manufacturing SMEs to understand how risk management is embedded in decision making. The authors found that the firms obtained the support of external advisors to solve their problems in relation to risk management practices, strategy, planning and finance, and in turn to increase the SME’s competitive advantage. However Crovini et al. (2020) did not differentiate between entrepreneurial and non-entrepreneurial firms, the firms are in a developed country context and it is not clear if the cases were typical cases or exemplars, and this makes it difficult to compare to the findings of this study directly.

Although this study identified that entrepreneurial firms were almost four times more likely to use the knowledge risk management strategies of ‘studying in a technical domain’ and ‘studying in business

management' than non-entrepreneurial firms, there is little mention of this in the literature. However, education and learning were identified as important determinants of entrepreneurship and entrepreneurial intentions even though they have not been investigated as risk management strategies (Kolstad & Wiig, 2015). Jiménez, Palmero-Cámara, González-Santos, González-Bernal, and Jiménez-Eguizábal (2015) investigated the impact of educational levels on formal and informal entrepreneurship using a World Bank data base of 100 countries. According to the authors, formal entrepreneurship refers to the creation of legally registered new firms in a country, whereas informal entrepreneurship focuses on those firms that are not legally registered and are largely unregulated. Relative to the work of Jiménez et al. (2015) who found that tertiary education increases the formal entrepreneurship as a consequence of the higher self-confidence, lower perceived risk and enhanced human capital, the findings from this study suggest that a good proportion of entrepreneurs pursue tertiary education. On the other hand, Jiménez et al. (2015) also claimed that tertiary education has a negative effect on informal entrepreneurship. Relative to the above finding of Jiménez et al. (2015), the tendency of non-entrepreneurial firm owners in this study pursuing tertiary education was also not considerable.

More recently, Gilmore et al. (2004) conducted a qualitative study on 40 small firms from a wide spectrum of industries (not specified) in the UK to understand owner-managers/entrepreneurs' perceptions of risk, and how they manage and cope with situations that they deem to be risky. They reported that most of the SME owner-managers relied on "experiential knowledge" that they developed over time rather than formal education to manage the risks they faced. The current study contradicts Gilmore et al.'s (2004) findings as entrepreneurial firms relied more on formal education mechanisms. However, this is in part because they assumed that a business owner or manager is a proxy for entrepreneurship. This current study's findings in relation to non-entrepreneurial MSEs are more in line with Gilmore et al. (2004) findings.

Although the statistical analysis showed that a higher proportion of entrepreneurial firms adopted the knowledge risk management strategies of obtaining government support and participating in workshops and programmes than non-entrepreneurial firms, the PCA analysis showed that these strategies were not useful for distinguishing between entrepreneurial and non-entrepreneurial firms. Although a high proportion of entrepreneurial firms (> 75%) used these strategies, some 50 % and 57% of non-entrepreneurial firms also used these strategies respectively. This would explain why these strategies were not as important for distinguishing between entrepreneurial and non-entrepreneurial firms. The relatively high adoption rates of these strategies is not surprising given the SEDD, NEDA, the Industrial development board, and the Export development board in Sri Lanka play key roles in supporting MSMEs in Sri Lanka (MIC, 2015; Priyanath & Premaratne, 2014). The case study

supports this view with both the entrepreneurial and non-entrepreneurial firms obtaining government support through training and workshops to manage their knowledge-related risks.

Little has been written about comparing the adoption by entrepreneurial and non-entrepreneurial firms of the knowledge risk management strategies of obtaining government support and participating in workshops and programmes in the literature. However, there is a body of literature that has investigated MSMEs use of different types of government support especially in a developing country context (Doh & Kim, 2014; Maseko et al., 2011; Nakku, Agbola, Miles, & Mahmood, 2020; Ndubisi, Shamsuddoha, & Ali, 2009). Unfortunately, these studies have not distinguished between entrepreneurial and non-entrepreneurial firms.

In summary, this study compares the adoption of knowledge-related risk management strategies between entrepreneurial and non-entrepreneurial firms in the manufacturing sector in a developing country, Sri Lanka. Principle component analysis identified the adoption of knowledge-related risk management strategies as a useful discriminator between entrepreneurial and non-entrepreneurial firms. It was found that entrepreneurial firms had a significantly higher adoption rate of all the knowledge risk management strategies used in the survey. However, only three of these strategies “sourcing expert knowledge”, “studying in a technical domain” and “studying in business management” were important for distinguishing between entrepreneurial and non-entrepreneurial firms. Although both the normative and empirical literature identified the importance of knowledge in the entrepreneurial process, little has been written about its use as a risk management strategy. Most importantly, little research has been undertaken to compare the adoption of knowledge-related risk management strategies between entrepreneurial and non-entrepreneurial firms.

7.3.1.2 Managing strategic risk

Among the ten risk management categories, the analysis of the survey found that strategic risk management was the second most important category for differentiating between entrepreneurial and non-entrepreneurial firms. The study investigated fifteen different strategic risk management strategies and it was found that the adoption rates of 12 of these strategies showed a statistically significant difference between entrepreneurial and non-entrepreneurial firms (Table 7.1). Among these twelve strategies, only four (i.e. using SWOT, using business plans, planning resource allocation, and using external advice and mentors) were selected by the first two components of the PCA as important for differentiating between entrepreneurial and non-entrepreneurial firms. The adoption rates of the four strategies were: using SWOT (i.e. 60% E vs 13% NE), using business plans (i.e. 44% E vs 12% NE), planning resource allocation (i.e. 73% E vs 37% NE) and using external advice and mentors (i.e. 52% E vs 28% NE). These strategies were also proven significantly different between the two firm

groups based on the independent sample t test. These four strategies were then used in further statistical analysis. As such, this discussion section will focus on these four strategies.

Unlike knowledge-related risks, strategic risk and risk management are a feature of both the normative and empirical literature. This is mainly due to the fact that entrepreneurs and entrepreneurial firms are usually typified as strategic thinkers and characterised for their strategic orientation (Alsaaty, 2007; Di Zhang & Bruning, 2011; Hakala, 2015). The strategic orientation (referred to as strategic posture or entrepreneurial orientation by certain scholars) is one of the key characteristics that distinguished entrepreneurial firms from their non-entrepreneurial counterparts (Covin, 1991; Covin & Slevin, 1989). Covin (1991) tested 11 strategic variables with a sample of 111 small-scale manufacturing firms in the USA. Covin (1991) used the 9-item scale given by D. Miller and Friesen (1982) to distinguish between entrepreneurial and conservative firms. Thereby, the author compared the strategic management variables between 68 entrepreneurial and 43 conservative firms and found that entrepreneurial firms outperform conservative firms in terms of in seven out of 11 strategic variables.

However, despite this focus, there is little in the normative literature that has predicted significant differences in the adoption of strategic risk management practices between entrepreneurial and non-entrepreneurial firms. For example, Ariful et al. (2006) proposed a normative model for strategic risk management for SMEs. The model included processes for identifying risks and their root causes, classifying risks and adopting risk management measures. However, they did not discuss how this process, or the use of different strategic risk management strategies might differ between entrepreneurial and non-entrepreneurial SMEs. In the empirical literature, scholars including Marcelino-Sádaba et al. (2014), Gilmore et al. (2004), Falkner and Hiebl (2015), and Verbano and Venturini (2013) have investigated the different strategic risks and risk management practices of SMEs. The findings and contributions these studies are discussed later when along with the individual risk managements. However, as with the normative literature, none of these studies compared entrepreneurial and non-entrepreneurial firms.

As mentioned at the beginning of this section, four strategic risk management practices were identified as important as they were extracted by the PCA explaining the majority of the variance of adopting risk management strategies by these small firms. The four strategies included, using SWOT (i.e. 60% E vs 13% NE), using business plans (i.e. 44% E vs 12% NE), planning resource allocation (i.e. 73% E vs 37% NE) and using external advice and mentors (i.e. 52% E vs 28% NE). These strategies were also proven significantly different between the two firm groups based on the independent sample t test.

Among the four strategies identified through the PCA, using SWOT analysis recorded the highest percentage adoption difference between two firm groups. The case study also supported the survey finding because only the two entrepreneurial firms claimed to carry out a proper SWOT analysis to identify their strengths, weaknesses, opportunities and threats. SWOT analysis is a strategic management tool that is frequently used in strategic planning (Houben, Lenie, & Vanhoof, 1999), risk identification (Dinu, 2012) and the risk assessment (de Araújo Lima et al., 2020) of business ventures. Thamrin, Herlambang, Brylian, Gumawang, and Makmun (2017) carried out a study to develop a software tool to facilitate SWOT analysis among Indonesian SMEs. They have observed that SMEs rarely adopt tools such as SWOT analysis for strategic risk management. They did report that SME operators were somewhat aware of the structure of the analysis, but many had a limited understanding of how to employ it. In an empirical study, Zoghi (2017) using 192 Turkish SMEs, found that SWOT analysis is the second mostly utilised risk management by all types of firms including those operating in construction, capital goods, auditing and trade. These studies support the idea of SWOT analysis being used as a strategic risk management strategy by SMEs yet, showed no differentiation between entrepreneurial or non-entrepreneurial firms.

Higher percentages of adoption of planning-related strategic risk management strategies (i.e. use of business plans, use of short and long-term plans etc.) by the entrepreneurial firm group is an interesting finding from this study. As noted earlier, 44% of entrepreneurial firms adopted the strategy of developing a business plan for their firm while, a greater proportion of non-entrepreneurial firms (88%) in this study did not develop a formal business plan for their firms. Even in the case study analysis, entrepreneurial case firms claimed to develop formal business plans and tried to adhere them as far as possible while non-entrepreneurial firms had no written business plans. Ekwere (2016) in their review article on risk management in SMEs, noted that business planning is an important management technique in a business of any size. The author reinstated the importance of business planning stating that “risk management can assist the business to effectively manage the weaknesses and threats to achieve the objectives of the business, as well as recognising where opportunities exist and capitalising on these to help the business grow and develop” (p. 32). However, no information was disclosed regarding its adoption differences by entrepreneurial and non-entrepreneurial firms.

In an empirical study by Henschel (2006) on the risk management practices of 240 German SMEs from a range of different industries they found that most of the SMEs had a rudimentary approach to risk management. Only a few SMEs had established a comprehensive business planning system. However, the majority of the SMEs had not established a well-developed link between their risk management practices and their business planning. Even though Henschel (2006) have not classified his SMEs as

entrepreneurial or non-entrepreneurial, the behaviour of those German SMEs seemed to be in line with the non-entrepreneurial firms investigated in this study in relation to their business planning.

A study conducted by Jayathilake (2012) on risk management practices of Sri Lankan SMEs also claimed that only a few of the firms they studied established a comprehensive business planning system whereas the business planning undertaken by most of the SMEs was not well developed. This author studied 200 SMEs in Sri Lanka including 80 firms from manufacturing sector, 60 firms from service sector and 60 firms from retail sector. His results further showed that the business planning used by most of the SMEs is often in a rather rudimentary form (Jayathilake, 2012). As most of other SME-related studies, Jayathilake (2012) also did not specify the entrepreneurial/non-entrepreneurial nature of his sample of SMEs. Thereby, the findings of this study contribute to the body of literature by providing better discrimination between entrepreneurial and non-entrepreneurial firms regarding their use of business plans as a strategic risk management practice.

According to the survey data analysis, planning resource allocation is another planning-related strategic risk management practice that reported important significant differences (73% E vs 37% NE) between two firm groups. This indicates that as twice as many entrepreneurial firms adopted this strategy as non-entrepreneurial firms. During the case study analysis entrepreneurial firms revealed how they plan and allocate their limited resources (i.e. capital, labour, time, technology etc.) on their different production lines. The owner-managers of entrepreneurial firms had a clear plan and budgeting on when, how and where their resources are allocated on with the aim of ensuring continuous growth and development of the business. Specially they had clear plans on allocating their resources on R&D activities of the firm. In contrary, non-entrepreneurial firms had no proper plans on when and where their resources are allocated. This issue was more apparent in the way that they handled their capital as they had no proper capital allocation strategies or budgeting strategies to distribute their resources among their different product lines. Despite of the importance received in this study with higher adoption percentages a little is being investigated on resource allocation as a strategic risk management strategy in relation to entrepreneurial or non-entrepreneurial SMEs.

Using external advice and mentors is the last strategy that was selected through PCA as explaining a majority of the variance in adoption of risk management strategies by these firms. However, the percentage adoption difference between two firm groups is relatively less compared to other strategies. During the case study analysis, it was revealed that owner-managers of entrepreneurial firms sought external advice from industry and subject experts such as owners of well-established companies, university lecturers, private consultants and retired government officers during strategic decision making. On the other hand, non-entrepreneurial firms made their critical strategic decisions

by discussing among spouses without involving external parties. Some of the literature related to this strategy were discussed under the knowledge-related risk management strategies. However, this strategy is different from those knowledge-related risk management strategies as these advice and mentoring are mainly used to aid firms' strategic planning and risk management.

7.3.2 Managing product price-related market risks

Among the ten categories of risk management strategies considered for the study, product price-related market risks were identified as the third important category based on the results of multiple statistical tests. The study employed twelve different product-related market risk management strategies of which ten were identified to have statistically significant different adoption rates between entrepreneurial and non-entrepreneurial firms. Among these ten strategies, three were extracted under the first component of PCA while another four were extracted under the second component of PCA. Accordingly, these seven strategies were then used in further statistical analysis. As such, this discussion section will focus on the adoption differences of these seven strategies. The seven strategies included monitoring market trends, monitoring competitor activities, spreading sales, using social networks for marketing, monitoring technology changes, using market surveys prior to introducing products, and developing agreements with buyers.

According to the literature, various scholars have identified that the market risk is the most important category of risks faced by their respondents (Dvorský, Popp, Virglerova, Kovács, & Oláh, 2018; Henschel, 2006; Hudáková, Schönfeld, Dvorský, & Luskova, 2017; Y. Kim & Vonortas, 2014). Unterschultz (2000) referred to market risk as sources of uncertainty related to input or output prices in the business. While normative literature presents different measures of market risk, Value at Risk (VaR) is identified as the most commonly used approach to measure the market risk (Angelovska, 2013; Tardivo, 2002). According to Angelovska (2013), VaR is the standard measure that financial analysts use to quantify market risk. However, this study did not use such approaches to measure market risk as the study did not aim to quantify the risks. Instead, this study investigated how market risks are being perceived by entrepreneurial and non-entrepreneurial firms and how they were being managed by using a set of five-point Likert-scale questions. However, there is little in the normative literature that has predicted significant differences in the adoption of market risk management strategies between entrepreneurial and non-entrepreneurial firms. Most of these studies that investigated market risks have failed to mention the nature of entrepreneurial orientation of their respondents whether they are entrepreneurial or non-entrepreneurial in particular.

Among the seven strategies, monitoring technology changes is the strategy that recorded the highest absolute percentage adoption difference between entrepreneurial and non-entrepreneurial firm groups (52% E vs 7% NE). In the empirical literature, entrepreneurs and entrepreneurial firms are

known for their high technology orientation while entrepreneurship and its relation with technology and innovation are studied extensively within organizations (N Bosma, Jones, Autio, & Levie, 2007; Urban & Barreria, 2010). Thereby, it is not surprising to see that a considerably higher percentage of entrepreneurial firms adopt monitoring technology changes as a main market risk management strategy compared to non-entrepreneurial firms. Even with a smaller number of case firms in the qualitative phase of this study, it was revealed that the entrepreneurial case firms were more technology orientated than non-entrepreneurial case firms while entrepreneurial firms also kept themselves frequently updated with the technology changes happening in their business environment.

Monitoring competitor activities recorded the second-highest absolute percentage adoption difference between entrepreneurial and non-entrepreneurial firm groups (79% E vs 41% NE). Industry rivalry or competition is a commonly discussed phenomenon in the marketing literature with the support of well-established theories such as Porter's five forces model (Rice, 2010). In the empirical literature competition is identified as a major source of market risk (Dvorsky, Belas, Gavurova, & Brabenec, 2021; Dvorský et al., 2018; Hudáková & Dvorsky, 2018). According to Malega, Rudy, Kovac, and Kovac (2019) market risk is mostly determined by market competitiveness. Competitive monitoring, competitive analysis and competitive intelligence are a few synonyms used in both normative and empirical literature to refer to the process of monitoring competitor activities. Elaborating on the importance of monitoring competitor activities Zha and Chen (2009) noted that "monitoring competitors not only facilitates risk management by predicting, identifying, avoiding, transferring, spreading and controlling risks well but also helps SMEs to enhance the capabilities of risk awareness and risk prevention" (p. 230). Zha and Chen (2009) in their normative study on "Competitive Intelligence Monitoring in the Risk Prevention of SMEs" came up with a model to use competitive intelligence as a tool for risk management in SMEs. The authors further noted that monitoring competitive activities is the principal of competitive intelligence which provides a variety of information regarding competitors to prevent relevant market risks. This normative study has highlighted the importance of monitoring competitor activities to manage market-related risks in SMEs.

Similar to other risk management strategies, the studies that separately investigated the competitive monitoring of entrepreneurial or non-entrepreneurial MSEs were hardly available in the literature. Moreover, there is also a paucity of normative or empirical studies that compared the adoption of monitoring competition as a market risk management strategy between these two firm groups. Covin (1991) is an empirical study that compared entrepreneurial and conservative terms in terms of their strategies and performances using a sample of 111 small manufacturing firms (43 conservative vs 68

entrepreneurial) in the USA. Even though, this study showed no specific link to the risk management of SMEs, they have compared the conservative and entrepreneurial firms and noted that “accurate information on industry trends and competitors’ moves can result in more prudent risk taking and proactive behaviours” (Covin, 1991, p. 443). The author further established that conservative firms often give little attention to the systematic monitoring of changes in industry and competition while entrepreneurial firms are more in touch with these monitoring activities. The findings of Covin (1991) are in line with the findings of this study, where the percentage of entrepreneurial firms adopting monitoring competitor activities largely surpasses the percentage of non-entrepreneurial firms. However, the findings of this study stand out in the empirical literature as they are also from a developing country background that this concept has never been studied before.

Among the seven product price-related market risk management strategies, monitoring market trends were identified as the strategy with the third highest absolute difference (69% E vs 33% NE) among entrepreneurial and non-entrepreneurial firm groups. Similar to competitive monitoring, monitoring market trends also referred to in the literature with many synonyms including market awareness, market information and market intelligence. However, there is little written in both normative and empirical literature on the differences in how entrepreneurial and non-entrepreneurial firms adopted this strategy in order to manage the market risks they face.

As noted above Covin (1991) compared the strategic posture and performances of conservative and entrepreneurial firms in the USA. In that study, industry awareness was identified as an important variable in the strategic posture of SMEs where the author hypothesised that the prediction of customer and market trends is more strongly emphasized by entrepreneurial than conservative firms. According to Covin (1991), due to the characteristics of the markets in which they compete, conservative firms can often operate successfully with little attention given to formal or systematic monitoring of market trends and data. Entrepreneurial firms, on the other hand, are generally more in touch with external market information. This is particularly important for entrepreneurial firms as they surpass conservative firms through product innovations, more prudent risk taking and proactive behaviours. However, Covin (1991) has not compared monitoring market trends as a risk management strategy for these SMEs. Y. Kim and Vonortas (2014) in their study on managing risk in formative years (i.e. 2-8 years) by young small enterprises in Europe identified market risk as the most important risk encountered. The firms were taken from 18 sectors across 10 European countries. The study explored several market risk management strategies where active and regular monitoring of changing market and demand trends was identified as one of the key elements in their pool of market risk management strategies. Y. Kim and Vonortas (2014) also noted that it is important for those new, small ventures being able to quickly recognize shifts in broad market (e.g. competition, regulation, demography).

However, like many other scholars they have not mentioned about the entrepreneurial nature of their respondent firms or compared with other groups of firms.

Among the seven risk management strategies selected using social networks resulted in 29% absolute percentage difference of adoption between entrepreneurial and non-entrepreneurial firms investigated (31% E versus 2% NE). Moreover, this is one of the strategies that is least adopted by non-entrepreneurial firms. Advertising is a commonly used mechanism in marketing in any context. However, as revealed during the case study analysis social media networks or other types of advertising were not that popular among these small-scale food processing firms regardless of their entrepreneurial nature. In comparison between entrepreneurial and non-entrepreneurial case firms, both non-entrepreneurial case firms showed no interest in advertising or using social networks to promote their products. The non-entrepreneurial case firms also had no financial capacity to afford expensive advertising methods.

A previously noted study Covin (1991), identified advertising as an important variable that determines the strategic posture of entrepreneurial and conservative firms. The author noted that since conservative firms, by definition engage in minimal product innovation their emphasis on promoting their products is also minimal. In contrast, entrepreneurial firms are product innovations that need to communicate their existence, attributes, and benefits. Thus, entrepreneurial firms may have to engage in a relatively high level of advertising compared to conservative firms (Covin, 1991). Al-Mommani, Al-Afifi, and Mahfuzi (2015) in their theoretical paper, claimed social networking as a cost-effective and easy-to-use platform for SMEs to promote their sales yet many SMEs do not understand the impact and the prospects of using social media, and continue to rely on traditional media to communicate with their audience. Even though, Al-Mommani et al. (2015) highlighted that advantages of using social networks for SMEs they had not considered how social networks can be used to manage the market-related risks faced by them. Byzalov and Shachar (2004) and Tripathi, Misra, and Siddiqui (2020) are two studies that theorised and investigated the risk reducing effect of advertising. However, none of these studies specifically focused on the use of social networks as a market risk management strategy by entrepreneurial or non-entrepreneurial SMEs.

Sixty-two percent of entrepreneurial firms and 35% of non-entrepreneurial firms adopted “spreading sales” as a market risk management strategy and the strategy was extracted by the PCA analysis. In the farm management literature, spreading sales is identified as a market risk management strategy where sales are distributed throughout the production season rather than selling at one particular point in the season (Shadbolt et al., 2010; Velandia, Rejesus, Knight, & Sherrick, 2009). The purpose is to prevent issues that result due to over production. Even though spreading sales is a strategy mostly

discussed in farm management literature, it is equally applicable for the food processing firms as they are closely related in the supply-chain. In business management literature, spreading sales also equals to market spreading, namely, marketing to as many markets as possible (Crick, 2007). This market spread can be into both local and international markets. During the qualitative phase of this study, it was revealed that both entrepreneurial and non-entrepreneurial firms spread their sales areas geographically. Entrepreneurial firms expanded their sales into international market while non-entrepreneurial firms confined themselves to local market expansions. Similar to findings of this study, Crick (2007) reported that manufacturing SMEs in UK also used market spreading as a strategy to manage their market-related risks. However, Crick (2007) has mainly focused on spreading into international markets rather than local. Among these findings of both farm and business management literature, the findings of this study make a significant contribution to the literature as it compares the adoption differences of two firm groups.

Fifty-four percent of entrepreneurial firms and 28% of non-entrepreneurial firms used agreements with their buyers as a strategy to manage their product-price related market risks. Agreements or contracts are an important risk management tool in supply chain management in both business and farm management literature (Hall & Langemeier, 1999). Ekwere (2016) in their review article on risk management in SMEs stated contract management as an important risk management strategy adopted by SMEs. Similar to the findings of this study, C. J. S. C. M. A. I. J. Ellegaard (2008) using a sample of 11 small-scale manufacturing companies in Denmark also identified that buyer-supplier contracts are important to supply risk management strategies that reduce the probability of risk. However, unlike this study, C. J. S. C. M. A. I. J. Ellegaard (2008) showed findings from a developed county and made no attempt to differentiate whether the respondents are entrepreneurial or not.

The last product-related market risk management strategy selected for this discussion is the use of market surveys prior to introducing products. This strategy showed a 15% absolute percentage adoption difference between entrepreneurial and non-entrepreneurial firms (17% E vs 2% NE). Conducting market surveys is also identified as one of the least adopted strategies by both entrepreneurial and non-entrepreneurial firms. This observation was further confirmed from the results of the qualitative phase where only one of the entrepreneurial firms implemented market research before introducing their products to the market. Non-entrepreneurial case firms have not considered this as a strategy that they could adopt which is clearly relatable to the survey findings. According to the normative literature, market surveys are important sources of information to mitigate the risks in the new product development process (Cadden & Lueder, 2012; Ogawa & Piller, 2006). Davis (1993) clearly noted that market surveys reduce the risk of new product failures. Yet, there was no empirical evidence that how market surveys are used as risk management strategies.

Moreover, there is a paucity of information in both normative and empirical literature regarding how differently entrepreneurial or non-entrepreneurial MSMEs adopt this strategy to manage their market-related risks. De Jong and Vermeulen (2006) in their study to investigate the determinants of product innovation in 1250 small firms in the Netherlands found out that market research is one of the innovative practices used by small firms to reduce the risk of new product failures. Similar to the findings of this study, De Jong and Vermeulen (2006) also highlighted the importance of small firms using market research before introducing new products as that will allow them to explore opportunities and consumer needs. However, De Jong and Vermeulen (2006) have not explored market surveys as a risk management strategy but as an innovative practice that is essential in marketing. Therefore, the contribution of this study is noteworthy, as it explores the risk management attributes of market surveys and how it is being adopted by entrepreneurial and non-entrepreneurial firms in the manufacturing sector MSEs in Sri Lanka.

7.4 The factors influencing the adoption of risk management strategies by entrepreneurial and non-entrepreneurial SMEs

The focus of this section is to discuss the factors that influence the adoption of risk management strategies by entrepreneurial and non-entrepreneurial SMEs operating in the agricultural food processing sector in Sri Lanka. Moreover, the section also discusses the variables that are important to distinguish entrepreneurial firms from their non-entrepreneurial counterparts. This section compares the demographic features of the two groups, how these influence their adoption of different risk management strategies and compares the findings to the literature. The focus then shifts to discussing two risk-related variables: risk propensity and risk perception. The differences between the two firm groups and their influence on the adoption of risk management strategies are discussed and compared to the literature. This section first discusses how entrepreneurial and non-entrepreneurial firms are different in terms of their risk propensities and risk perceptions and then it will address how these factors influence their adoption of different categories of risk management strategies.

7.4.1 Demographic parameters

The study considered two types of demographic parameters: firm owner characteristics and firm characteristics, which were identified as important when examining the risk management of these small food processing firms. As explained in the results chapter four firm owner characteristics (i.e. gender, age, level of education, and years of experience in business) and five firm characteristics (i.e.

stage of business, years of operation, nature of ownership, annual turnover, and number of employees) were examined as demographic variables.

7.4.1.1 Firm owner characteristics

The gender distribution of this sample of small firms showed interesting differences among entrepreneurial and non-entrepreneurial firm groups. The percentage of female firm owners was considerably higher in the non-entrepreneurial group than that in the entrepreneurial group. Thereby, the two firm groups were significantly different in terms of their gender distribution. Even though there were a considerable number of entrepreneurship and SME-based studies were found in the Sri Lankan context, the information disclosed on the gender distribution of their samples were relatively scarce (Fairoz et al., 2010; Jayathilake, 2012; Wickramaratne et al., 2014). Among few studies that disclosed such information, the percentage of male firm owners seemed to be higher than female owners (Chandrakumara et al., 2011; Jayathilake, 2013). However, these differences could be specific to the industry type, firm size, and respective geographic location selected for the study. Jayathilake (2013) in his study that investigated the effects of gender on risk perception and risk behavior among Sri Lankan SMEs also highlighted the lack of empirical literature on gender differences in risk-taking behavior in particular in developing countries.

Even though the distribution of male and female firm owners was significantly different among the two firm groups, when gender was used as a predictor variable to determine its probable contribution towards a firm being entrepreneurial, it showed no significant association. On the contrary, a multi-country study conducted by Goktan and Gupta (2015) using data from four countries; the United States, Hong Kong, India, and Turkey found that gender does play a role in entrepreneurial orientation. Authors compared men's and women's orientation for entrepreneurship and found that men reported higher proclivity towards entrepreneurship than women across all countries (Goktan & Gupta, 2015, p. 107). Moreover, gender showed no significant impact on the adoption of strategic or market risk management strategies. However, in contrary, the previously noted Sri Lanka based study by Jayathilake (2013) found out that gender has a significant effect on all risk taking dimensions including; risk perception, risk propensity and risk behavior while male tend to accept a higher level of risk than that of females. This can also be related to this study as there were more male entrepreneurial firm owners than females, but there are no statistical evidence to support the claim.

The age of the respondents was also significantly different among entrepreneurial and non-entrepreneurial firm owners where the majority of entrepreneurial firm owners were younger than their non-entrepreneurial counterparts. Mean age of both firm groups was around 40 years old. Unlike gender, age was considered an important variable in most of the previous entrepreneurship related

studies conducted in Sri Lanka. The age statistics of these previous studies were relatively compatible with the findings of this study. Jayathilake (2013) reported mean age of respondents as 39.64 while Fairuz et al. (2010) on their study to investigate EO related firm performances in Sri Lanka noted most of their respondents being between 30-35 years. Chandrakumara et al. (2011) in their study to investigate entrepreneurial and managerial orientations of owner-managers on company performance in Sri Lanka also had the majority of their respondents between the age of 30-50 years.

However, similar to gender of firm owners, age was not identified as a predictor variable that contributes towards the probability of a firm being entrepreneurial. In contrary to this finding, Hatak, Harms, and Fink (2015) in an Austrian study found out that age plays a significant role in entrepreneurial intention whereas people age they are less inclined to act entrepreneurially. Both theoretically and empirically age and entrepreneurial attitudes/intentions has an inverse relationship where willingness and intention to start a business decrease with age (Levesque & Minniti, 2006; Praag & Ophem, 1995). This literature is compatible with the age percentages of this study as entrepreneurial firm owners were found to be younger than their non-entrepreneurial counterparts. However, there is no statistically significant evidence support to confirm the association. The age of the respondents was also not identified as a factor that could influence the adoption of risk management strategies. Similarly, Jayathilake (2013) failed to observe any relationship between respondent's age and their risk propensity, risk perception, or risk behavior. However, contradicting results were reported in studies conducted by Iqbal et al. (2020) and Ahsan (2011) in their investigations to find out factors that influence risk perception and risk management by Pakistani and Bangladesh farm families. Both studies reported that the age of the respondents negatively influenced most of the risk perceptions and implementation of risk management strategies. This same notion is supported by the empirical evidence of Yong and Panikkos (2010) that showed age is negatively associated with risk taking of entrepreneurial family firms in the UK.

The level of education also resulted in significantly different among entrepreneurial and non-entrepreneurial firm groups. Entrepreneurial firm owners were higher in their level of education and had more university degrees compared to non-entrepreneurial firm owners. However, the majority of the respondents stopped their formal education at the school level either after completing G.C.E. ordinary level or G.C.E. advanced level and only a small proportion obtained university degrees or diplomas. Showing this is a common situation across Sri Lanka, Fairuz et al. (2010), Chandrakumara et al. (2011), and Wickramaratne et al. (2014) also reported high percentages of school leavers and low percentage of university graduates among their respondents.

However, similar to previously discussed firm owner characteristics education has also showed no influence on the probability towards a firm being entrepreneurial. Again, contradictory findings were found in literature as scholars were trying to relate higher education with entrepreneurial intentions. Nabi, Liñán, Ertuna, and Gurel (2011) using a sample of Turkish university students showed that individuals with higher education has higher inclination towards being entrepreneurs. Descriptive statistics of present study also provide a similar idea of more educated individuals becoming entrepreneurs yet, with no strong statistical evidences to support. Interestingly, years of formal education was positively and significantly associated with adoption of strategic and knowledge-related risk management strategies. This relationship is self-explanatory as firm owners empower themselves with more knowledge, they become more aware of business planning, and opportunity identification etc. and in turn tend to manage their risks more strategically using the knowledge acquired. Interestingly, Jayatilake (2013) reported a contradicting finding as he failed to identify an association between education and three risk variables; risk propensity, risk perception and risk behavior of Sri Lankan small business owners.

The last firm owner characteristic, years of experience in business was not significantly different between entrepreneurial and non-entrepreneurial firm owners. This variable was not used in further statistical models as it found to be highly correlated with the age of the respondents. However, similar studies reported interesting associations between business experience and risk taking propensity, risk perception, and risk management of small businesses and farming households (Ahsan, 2011; Iqbal et al., 2020; Jayatilake, 2012, 2013).

7.4.1.2 Firm characteristics

Out of five firm characteristics studied, only annual turnover and number of employees were significantly different among entrepreneurial and non-entrepreneurial firms. The justifications and explanations for these differences were given in the quantitative results chapter (page 142). However, none of these variables were used in further regression models either to determine their probable contribution towards a firm being entrepreneurial or to understand their influence on adoption of risk management strategies. Therefore, no further discussion of these variables is presented in this section. The next section is focused on discussing two risk-related variables; risk propensity and perceived opportunities and threats of sources of risks in relation to how they differ among entrepreneurial and non-entrepreneurial firm groups and how they influenced the adoption of risk management strategies by the micro and small-scale agricultural food processing firms in Sri Lanka.

7.4.2 Risk propensity attributes

7.4.2.1 *Difference between entrepreneurial and non-entrepreneurial firms*

The study showed that entrepreneurial firms were significantly different from their non-entrepreneurial counterparts in terms of their risk propensity or their orientation towards risk-taking. This nature of entrepreneurial firms showing more inclination towards risk more than other small business owners is proven even by early empirical literature. Carland III et al. (1995) argued that entrepreneurs, whose goals are profit and growth are more likely to display a greater propensity for risk taking than small business owners, whose primary goals are family needs oriented (p. 15). This argument can be used to support the risk propensities of entrepreneurial and non-entrepreneurial case firms. The entrepreneurial case firms were comparatively more growth and opportunity orientated while they also showed more risk propensity than non-entrepreneurial case firms. In contrary, non-entrepreneurial case firms were more concerned with supporting their family income than growing their business itself and their overall scores for the risk-taking dimension were less than entrepreneurial firms.

However, it is important to note that these significant and notable differences of risk propensities between entrepreneurial and non-entrepreneurial firms should not be surprising. As explained earlier, the firms were originally categorised into these two groups based on five EO dimensions, out of which 'risk-taking' is one of the five parameters. The focus of this section is to understand more on the risk propensities of the small firms and to understand how it influences their adoption of risk management strategies.

Similar to the analysis of risk management strategies, the study adopted a range of statistical techniques to understand the risk propensities of these small firms as a whole and in relation to their entrepreneurial/non-entrepreneurial status. All these tests were able to highlight that two firm groups are different in terms of their risk propensities and showed the nature of risk propensity of each group. For example, the first principal component was a true reflection of the risk proclivity of entrepreneurial firms while the second component showed the risk averting or risk neutral behaviour pertaining to non-entrepreneurial firms. It was interesting but not surprising to see that the risk-taking propensity of entrepreneurial firms were well sharpened by their proactive and opportunity-seeking nature. Notable entrepreneurship scholars such as D. Miller (1983) and Covin and Slevin (1991) also argued that firms that are proactive and innovative tend to be better risk-takers as well. The study conducted by Block et al. (2015) on risk attitude differences between opportunity and necessity oriented entrepreneurs also provide a sound justification for the above relationship between proactiveness and risk-taking of entrepreneurial firms. The authors claimed that entrepreneurs who

are opportunity oriented and who started their businesses as a result of pursuing an opportunity tend to take more risks compared to business owners who started their businesses as they had no other employment options (Block et al., 2015). In an overall evaluation of risk propensities, entrepreneurial firms could be identified as optimistic and opportunistic risk seekers compared to their non-entrepreneurial counterparts.

The set of “non-entrepreneurial risk propensity attributes” reflected more on the risk averting behaviour of these small firms created as a result of poor strategic planning. According to those attributes, non-entrepreneurial firms struggled to foresee their future and found it difficult to plan under uncertain situations. This forward-looking perspective is again strongly associated with the proactive nature of firms (Lumpkin & Dess, 2001) and this risk averting nature of these non-entrepreneurial firms is linked with their non-proactive nature. They could not foresee the future as they were not aware of the industry trends compared to entrepreneurial firms. Covin (1991) also observed that entrepreneurial firms were more aware and in touch with the industry trends compared to conservative firms.

According to the attributes, the non-entrepreneurial firms were not willing to take the strategic risk of making short-term and long-term plans for future uncertain situations. The non-entrepreneurial case firms investigated at the qualitative phase also illustrated similar characteristics of poor planning for future. The entrepreneurial firms had a clear vision as where they wish to be in next five- or ten-year period whereas non-entrepreneurial firms claimed that they cannot have that vision as the future is so uncertain. Moreover, the entrepreneurial case firms also claimed that they have developed proper business plans for their businesses and keeping proper records of their business activities whereas non-entrepreneurial case firms were not involved in documenting their plans or daily activities. The focus of non-entrepreneurial firms was more about proving a daily supplementary income for the family rather than planning for the growth of the business itself. As discussed earlier, Carland III et al. (1995) highlighted the same differences of risk taking propensities among entrepreneurs and SME owners. Hence, the non-entrepreneurial group could be identified as pessimistic and haphazard risk takers (averters) that tend to accept a certain level of risk without proper planning ahead.

Even though there were apparent differences of risk propensity between entrepreneurial and non-entrepreneurial firms, some contradictory observations were also made in relation to certain risk categories. For example, the propensity towards financial risks of entrepreneurial firms were seemed inconsistent and incompatible with their proactive behaviour. This observation was made at both qualitative and quantitative phases of the study. The propensity towards taking financial risks showed

that two firm types were different in terms of their tendency towards investing large amount of resources on high risk ventures, but they were not different in terms of seeking financial credit to fund their businesses. The qualitative results showed that entrepreneurial and non-entrepreneurial case firms had mixed opinions about getting financial credit, while majority of them tried their best to refrain from getting loans. Despite their proactive behaviour, even entrepreneurial firms were also reluctant to select financial loans as a better option for funding. Covin (1991)'s findings of entrepreneurial and conservative firms in the USA were contrary to this. The author found that entrepreneurial firms relied to a marginally greater extent on external financing compared to conservative firms. His assumption of entrepreneurial firms to assume more debts as a result of their high-risk propensity was contradictory to these small firms operating under the Sri Lankan context. Proving the context specificity of this observation H. R. Gamage (2014) in her qualitative study on entrepreneurial risk-taking showed that Sri Lankan entrepreneurs are not willing to go for financial loans due to lethargic and difficult lending procedures of banks. The same explanations were given by both entrepreneurial and non-entrepreneurial case firms of this study as they were not encouraged by the rigid banking and lending procedures.

Based on the discussion above, it is clear that risk propensity of these Sri Lankan food processing entrepreneurial and non-entrepreneurial firms was significantly different from each other in many ways while they also had some similarities in certain areas. When these risk propensities of small firms were used as predictor variables in a model to understand their contribution towards the probability of a firm being entrepreneurial, it was found that entrepreneurial or risk-seeking propensities does play a noteworthy role while non-entrepreneurial risk propensities were found as not impactful. Again, this finding is not surprising as risk-taking was one of the dimensions that was used to distinguish two firm types in the beginning. The important point to note was the higher odds ratio that suggested that out of all the variables tested these entrepreneurial risk propensities were the second highest variable that contributed towards the probability of a firm being entrepreneurial. This high, positive and significant contribution of entrepreneurial RPAs again reinforces the proactive and risk-seeking nature of entrepreneurial firms operating in the agriculture food processing sector in Sri Lanka. Out of different variables including risk propensity, risk perception and risk management it is clear that risk propensity plays an important role in deciding the entrepreneurial/non-entrepreneurial nature of a firm. This finding is supported by the well-established notion of entrepreneurs being risk takers (Cantillon, 1734; Knight, 1921; McClelland, 1961) and the use of risk-taking propensity as a parameter to distinguish between entrepreneurs and non-entrepreneurs (Barringer & Bluedorn, 1999; Carland III et al., 1995; Stewart et al., 1999).

7.4.2.2 *Influence on adoption of risk management strategies*

As was explained, one of the key objectives of this study was to identify the factors that influence the adoption of risk management strategies by these small firms. The first regression analysis to determine the factors influencing adoption of strategic and knowledge risk management strategies revealed that entrepreneurial risk propensity attributes were not significantly related while non-entrepreneurial risk propensity attributes were significantly and negatively related with the outcome variable. This negative relationship was well-expected based on the composition of risk management strategies in the outcome variable and risk propensity attributes in the independent variable. As explained earlier, the non-entrepreneurial risk propensity attributes were comprised of attributes that were related to lack of proper short-term and long-term planning of firms while they reflected the risk-averting propensities of firms. The risk propensity attributes expressed the idea of reluctance to plan at uncertain situations. Therefore, when there is more tendency towards non-planning the adoption of strategic/knowledge risk management strategies is going to be low. A similar negative association between risk propensity and risk management was noted by van Winsen et al. (2016) in their study to investigate the effects of perceived risks and risk propensity on farmer's adoption of risk management strategies. The authors found that risk propensity is significantly and negatively associated with the implementation of risk reducing (i.e. managing) strategies. They assumed and explained this negative relationship stating that when respondents have more propensity towards risk-taking, they do not tend to implement risk reducing strategies (van Winsen et al., 2016).

Similar relationships emerged at the second regression analysis carried out to determine the factors influencing adoption of product price-related market risk management strategies. Both entrepreneurial and non-entrepreneurial risk propensities were resulted significantly and negatively associated with the outcome variable. The explanations given by van Winsen et al. (2016) help explain the negative coefficient of entrepreneurial risk propensities. It can be explained as when the respondents have a propensity of being proactive, innovative, and aggressive, their tendency to adopt risk management strategies could be lesser. Similar to the explanations made by van Winsen et al. (2016), when they seek opportunities and challenges they do not attempt to manage the risks accompanied with those challenges. Thus, the negative relationship between entrepreneurial risk propensities and adoption of market risk management strategies are explained. On the other hand, the non-entrepreneurial risk propensities were also negatively related to the adoption of these product price-related market risk management strategies. According to the composition of these non-entrepreneurial risk propensities the justification for this negative relationship is different from the negative relationship shown by entrepreneurial risk propensities. As explained earlier, the non-entrepreneurial risk propensities represent risk tendencies associated with planning difficulties. This

negative relationship is explained as, when firms have a negative proclivity towards risks associated with planning they tend to implement less of market risk management strategies. This finding can also be supported by the theory proposed by Sitkin and Pablo (1992) as they attempted to explain the role of risk propensity in risk behaviour. They have not specifically considered risk management but based on the theory they have hypothesised and explained that decision maker's risk behaviour needs to be consistent with their risk propensities. Sitkin and Pablo (1992) predicted that risk seeking propensities should result in higher risk behaviours and *vice versa*.

The overall regression models included several other variables including demographic variables and perceived opportunities and threats of different sources of risks. Among the other variables, the relationships between risk propensity and risk management strategy adoption were important for this study as it shows how entrepreneurial and non-entrepreneurial risk propensities determine the decision to adopt different risk management strategies by small-scale firms in agriculture food processing sector in Sri Lanka. Even though previous studies such as van Winsen et al. (2016) and Sitkin and Pablo (1992); (Sitkin & Weingart, 1995) have investigated the effect of risk propensity on implementation of risk management strategies, no proper studies were carried out on Asian or especially for the Sri Lankan context. Hence, these relationships provide important insights about the risk propensity of these small firms and how they have influenced their implementation of risk management strategies.

7.4.3 Perceived sources of risk

7.4.3.1 *Difference between entrepreneurial and non-entrepreneurial firms*

Operating in a country with a developing economy and a continuously weakening agriculture sector, Sri Lankan agriculture food processing MSEs face a variety of sources of risks. However, these sources of risks may provide both opportunities and threats for food processing firms depending on the way they were perceived, interpreted and responded to by the firm owner. The same source of risk may be perceived as an opportunity as they deliver advantages to the firm while it may be perceived as a threat if it delivers disadvantages to the firm. Thirty-one sources of risks under nine major risk categories were studied for their perceived opportunity/threat impact and likelihood of occurrence in near future. This concept of seeing a risk as both an opportunity and a threat is a notable feature of this study, specially under the Sri Lankan context.

Previous literature were often biased towards the negative or the downside impact of risks as they failed to grasp the opportunities that risks can deliver (McElwee, 2006; Pinochet-Chateau et al., 2005). The definition of entrepreneurial firms used in this study, "an entrepreneurial firm is one that engages in product market innovation, undertakes somewhat risky ventures, and is first to come up with

“proactive” innovations, beating competitors to the punch” (D. Miller, 1983, p. 771) shows that entrepreneurial firms always tend to see and seize the opportunities where possible. This feature was also highlighted earlier under the discussion of risk propensity attributes of entrepreneurial firms where they always had the tendency to pursue opportunities by assuming risks. Therefore, an entrepreneurial firm will not just perceive the threats of the given source of risk, but they will attempt to exploit the opportunities where possible. Hence, considering sources of risks only as threats will deliver only half of the story and that will not capture the true entrepreneurial risk behaviour. Talavera (2004) stated that, focusing only on downside risks could cause a firm to overlook opportunities to create value; risk management should involve assessing both potential and exposure. Only a few studies including Detre et al. (2006), Nottingham (1996), Talavera (2004) and Shadbolt et al. (2010) have considered the opportunity potential of the risks and uncertainties in the business and farm environments.

While explaining about different classifications of risks, Jayathilake (2012) who investigated the risk management practices in SMEs in Sri Lanka quoted Mowbray and Blanchard (1979) to explain static and dynamic risks. The author explained that static risks are the ones that cause only damages without the opportunity of earning from their occurrence. They are always negative and have the characteristics of being unexpected because they are determined by accidental events. In contrary, dynamic risks are those that can cause either damages or earning opportunities and are termed “typical entrepreneurial risks” (Mowbray & Blanchard, 1979). However, no further discussion or investigation of these static and dynamic risks were not discussed by Jayathilake (2012) in-relation to the context of Sri Lankan SMEs. Given there is limited evidence that considered both sides of the risks, this study provides important implications for the Sri Lankan agriculture food processing sector. As explained under the quantitative results chapter, these impact and likelihood responses were combined to derive a risk perception score and it was used to compare between the risk perceptions of entrepreneurial and non-entrepreneurial firms.

The perception differences between entrepreneurial and non-entrepreneurial firms were not found to be strong as their risk propensity differences discussed earlier. However, entrepreneurial firms perceived more opportunities than non-entrepreneurial firms out of certain sources of risks. This differentiation provides an important piece of information about entrepreneurial firms as it reinforces the proactive and opportunity seeking behaviour of entrepreneurial firms in the face of risks. Out of 31 sources of risks studied, 20 were different between the two firm groups when they were perceived as opportunities and only 14 were resulted when they were perceived as threats. Positive mean score differences under opportunity perceptions confirmed that entrepreneurial firms perceived more opportunities than non-entrepreneurial firms. Again, referring to the EO screening test, proactiveness

was one of the key dimensions that differentiated entrepreneurial firms from their non-entrepreneurial counterparts. Therefore, it is not really surprising to see that entrepreneurial firms perceiving more opportunities from the same sources of risks than non-entrepreneurial firms. However, it is important to note the consistency of entrepreneurial firms in both their risk propensity and risk perception. Under risk propensity they showed an opportunity-oriented risk seeking nature while under risk perception they were able to perceive more opportunities from sources of risks.

According to the study, product-related market sources of risks were able to explain the majority of the variance of both perceived opportunities and threats of these small-scale food processing firms. Thereby, product-related market risks could be identified as the mostly perceived source of risk by these firms. Strategic and input-related market risks and political risks were able to explain the second majority of variance when they were perceived as opportunities and threats respectively. This pattern of risk perceptions were evident in literature where market risk was identified as the mostly perceived source of risk among entrepreneurial firms and SMEs (Kozubíková, Belás, Bilan, & Bartoš, 2015; Ratas & Nurmet, 2017). The studies conducted in Asian context, Ahsan (2011) and Iqbal et al. (2020) also found out that market risks such as ; input prices, involvement of intermediaries, and uncertain demand are the mostly perceived sources of risks by farming families. Moreover, Kozubíková et al. (2015) also found that this perceived market risk was not significantly different among two types of entrepreneurs investigated namely; entrepreneurs-artists (i.e. entrepreneurs who are risk-takers, creative, intuitive and optimistic) and entrepreneurs-laborers (i.e. entrepreneurs who had perseverance, expertise, quality education, responsibility, determination, and patience). Jayathilake (2012) in their study on risk management of Sri Lankan manufacturing SMEs also reported that strategic risks which come from competitors, customers and from the external environment are the most highly perceived category of risk compared to the operational and financial risks since they operate in the industry which characterizes competition. Some of the risks that Jayathilake (2012) identified as strategic were categorised as product-market risks in this study (i.e. competition, local demand).

Once the perception differences between the two groups were understood, the four risk perception variables were used to understand whether they play a role in determining the entrepreneurial/non-entrepreneurial status of these micro and small-scale food processing firms. This step was important to identify the most important combination of risk-related variables that could determine the probability of a firm being entrepreneurial. Out of four risk perception variables, only the 'perceived opportunities of strategic and input-related market risk sources' was significantly but negatively associated with the outcome variable. Only one out of four perception variables were significant and the significant variable also negatively contributed towards the probability of a firm being

entrepreneurial. The sign of the coefficient is also contradicted with general assumptions made about this entrepreneurial firms as from the beginning of the study the entrepreneurial firms characterised as seeing/perceiving more opportunities and exploiting them. The negative sign also does not match with the behaviour of previously explained risk-related variables. This can be explained as, compared to other risk-related variables such as risk propensity and adoption of risk management strategies, risk perception does not play a key role in determining entrepreneurial/non-entrepreneurial status of firms. The way firms perceive their sources of risks whether as opportunities or threats does not contribute much to their probability of being entrepreneurial.

7.4.3.2 Influence on the adoption of risk management strategies

Out of four perceived risk variables, perceived opportunities of strategic and input-related market risk sources played a notable role at adoption of different risk management strategies. The variable was positively significant in both regression models indicating its positive influence on adoption of different risk management strategies. The relationships are explained as; when firms perceive opportunities of strategic and input-related market risk sources they tend to adopt more strategic and market risk management strategies. A reader may assume that there should be a negative relationship between the opportunity perception of risk sources with the adoption of risk management strategies as there is no need to reduce a risk if it delivers an opportunity to the firm. However, the reader must note that most of these strategies are not to 'reduce' risk but to capture and manage them effectively to get the best out of the given source of risk. For example, when firms perceive the opportunities that they can seize by creating better business relationships within the supply chain (i.e. SR2, strategic risk sources) they tend to adopt strategic risk management strategies such as SWOT analysis and business planning (i.e. risk management strategy S12 & S14) to grasp those opportunities. Moreover, risk management strategies such as; developing agreements with buyers (SR44) and spreading sales (SR36) are also adopted to seize the opportunities that arise from changing business relationships. Similar behaviours were observed at entrepreneurial case firms when they discuss how they have built their relationships with different stakeholders including government organizations, customers, and employees.

Out of the two sources of risk variables related to perceived threats (i.e. (a) product-related market risk sources and (b) political risk sources), perceived threats of product-related market risk sources were positively and significantly related to the adoption of product-related market risk management strategies. This relationship between the two variables is self-explanatory when the composition of risk sources was evaluated against the respective risk management strategies. For example, when firms perceive difficulties in finding new markets (i.e. risk source SR13) or decreasing demand from their customers (i.e. risk source SR14) they increase their tendency to monitor market trends (i.e. risk

management strategy S34) in order to manage those risks. Similarly, when firms perceive negative pressure from their competitors (i.e. risk source SR15) they begin to monitor the activities of these competitors (i.e. risk management strategy S35) to manage their actions effectively. These behaviours were observed in both entrepreneurial and non-entrepreneurial case firms during the qualitative phase. For example, Export Co. being an entrepreneurial firm decided to cater to international buyers as they realised less demand from local customers for their products. They have also found that there are new market trends for health-conscious products and food supplements as they monitor the market and demand trends. Both firm types used this demand and market trend information as they pursue new market opportunities and introduce new products to the market. A similar study conducted by Iqbal et al. (2020) on risk perception and management of Pakistani farm families reported positive associations between perceived market risks and the implementation of strategic and market risk management strategies. A study based on Bangladeshi shrimp farmers conducted by Ahsan (2011) also found similar positive associations between the perception of market risks and adoption of competitive input-market risk management strategies. However, the authors of both of these made no clear distinction between whether they have focused on perceived opportunities or threats of these sources of risks. By reviewing their results and discussions it was observed that their focus was mainly on the perceived threats of these risks and how farm families have managed and mitigated those risks (Ahsan, 2011; Iqbal et al., 2020).

It was interesting to note that these studies based on the Asian context considered political unrest and corruption-related sources of risks and discussed their perceived threats to farming and business households and also how they have managed those risks (Ahsan, 2011; Iqbal et al., 2020). This study also included a few political sources of risks and they were mostly perceived as threats by both entrepreneurial and non-entrepreneurial firms. These political risks covered a major portion of the variance of the perceived threat category too. However, when considering about the adoption of political risk management strategies, the firms seemed to act neutral rather than trying to mitigate them or convert them into opportunities. This same behaviour was observed by H. R. Gamage (2014) how small business owners perceive political influences as threats to their business but have not taken significant attempts to overcome them. The respondents of H. R. Gamage (2014) also seemed to neglect and act neutral towards them. The entrepreneurial and non-entrepreneurial case firms of the qualitative phase confirmed this behaviour of small business owners neglecting the impacts of political changes.

Based on the above discussion, highlights that perception of different sources of risks plays an important role in adoption of risk management strategies of these micro and small-scale firms in the agriculture processing sector in Sri Lanka. A similar study conducted by van Winsen et al. (2016)

assumed a positive association between risk perception and implementation of risk reducing strategies. However, they have only studied about the potential downside impacts of risks and did not consider the opportunity potential of risk sources. The results of this study showed no significant association between risk perception and risk reducing strategy implementation. In the contrary, studies carried out by Sitkin and Weingart (1995) and Keil et al. (2000) found that risk perception is a great determinant of risk behaviour. Moreover, Bergfjord (2009) found positive and significant relationships between perceptions of different risk sources and implementation of risk management strategies. However, these authors also have not considered the potential of risk sources to provide opportunities for the firms. However, these risk perceptions were not identified as an important aspect of determining the entrepreneurial status of firms. It also showed that product-related market risks were the most perceived source of risk by these small firms while strategic and political risks were also perceived as opportunities and threats where appropriate. These findings disclose important information about the risk perceptions of overall MSEs operating in the sector while it highlights certain differences how entrepreneurial firms managed to perceive more opportunities from risk sources compared to their non-entrepreneurial counterparts. The next section shows the summary of research outcomes diagrammatically.

7.5 Summary

Figure 7.1 summarises the interpretations of the results of both the qualitative and quantitative phases. As explained in the quantitative results chapter, all three risk-related aspects were subjected to the same statistical procedures and each was categorised into two firm groups consisting of different items of risk management strategies, risk propensities and perceived risk sources. These two firm groups reflected on key features of entrepreneurial and non-entrepreneurial firms in relation to the three risk-related variables. The sub-categories that were extracted based on the results of the quantitative analysis are also reflected the results of the qualitative data analysis.

The overarching research question of this study was to understand whether the entrepreneurial MSEs operating in the agriculture processing sector in Sri Lanka manage the risks any differently than non-entrepreneurial firms. Accordingly, the results of the quantitative analysis showed that the entrepreneurial firms are more oriented towards strategic planning and knowledge-related strategies while the majority of non-entrepreneurial firms adopted production, operations and market-oriented strategies. The strategic, planning and knowledge-orientation of entrepreneurial firms is attributed to their high degree of proactive behaviour compared to the non-entrepreneurial firms.

Two categories of risk propensities were also identified where entrepreneurial firms were classified as more optimistic and opportunistic risk-seekers while non-entrepreneurial firms were identified as

pessimistic, haphazard risk-takers or risk-averters. Entrepreneurial firms always showed a more positive inclination towards risks driven by their proactiveness and opportunity-orientation. Lastly, the study investigated perceived sources of risks in terms of the firm's ability to grasp the opportunities and threats arising from the same source of risk. The results of the quantitative analysis again identified two sub-categories where the category that perceived a higher number of both opportunities and threats were identified as entrepreneurial firms while the non-entrepreneurial firms were able to perceive more downside impacts (i.e. threats) of given sources of risks rather than the opportunities that could arise from them.

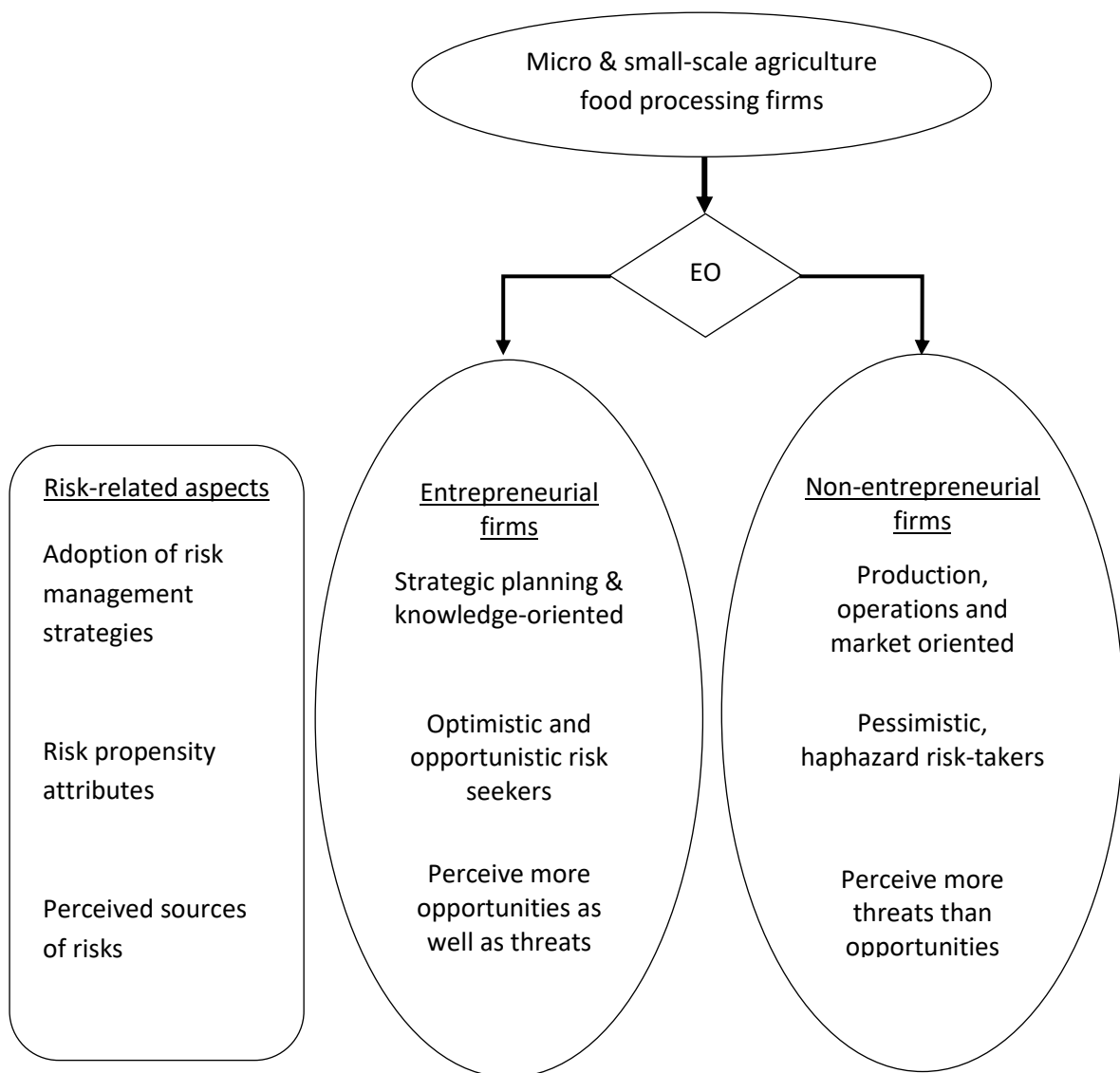


Figure 7-1. Summary of research interpretations

Chapter 8 Conclusions

8.1 Introduction

This chapter provides the conclusion of this study drawing on the findings from the preliminary study and both the qualitative and quantitative phases of the research. Following the introduction, Section 7.2 reiterates the research questions and objectives of this study. Section 7.3 sets out the main research conclusions according to the specific objectives. Section 7.4 discusses the implications of this study for key groups, while the limitations of the research are discussed in Section 7.5. The last section outlines the study's contribution to the body of knowledge and recommendations for future research.

8.2 Research questions and objectives

This study set out to investigate the overarching research question of:

“Do the entrepreneurial micro and small-scale firms (MSE) in the agriculture food processing sector in Sri Lanka manage the risks they face any differently from other non-entrepreneurial MSEs operating in the sector?” (Are they different?)

Prior to addressing this question, the first step was to determine if such entrepreneurial firms actually exist within the sector. Having confirmed their existence, the next research question was:

What factors determine the risk management behaviour of these MSEs operating in the agriculture food processing sector in Sri Lanka?

Based on these research questions, the specific objectives of this study were to:

Objective 1 - To devise a method to differentiate entrepreneurial firms from their non-entrepreneurial counterparts and use it to distinguish between the entrepreneurial and non-entrepreneurial firms among the MSEs operating in the agricultural food processing sector in Sri Lanka

Objective 2 - To explore how differently these entrepreneurial and non-entrepreneurial firms manage the risks they face by adopting different risk management strategies

Objective 3 - To identify the factors that influence the risk management behaviour of these entrepreneurial and non-entrepreneurial firms. This involved three sub-objectives;

- To identify the differences in risk propensity attributes between entrepreneurial and non-entrepreneurial firms
- To explore how the different sources of risks were perceived by entrepreneurial and non-entrepreneurial firms
- To explore the extent to which the risk propensity attributes and perceived sources of risks influence the adoption of risk management strategies within these MSEs

8.3 The research conclusions

This section links the key findings that emerged from the qualitative and quantitative phases with the research questions and objectives.

Objective 1 - To devise a method to differentiate entrepreneurial firms from their non-entrepreneurial counterparts and use it to distinguish between the entrepreneurial and non-entrepreneurial firms among the MSEs operating in the agricultural food processing sector in Sri Lanka

The preliminary study confirmed the existence of entrepreneurial and non-entrepreneurial MSEs in the agriculture food-processing sector in Sri Lanka. It confirmed the suitability of using entrepreneurial orientation constructs (Covin, 1991; Covin & Slevin, 1989; Lumpkin & Dess, 1996) to differentiate between entrepreneurial and non-entrepreneurial firms. The qualitative phase of the study investigated the differences between entrepreneurial and non-entrepreneurial firms in terms of the five EO dimensions namely, proactiveness, innovativeness, risk-taking, competitive aggressiveness, and autonomy. According to the analysis of quantitative data, out of the five dimensions studied only autonomy resulted in no significant difference between entrepreneurial and non-entrepreneurial firm groups. Being small businesses, the level and nature of autonomy shown by the firms in both firm groups were fairly similar and low compared to the other four dimensions. Thereby, proactiveness, innovativeness, risk-taking, and competitive aggressiveness were identified as more suitable EO dimensions that can be used to identify and differentiate between entrepreneurial and non-entrepreneurial firms in the Sri Lankan context while Autonomy was identified as the least useful dimension for such differentiation. As explained in the qualitative results chapter, the collectivist culture in Sri Lanka (Irfan & Ibrahim, 2016) does not seem to encourage autonomous decision-making in small firms. This study tested a five-dimensional EO approach to differentiate between two firm groups and based on the results a four-dimensional EO approach is recommended for further studies in the context of Sri Lankan MSEs.

In an amalgamation of the results of both the qualitative and quantitative phases, proactiveness was identified as the dimension that contributed most to the differentiation between entrepreneurial and non-entrepreneurial firms followed by, innovativeness, risk-taking, and competitive aggressiveness respectively. Even though competitive aggressiveness contributed significantly to differentiating between the two firm groups, the magnitude of its contribution is relatively less compared to the other three dimensions. This study also supports the literature in relation to the work of Barringer and Bluedorn (1999); (Covin & Slevin, 1991) who argued that EO is a conceptual continuum where firms range from being completely non-entrepreneurial (i.e., conservative) to entrepreneurial. Future

researchers may take this into the consideration when attempting to use EO constructs to differentiate between entrepreneurial and non-entrepreneurial firms.

Objective 2 - To explore how differently these entrepreneurial and non-entrepreneurial firms manage the risks they face by adopting different risk management strategies

As the qualitative phase explored the nature of entrepreneurial and non-entrepreneurial MSEs in the agriculture food-processing firms, the quantitative phase mainly focused on investigating the risk management differences between two firm groups using a wider sample. The study found significant differences between entrepreneurial and non-entrepreneurial firms in terms of their adoption of risk management strategies. This is a clear indication that entrepreneurial firms “do” manage their risks differently when compared to non-entrepreneurial firms. The study has highlighted that, compared to non-entrepreneurial firms, a greater proportion of entrepreneurial firms adopted a much wider range of risk management strategies across all identified categories of risk. The adoption differences were observed in all ten categories of risk management strategies, while some categories showed more prominent differences than others such as strategic and knowledge-related risk management strategies. Accordingly, entrepreneurial firms showed clear differences by adopting a higher number of knowledge-related, strategic, and product price-related market risk management strategies compared to their non-entrepreneurial counterparts. Moreover, these categories (i.e. strategic, knowledge, and product price-related market risk management strategies) were also identified to have the greatest impact on differentiating entrepreneurial firms from their non-entrepreneurial counterparts.

A much higher percentage of the entrepreneurial firms adopted knowledge and strategic risk management strategies than the non-entrepreneurial firms and the significant adoption differences between the two firm groups are in line with the expectations of the study as the two firm types were originally differentiated based on their overall EO score. As already noted during the literature review, EO is a measurement of firms’ entrepreneurial as well as strategic posture (Aloulou & Fayolle, 2005; Covin & Lumpkin, 2011; Covin & Slevin, 1989; Covin & Wales, 2012). The qualitative phase of the study showed that entrepreneurial firms were more strategically oriented compared to their non-entrepreneurial counterparts. They relied more on knowledge and learning and on different levels of planning in order to operate in a proactive manner, introduce continuous innovation, and manage the risks they faced. Therefore, entrepreneurial firms’ greater adoption of knowledge-related and strategic risk management strategies is readily explained based on the nature of their entrepreneurial and strategic orientation. The outcome of the survey also identified that the adoption of strategic and knowledge-related risk management strategies was positively influenced by the owners’ years of

formal education. This finding again strengthens the view that knowledge does play a critical role in the risk management of these small firms. The study found that the greater the level of formal education achieved by a firm owner, the greater their tendency to adopt strategic and knowledge-related risk management strategies.

The results of the quantitative phase found that both firm types had a high adoption of product price-related market risk management. However, the adoption rate of the entrepreneurial firms was significantly higher than the non-entrepreneurial firms as entrepreneurial firms produced a wide range of more innovative products compared to the non-entrepreneurial firms. The analysis also showed that the adoption of these product price-related market risk management strategies can be used as a parameter to distinguish between entrepreneurial and non-entrepreneurial firms. The discriminatory power of the market risk management strategies to differentiate between the two firm groups was not as great as the knowledge or strategic risk management strategies. Thus, further studies are recommended to investigate the suitability of these parameters to distinguish between these two firm groups.

Objective 3 - To identify the factors that influence the risk management behaviour of these entrepreneurial and non-entrepreneurial firms. This involved three sub-objectives;

- To identify the differences in risk propensity attributes between entrepreneurial and non-entrepreneurial firms
- To explore how the different sources of risks were perceived by entrepreneurial and non-entrepreneurial firms
- To explore the extent to which the risk propensity attributes and perceived sources of risks influence the adoption of risk management strategies within these MSEs

The quantitative phase has also investigated risk propensity differences and differences in perceived business risks among entrepreneurial and non-entrepreneurial firms. In line with the findings related to the adoption of risk management strategies, the two firm groups showed significant differences in their risk propensities. Further statistical analysis categorised this propensity attributes into two components that represent entrepreneurial risk propensity attributes and non-entrepreneurial risk propensity attributes. The entrepreneurial risk propensity attributes represented the firm's inclination towards risk-taking in terms of exploring new market opportunities, introducing innovation to the organization, and taking decisions that involve risk. In the contrast, non-entrepreneurial risk propensity attributes are reflected in the firm's inclination towards risk aversion in terms of feeling uncertain about the future, fear of introducing innovation, and poor planning. Again, this categorisation of risk propensity attributes aligns with the entrepreneurial and non-entrepreneurial

characteristics identified through the qualitative phase of the study. According to the EO characterises, entrepreneurial firms were opportunity seekers (i.e. proactive), who introduce continuous innovation to the organization (i.e. innovativeness) and take decisions under risky situations (i.e. risk-taking). Non-entrepreneurial firms represented the other end of the continuum being risk averse, they do not seek opportunities or foster innovation.

According to the results of the quantitative phase, these entrepreneurial risk propensity attributes were also found to strongly contribute to the differentiation between entrepreneurial and non-entrepreneurial MSEs in the agriculture food-processing firms in Sri Lanka. Again, this confirms that entrepreneurial risk (seeking) propensity or the inclination of firms to take entrepreneurial risks plays a considerable role in determining their entrepreneurial or non-entrepreneurial nature while non-entrepreneurial risk (aversion) propensity attributes showed no significant impact on differentiating entrepreneurial firms from their non-entrepreneurial counterparts.

Moreover, the adoption of strategic and knowledge-related risk management strategies was significantly but negatively affected by the non-entrepreneurial risk (averting) propensity attributes. This finding was also in line with the expectations of the study where non-entrepreneurial firms placed minimum importance on planning, strategic decision making and adopting knowledge-related aspects in managing the risks they face. The adoption of product-price related marketing risk management strategies were also significantly and negatively affected by both entrepreneurial risk (seeking) as well as non-entrepreneurial risk (averting) propensities.

The quantitative phase of the study also investigated the perceived business environment risk as a factor that influences the adoption of risk management strategies by the small firms operating in the agriculture food processing sector in Sri Lanka. The study identified thirty-one sources of risk under nine categories where the perception data were gathered on both the perceived impact of the given source of risk as an opportunity or a threat and the perception of the likelihood of this potential opportunity or threat happening within the next one to five-year period. Risk perception scores were calculated separately for opportunity and threat perceptions. The perception scores were compared between entrepreneurial and non-entrepreneurial firms. However, unlike the other two risk-related variables, the entrepreneurial and non-entrepreneurial firms appeared to perceive their sources of risks in a more similar way. However, important perception differences were noted between the two firm groups where entrepreneurial firms appeared to perceive not only the threats of these sources of risks but also more opportunities of them. On the contrary, the non-entrepreneurial firms perceived more threats of the sources of risks given. This finding highlighted the fact of entrepreneurial firms being able to see more positives or opportunities from the risks they encounter in their business

environments while perceiving the downside impacts of them too. This finding also matches the proactive and knowledge-orientated nature of entrepreneurial firms.

Statistical analysis further summarised these perceived opportunities and threats into four categories (i.e. two categories each for opportunities and threats) highlighting the most contributing factors that differentiate between entrepreneurial and non-entrepreneurial firms. However, unlike the other two risk-related variables, the contribution of both perceived opportunities and threats is of limited use for differentiating between entrepreneurial firms from their non-entrepreneurial counterparts. This was in line with the results of the primary statistical analysis that highlighted that the perceived risk sources were fairly similar between entrepreneurial and non-entrepreneurial firms. Out of the four perceived risk variables used in the analysis, only perceived opportunities of strategic and input-related market risk sources resulted in a significant and weak negative impact on the differentiation of entrepreneurial and non-entrepreneurial firms.

Moreover, according to the results of the survey data analysis, the adoption of strategic and knowledge-related risk management strategies was positively influenced by the perceived opportunities of strategic risk sources. The adoption of product-price related market risk management strategies was also positively influenced by both perceived opportunities of strategic sources of risks and perceived threats of product-price related market risk sources. However, the magnitude of all these positive influences is fairly small in the adoption of both types of risk management strategies.

The next section of this chapter presents the practical implications of this study.

8.4 Implications of the research

The findings from this study suggest important practical implications for firm owners, policymakers, and scholars in the field of entrepreneurship and risk management. These implications are discussed below.

Distinguishing MSE owners using well-established criteria like EO is a significant contribution of this study to the body of knowledge and it also provides important implications for the firm owners as well as to the policymakers who are responsible for making policy decisions in relation to the MSME sector in Sri Lanka. As revealed during the literature review, a lack of proper definition or identification of entrepreneurial firms is a major setback in the MSME sector where many scholars have treated the term entrepreneurial firms as synonymous with the MSMEs or small businesses (Swoboda & Olejnik, 2016). Based on the results, this study found that only one-third of the micro and small-scale firms operating in the agriculture processing sector in Sri Lanka can be considered entrepreneurial while the majority of the firms mainly are identified as non-entrepreneurial MSEs. These two groups showed clear differences in their strategic posture, especially in terms of their level of proactiveness,

innovativeness, competitive aggressiveness, and risk-taking. Therefore, such an evaluation is important for firm owners to understand their exact location on the entrepreneurial-non-entrepreneurial continuum. Policymakers in the MSME sector can use this information to formulate their policies more specifically to support the entrepreneurial and non-entrepreneurial firms operating in the sector.

The key finding of this study is that the entrepreneurial MSEs operating in the agriculture food processing sector in Sri Lanka manage the risks they face differently to their non-entrepreneurial counterparts. The majority of the entrepreneurial firms adopted a considerable number of strategic and knowledge-related risk management strategies compared to the non-entrepreneurial firms. Hence the adoption of strategic and knowledge-related risk management strategies was identified as a major determinant that can be used to differentiate between entrepreneurial and non-entrepreneurial firms. This again gives a clear indication to the policymakers about the strategic and knowledge-oriented nature of entrepreneurial firms. When drafting new policies, or organising support interventions such as training programmes, these differences can be taken into the consideration to increase the impact of their programmes.

Moreover, the study showed that the adoption of different risk management strategies plays a significant role in determining the entrepreneurial/ non-entrepreneurial firms rather than their risk propensity attributes or perceived sources of risks. Thereby, it is clear that what firms actually “do” in managing risk particularly determines their entrepreneurial status rather than what they “think or perceive”. This information is also beneficial for the policy makers when they develop policies, especially for the MSME sector.

The findings of this study also highlighted that non-entrepreneurial MSEs are less proactive, innovative, and competitively aggressive than their entrepreneurial counterparts. Moreover, they showed more of a risk averting propensity along with poor adoption of strategic and knowledge-related risk management strategies. This highlights the importance of providing training and education for non-entrepreneurial firms in both their specific technical domains as well as in different aspects of business management. The majority of the business establishments in Sri Lanka are MSMEs (ASI, 2019) which are mostly non-entrepreneurial. The policymakers focusing only on the entrepreneurial firms when drafting development policies may affect negatively on the majority, the non-entrepreneurial firms. Hence, they need to refocus their programmes to meet the specific and different needs of non-entrepreneurial firms.

The next section of the chapter describes the limitations of the study, especially in relation to the methodology adopted in the study and regarding the areas that future researchers can focus on for improvements.

8.5 Limitations of the study

This study adopted an explanatory sequential mixed method approach consisting of a qualitative phase designed to explore the context followed by the quantitative phase to investigate further and generalise the findings. While the combination of qualitative and quantitative methodologies significantly improved the quality and validity of the research, it was not free from limitations.

According to the general procedure of mixed-method approaches, the qualitative phase is usually conducted to inform the survey and instrument development. However, this study adopted a slightly different approach where the findings of the qualitative phase were not only used to develop the survey instrument but also used to explore more on the level and nature of entrepreneurial orientation of these small firms. therefore, the qualitative data analysis (i.e. within-case and cross-case) focuses on exploring and comparing the five dimensions of EO between entrepreneurial and non-entrepreneurial case firms. Risk-related information was also gathered through qualitative data collection but not incorporated into the results of the qualitative phase.

Moreover, due to time and operational constraints, only four case firms were used in the qualitative phase of the study. This has affected the interpretation and discussion phase, as it was difficult to make more generalised comments by considering only two firms in one group. Therefore, future researchers are advised to use a higher number of case firms in such studies to broaden the understanding of the subject.

Obtaining an adequate sampling frame was identified as a major limitation of this study. Regardless of the importance of the MSME sector to the economic development of the country, Sri Lanka has no proper mechanism for maintaining the details of these MSMEs in an organised database system. Therefore, the study had to follow various sampling methods to reach an adequate number of firms for the survey. Even though simple random sampling is recommended for such generalisations of research outcomes, this study had to use purposive sampling through personal contacts to reach MSEs.

The common research and data collection limitations such as time and cost also were concerns. Future researchers are recommended to use financial incentives for small firm owners to encourage their voluntary participation in the study. Moreover, certain firm owners were reluctant to provide information assuming that information can be misused or assuming that they will have to pay income

taxes after disclosing such information. It was important to convince them regarding the data and respondent protection policies repeatedly.

The next section of this chapter discusses the contribution of this study to the body of knowledge along with suggestions for future research.

8.6 Contributions and future research

This study contributes to the body of knowledge in two main areas namely, entrepreneurial orientation and entrepreneurial risk management. The contributions to these two fields of knowledge are again in two folds as theoretical and empirical.

The study adopted a modified EO scale to differentiate between entrepreneurial and non-entrepreneurial MSEs operating in the agriculture processing sector in Sri Lanka. According to the literature, only a few studies have used the EO approach to distinguish between entrepreneurial firms (or entrepreneurs) and their non-entrepreneurial counterparts (Baker, Grinstein, & Harmancioglu, 2016; Barringer & Bluedorn, 1999; Covin, Green, & Slevin, 2006). However, none of these studies have used the five-dimensional EO approach to distinguish between the two firm groups and all of these studies were conducted in a Western and developed country contexts. Thereby, this present study adds to the body of literature as a study that investigated the suitability of the five-dimensional EO approach to differentiate between entrepreneurial and non-entrepreneurial firms, especially from a developing country context. Moreover, the study also showed that out of the five EO dimensions, autonomy is not a suitable dimension to differentiate entrepreneurial and non-entrepreneurial firms in the context of this research. Hence, a four-dimensional EO approach was identified as more suitable. As there is a paucity of studies that employed the entire five-dimensional EO approach in differentiating between the two firm types, further studies are recommended to explore the role of autonomous behaviour of firms in determining their level of EO under both developed and developing country contexts.

The relationship between entrepreneurship and risk has a long history starting from Cantillon (1734) who first used the term entrepreneurship in relation to businesses. Despite this history, according to a review of the literature, there were not many studies that considered a variety of risk-related variables in one study. Moreover, compared to risk propensity attributes and risk perceptions, the adoption of risk management strategies is identified as an under-studied area of risk in the entrepreneurship literature. Therefore, this study expands the body of knowledge by investigating the risk management of small businesses in terms of their adoption of risk management strategies. Moreover, the uniqueness of this study is that it not only investigated risk management by entrepreneurial firms but also compared it with a group of non-entrepreneurial firms. This is the most

significant contribution of this study as it compares the adoption of risk management strategies by entrepreneurial and non-entrepreneurial firms along with other risk-related variables namely risk propensity and perceived sources of risks. Hence, the findings of this study contribute to the entrepreneurial literature by broadening its understanding of how entrepreneurial firms manage the risks they face in comparison to non-entrepreneurial firms. It complies with the current body of knowledge on entrepreneurs are risk takers but broaden the understanding of entrepreneurs by highlighting that they are better risk managers compared to non-entrepreneurs.

Further to above findings, the study contributed to the body of knowledge on the learning and strategic orientation of entrepreneurial firms. Another notable finding of this study is that the risk propensity, risk perception and the overall risk management of entrepreneurial firms is always supported and strengthened by their strategic and learning orientation. This was highlighted by the findings of the qualitative phase where proactiveness along with strong inclination towards strategic planning was identified as the mostly contributed dimension towards the differentiation between two firm groups. Findings of the quantitative phase were also compatible with the findings of the qualitative phase where, more entrepreneurial firms adopted strategic and knowledge-related risk management strategies to manage the risks they face.

This study disregarded the common standpoint that risks can only pose negative impacts (Hardaker, Richardson, Lien, & Schumann, 2004; Miller, Dobbins, Pritchett, Boehlje, & Ehmke, 2004; Moschini & Hennessy, 2001) on a business firm. The risks encountered in the internal and external business environments could be perceived in two different ways: either as opportunities or threats or as both depending on the circumstances (Detre, Briggeman, Boehlje, & Gray, 2006; Pinochet-Chateau, Shadbolt, Holmes, & Lopez-Villalobos, 2005; Shadbolt, Olubode-Awosola, Gray, & Dooley, 2010; Talavera, 2004). The same source of risk may be perceived as an opportunity as they deliver advantages to the firm while it may be perceived as a threat if it delivers disadvantages to the firm. Investigation into these two types of risk perceptions can be identified as significant contributions to the body of knowledge as there were a limited number of studies that followed the same approach. The existing studies that have made this differentiation are from the farm management literature rather than entrepreneurship literature. Therefore, this study contributes to the literature by investigating not only the downside impacts but also the upside potential of perceived sources of risks in relation to MSMEs in a developing country context. This also paves the way for future research as certain scholars still struggle to grasp the opportunities that risks can deliver (Chavas, 2004).

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Appendices

Appendix I – Entrepreneurial Orientation Screening Questionnaire Questionnaire I for Screening Entrepreneurs

Business information

01	Name of the owner				
02	Name of the business				
03	Address				
04	Telephone				
05	Email (if available)				
06	DS division				
07	Type of business	Family owned		Family owned and managed	
		Family involved as employees		Non-family	
08	No of employees	Family #		Non-family #	
09	Nature of business	Fruit processing		Vegetable processing	
		Fruit & vegetable processing		Essential oils	
		Dairy processing		Other processed foods	
10	Product range				

Measuring Scales of EO

1- Strongly disagree; 5 – Strongly agree

Innovativeness		1	2	3	4	5
11	In my firm during last five years, very many new product lines introduced/marketed					
12	In my firm, changes in product lines have been mostly of being quite dramatic (new to the industry/new to the world)					
13	In my firm during last five years, many new processing methods introduced					
14	In my firm during last five years, many new marketing approaches introduced					
15	In my firm during last five years, many new administration/management approaches introduced					
16	In my firm, there is a long-term commitment to invest in new technology, R&D, and continuous improvement					
17	My firm actively introduces improvements and innovations					
18	My firm is creative in its methods of operation					
19	My firm seeks out new ways to do things					
Risk-taking						
RT1	My firm invests in high risk projects (with chances of very high return)					
RT2	My firm adopts a bold, wide-ranging acts necessary to achieve the firm's objectives					

RT3*	My firm believes that it is best to explore the environment in a gradual, timid and incremental behaviour						
RT4	My firm commits a large portion of its resources in order to grow						
RT5	My firm invests in major projects through heavy borrowing						
RT6	In my firm, people in our business are encouraged to take calculated risks with new ideas						
RT7	My firm emphasizes both exploration and experimentation for opportunities						
RT8*	My firm adopts a cautious 'wait-and-see' posture in order to minimize the probability of making costly decisions (opposite is being bold and aggressing in exploiting opportunities)						
Proactiveness							
P1	My firm typically initiating action which the competition then responds to						
P2	My firm is very often the first business to introduce new products, administrative techniques, operating technologies, etc.						
P3	My firm is close monitoring of technological trends and identifying future needs of customers						
P4	My firm excel at identifying opportunities						
P5*	My firm usually seeks to avoid competition and prefers a "live-and-let-live" posture (opposite is 'undo-the-competitors')						
Autonomy							
A1	My firm supports the efforts of individuals and/or teams that work autonomously						
A2	In my firm, the best results occur when individuals and/or teams decide for themselves what business opportunities to pursue						
A3	In my firm, individuals and/or teams pursuing business opportunities make decisions on their own without constantly referring to their supervisors						
A4	In my firm, employee initiatives and input play a major role in identifying and selecting the entrepreneurial opportunities						
A5*	My firm usually seeks advises from experts (eg: NEDA officers) when making decisions						
Competitive aggressiveness							
CA1	My firm typically seeks to a competitive "undo-the-competitors" posture						
CA2	My firm is very aggressive and intensely competitive						
CA3	My firm adopts a price-cutting strategy to enhance a competitive position						
CA4	My firm copies the business practices or techniques of successful competitors to enhance a competitive position						
CA5	My firm use of unconventional strategies to challenge competitors						

* Reverse statements

Appendix II – Approval of Massey University Human Ethics Committee for Preliminary Study



Dr Brian Finch
Chair, Human Ethics Chairs' Committee and Director (Research Ethics)

Date: 26 January 2018

Dear Anjalee Ganegoda Hewage

Re: Ethics Notification - **4000018878 - Entrepreneurial Risk Management Behaviour of the Micro and Small Scale Firms in Agriculture Processing Sector in Sri Lanka**

Thank you for your notification which you have assessed as Low Risk.

Your project has been recorded in our system which is reported in the Annual Report of the Massey University Human Ethics Committee.

The low risk notification for this project is valid for a maximum of three years.

If situations subsequently occur which cause you to reconsider your ethical analysis, please go to <http://rims.massey.ac.nz> and register the changes in order that they be assessed as safe to proceed.

Please note that travel undertaken by students must be approved by the supervisor and the relevant Pro Vice-Chancellor and be in accordance with the Policy and Procedures for Course-Related Student Travel Overseas. In addition, the supervisor must advise the University's Insurance Officer.

A reminder to include the following statement on all public documents:

"This project has been evaluated by peer review and judged to be low risk. Consequently, it has not been reviewed by one of the University's Human Ethics Committees. The researcher(s) named in this document are responsible for the ethical conduct of this research.

If you have any concerns about the conduct of this research that you want to raise with someone other than the researcher(s), please contact Dr Brian Finch, Director - Ethics, telephone 06 3569099 ext 86015, email humanethics@massey.ac.nz.

Please note, if a sponsoring organisation, funding authority or a journal in which you wish to publish requires evidence of committee approval (with an approval number), you will have to complete the application form again, answering "yes" to the publication question to provide more information for one of the University's Human Ethics Committees. You should also note that such an approval can only be provided prior to the commencement of the research.

Yours sincerely

Appendix III – Information sheet

Entrepreneurial Risk Management Behaviour of the Micro and Small Scale Firms in the Agriculture Processing Sector in Sri Lanka

Researcher(s) Introduction

I am G. H. Ishara Anjalee and I am currently undertaking a PhD in the College of Sciences at Massey University. My research supervisors are Prof. Nicola Shadbolt, Dr. David Gray from the Institute of Agriculture and Environment (IAE), Massey University and Associate Prof. Christine Woods from the University of Auckland. My research project is titled: "Entrepreneurial Risk Management Behaviour of the Micro and Small Scale Firms (MSEs) in Agriculture Processing Sector in Sri Lanka". The study seeks to understand the risk management behaviour of the micro and small-scale firm owners in the agriculture processing sector in Sri Lanka along with the understanding of the extent to which the firm owners act entrepreneurial.

Participant Identification and Recruitment

I am seeking your input into this research because you are an owner of an agriculture food processing firm. Therefore, you have a professional position in the industry, and you have knowledge and experience that is likely to be of value to the research.

Project Procedures

For the first phase of this research project, around 5-10 MSE firm owners will be identified with the help of the Development Officers of the National Enterprise Development Authority (NEDA), Sri Lanka. They will be interviewed with the aid of a questionnaire designed with the purpose of understanding the extent to which they act entrepreneurial in the way of managing and operating their business. The questions are designed to understand the existence of five entrepreneurial orientation dimensions; autonomy, competitive aggressiveness, innovativeness, risk-taking behaviour and proactiveness. The questionnaire is designed to take about 30-40 minutes of respondents' time and they can choose not to answer a question should they prefer not to do so. At the end of the interview, a detailed discussion will be held with the respondent regarding the risk management aspects; sources of risk, attitudes towards risk, risk management strategies etc. and the discussion will take another 45-60 minutes. The outcome of this phase will be used to design the second phase of the study regarding the risk management behaviour of the MSE owners.

With your agreement, the interview will be tape-recorded to ensure accuracy in data collection and to assist the data analysis process. The recordings and summary will be stored as digital files. Interviews will be undertaken at a time and location that is agreed to by you. Interviews will be a maximum of 90 minutes. You will be provided with a copy of the transcript to ensure that you are satisfied with what is included in the thesis. You will also have the opportunity to amend the transcript if required.

Only researchers on the project will be privy to information such as questionnaire responses, tapes and interview transcripts. Unless consent is given, your name and identity will not be stated explicitly in the research. No data linked to an individual's identity will be published and only relatively generic information on you and your business will be provided to minimise the likelihood of your being identified.

Participant's Rights

You are under no obligation to accept this invitation. If you decide to participate, you have the right to:

- Decline to answer any particular question in the questionnaire;
- Decline to answer any particular question during the interview;
- Ask for the recording to be suspended at any time during the interview;
- Ask any questions about the study at any time during participation;
- Be given access to the interview recording should you want this, and a copy of the transcript, with the right to modify the transcript within two weeks of receiving this;
- Withdraw from the study up to two weeks after receiving the transcript;
- Provide information with the expectation that your name will not be used in reporting;
- Be given access to a summary of the project findings when it is concluded.

Project Contacts

If you have any questions about the project, please contact the researcher and/or the supervisors:

Ishara Anjalee, A.G.Hewage@massey.ac.nz ; phone 06 356 9099 ext. 85684;

Professor Nicola Shadbolt, N.M.Shadbolt@massey.ac.nz

Dr. David Gray, D.I.Gray@massey.ac.nz

Associate Prof. Christine Woods, cr.woods@auckland.ac.nz

This project has been evaluated by peer review and judged to be low risk (Ethics Notification Number: 4000018878). Consequently, it has not been reviewed by one of the University's Human Ethics Committees. The researcher(s) named in this document are responsible for the ethical conduct of this research. If you have any concerns about the conduct of this research that you want to raise with someone other than the researcher(s), please contact Dr Brian Finch, Director (Research Ethics), email humanethics@massey.ac.nz.

Yours sincerely,

G.H. Ishara Anjalee

Appendix V – Interview protocol – Qualitative phase

1. Provide me with a brief history of your firm and your business experience and they key points in time that influenced the development of your business

Probes:

- When did you start (if the business is started by you)?
- Or... when you inherited this business and describe the process of succession.
- How long have you been on this business and how long have you been on the field of business?
- Who are the key people in your business?
- What motivated you to start this business or to become a business person?
- What is your main source of income? (Are you engaged with any employment or any other business areas?)
- Do you have any educational qualifications related to business management?
- How many businesses do you have?

2. Tell me about your business

Probes:

- Explain the nature of production that you are into.
- Is there any specific feature that makes your business unique? (product type, production process)
- What is your perception of managing this business? (Normal, Difficult)
- Do you get any help from other parties (family or non-family experts) for decision making?
- Do you have a mentor or mentors?
- Did you draft a proper business plan prior to starting this business?
- What are the planning time frames (periods) you use for your short-term goals? (For example: one season. One year)
- What are the planning time frames (periods) you use for your long-term goals? (For example: 3 years – 5 years or more)
- What are your short-term and long-term goals?
- Please describe the path to achieve the above goals, briefly.
- Would you classify your debt levels as low, moderate or high?
- Would you classify your profitability as low, moderate or high?

- Where do you see your business in the next 5 years?

3. Tell me about the environment of your business

Probes:

- How do you feel about introducing new products to the market and explain the process that you follow when you firstly devise a new product and then introduce them.
- Do you like to approach new markets and if so, how you do it?
- What are your ways of dealing with competition?
- How do you scan the environment to identify possible threats and opportunities to your business?
- How important are social networks to your business and how do you use them?

4. Tell me about the involvement of your family in your business

Probes:

- Explain about the composition of labour in terms of family & non-family members and the roles family members play in your business.
- How is the management/decision making is done? (alone vs. with family members)
- Do you have any plans to involve family members in the business in the future as employees, investors or decision makers?
- Do you have any plans on the succession process for your business?

5. Tell me about the sources of risk/uncertainties or the changes that you face over the time

Probes:

- What have been the most important changes for your business during last 3-5 years? (eg: financial, technology, market, people, natural, political)
- How did you manage these changes?
- What were the key items helping you cope with these situations?
- What is your perception about those changes; did they affect positively or negatively on your business?

- Have there been any regulation/policies changes, which have affected your business in past 3-5 years?
- What were your reactions towards the policy changes?
- What changes that you would expect to face in next 3 years of your business?
- Do you have any planned strategies to face those changes if they happen in future?
- How do you identify changes in your operating environment that may impact on your business?
- How do you know when to respond to such changes?

6. Tell me how you cope with changes that you face over the time

Probes:

- How you handle the change/s in long-term?
- What factors affect your decisions to manage those changes?
- What are your priorities in the long-term when you face a serious disturbance?
Why?
- How flexible are your plans in long-term?
- What are the important sources of flexibility in your business?

Appendix VI – Approval of human ethics committee for qualitative and quantitative data collection

Date: 12 July 2018

Dear Anjalee Ganegoda Hewage

Ethics Notification Number: 4000019803

Title: Entrepreneurial Risk Management Behaviour of the Micro and Small Scale Firms in Agriculture Processing Sector in Sri Lanka

Thank you for your notification which you have assessed as Low Risk.

Your project has been recorded in our system which is reported in the Annual Report of the Massey University Human Ethics Committee.

The low risk notification for this project is valid for a maximum of three years.

Please note that travel undertaken by students must be approved by the supervisor and the relevant Pro Vice-Chancellor and be in accordance with the Policy and Procedures for Course-Related Student Travel Overseas. In addition, the supervisor must advise the University's Insurance Officer.

A reminder to include the following statement on all public documents:

"This project has been evaluated by peer review and judged to be low risk. Consequently it has not been reviewed by one of the University's Human Ethics Committees. The researcher(s) named in this document are responsible for the ethical conduct of this research.

If you have any concerns about the conduct of this research that you want to raise with someone other than the researcher(s), please contact Professor Craig Johnson, Director (Research Ethics), email humanethics@massey.ac.nz. "

Please note that if a sponsoring organisation, funding authority or a journal in which you wish to publish require evidence of committee approval (with an approval number), you will have to complete the application form again answering "yes" to the publication question to provide more information to go before one of the University's Human Ethics Committees. You should also note that such an approval can only be provided prior to the commencement of the research.

You are reminded that staff researchers and supervisors are fully responsible for ensuring that the information in the low risk notification has met the requirements and guidelines for submission of a low risk notification.

Yours sincerely

Professor Craig Johnson
Chair, Human Ethics Chairs' Committee and
Director (Research Ethics)

Appendix VII – Cross-case report (between entrepreneurial firms)

Cross-case analysis report 01

1. Introduction

This section outlines the results of the cross-case analysis carried out between two entrepreneurial case firms; Spice Co. and Export Co. The chapter begins with a comparison of the descriptive parameters between the two firms in terms of firm and firm-owner characteristics. The entrepreneurial orientation (EO) of two firms are then compared and contrasted. These results will be presented based on the order of the ranking of the five EO dimensions. The practices and strategies related to the individual EO dimensions will be discussed and compared between two firms.

2. A descriptive comparison of two cases

According to the classification of firm types used in the Annual Survey of Industries, Sri Lanka (ASI, 2015) Spice Co. is classified as a firm that produces “other process foods” while Export Co. is classified under two categories; “processed fruit and vegetables” and “other processed foods” (Table 1). In terms of the legal business structure, both firms started their business operations as sole-proprietorships. However, Spice Co. was later upgraded to a private limited liability company, whereas Export Co. has remained as a sole proprietorship. Spice Co. is governed by a board of three directors with the Chief Executive Officer (CEO) reporting directly to the board. Mr. Perera, the founder of Spice Co. is the CEO and severs as a member of the board. The board members are the owners of Spice Co. In contrast, Export Co. is a family firm managed by a married couple; Mr. and Mrs. Silva. However, they do have plans to convert Export Co. to a private limited liability company in 2019.

Seven staff members are employed at Spice Co. and none of these were family members (Table 1). At Export Co., five staff are employed, of which two are family members. At both of these firms, the majority of employees are on contract. At Spice Co. five out of seven employees are on contract while all five employees at Export Co. are on contract. The firms operated in two different provinces in Sri Lanka in which both firms enjoyed strategic advantages due to the geographical location. Spice Co. is located in the Kandy district of the Central province which is known as the spice-hub of Sri Lanka. The location enabled easy access to a variety of spices, and it is also considered one of the most popular tourist destinations in the world with both cultural and natural attractions. The district has a large number of tourist hotels and restaurants so it provided an ideal market for Spice Co. Conversely, Export Co. is located in Colombo, the capital city of Sri Lanka. This gave the firm access to more sophisticated markets, easy access to modern technology and improved infrastructure that is suitable for an online business.

Spice Co. is a diversified business which operates in two distinct business fields; spice processing and the production of innovative machinery (Table 1). In contrast, Export Co. has diversified its product range into different food categories within the fruit and vegetable processing category. Spice Co. primarily serves the domestic market, particularly high-end tourist hotels whereas Export Co. serves the international market through an online channel. As the secondary markets, both Spice Co. and Export Co. started to serve the normal domestic customers through selected supermarkets and retail outlets.

Table 1. A summary of the key characteristics of the two cases

	Characteristic	Description	
		Spice Co.	Export Co.
Firm	Firm type/category	Other processed foods (i.e. Spice processing)	Processed fruit and vegetables Other processed foods (i.e. spices)
	Business structure	Private limited liability company	Sole-proprietorship
	Management	CEO and a board of directors	Family managed (husband and wife)
	Number of employees	Seven (two permanent and five on contract, non-family)	Five (two family and three non-family on contract basis)
	Location	Kandy District, Central province	Colombo District, Western province
	Years of operation	Four years	Nine years
	Product range	Spices, Innovative processing machinery	Dehydrated fruit and vegetables, Spices, Herbal tea blends, Herbal porridge mixtures and Herbal capsules
	Market	Primary – Domestic hotel sector (star grade) Secondary – International	Primary – International Secondary – Domestic (High-income urban consumers, supermarkets)
Entrepreneur/ founder (CEO)	Age	Late twenties	Mid-thirties
	Education	Degree level (Engineering)	Degree level (IT)
	Business motivation	To become an innovative business-person Seeing the market opportunity	Seeing the market opportunity
	Involvement with the business	Part-time (Engineer by profession)	Part-time (Owns another business firm)
Level of EO		4.09	4.06

The entrepreneurs from both firms were middle-aged adults with university degrees (Table 1). Neither of them had business-related degrees or other qualifications related to business. Both had started their businesses primarily to seize an opportunities in the market. The owner of Spice CO. always had a passion to become an innovative business-person. Importantly, both owners only work part-time at their firm. They also have other had sources of income where Mr. Perera is an engineer by profession and designer and producer of machines. Mr. and Mrs. Silva have a well-established IT firm that they run. Both firms' owners scored highly for their overall EO score and this is discussed in the following section.

3. Entrepreneurial orientation

This section presents the outcome of the cross-case analysis in terms of the entrepreneurial orientation of the two firms. The practices and processes used by the two firms to seize opportunities in the market, to introduce novelty, challenge industry rivals, take risks and make autonomous decisions are discussed and compared. In terms of the five EO dimensions, the scores from the two firms ranked them in the same order starting with proactiveness followed by innovativeness, competitive aggressiveness, risk-taking and autonomy. Hence, discussion will follow the same order.

3.1. Proactiveness

Proactiveness is commonly understood as an entrepreneurial dimension closely associated with how firms relate to market opportunities by seizing initiative in the marketplace. As noted under the case description, both Spice Co. and Export Co. were initiated as result of their founders' strong passion and commitment towards seizing market opportunities. The EO scores for Proactiveness for both Spice Co. and Export Co. ranked it their highest OE with them scoring 4.5 and 5.0 out of five respectively. Table 2 shows the comparison of scores provided by the owners of two firms for the proactiveness statements. Interestingly, the proactive behaviour of two firms is prominent from the business start-up period until developing their businesses to the current level.

Table 2. A comparison of cases' scores for the proactiveness statements

No	Statement	Score	
		Spice Co.	Export Co.
P1	My firm typically initiates action which the competition then responds to	4	5
P2	My firm is very often the first business to introduce new products, administrative techniques, operating technologies, etc.	4	5

P3	My firm is closely monitoring technological trends and identifying the future needs of customers	5	5
P4	My firm excels at identifying opportunities	5	5

As reflected by the individual statement scores in Table 2, both firms scored agree or strongly agree for all proactiveness measurements. Both Spice Co. and Export Co. came up with several new products and processes that were new to the Sri Lankan processed-food market. The owners of both firms stated that they were being very cautious in introducing new products to the market as there was a high risk of being copied by their competitors. Both Spice Co. and Export Co. are technology-oriented firms. This feature is especially prominent at Spice Co. as Mr. Perera is an engineer skilled in automation. Both firms spend significantly on R & D activities related to new products and process development. Moreover, both of these firms were very concerned about future consumer needs and changes in market demand. Table 3 compare and contrast several examples of Spice Co. and Export Co. acting proactive in the past.

Table 3. Incidences of proactiveness

	Spice Co./ Mr. Perera	Export Co./ Mr & Mrs. Silva
Start-up motivation	To support father's spice processing and marketing	To support Mr. Silva's father with spice (cinnamon in particular) marketing
Identifying and seizing market opportunities	Able to recognize not only his father but all the spice growers in the area face the issues of spice drying and marketing. Hence, two lines of businesses; machinery and spice marketing.	Started as a domestic spice marketing firm, but later identified the opportunities in the international market through online platforms with less competition.
First mover attempts	Introduced new products and processing methods	Introduced new products (dehydrated fruit and vegetables)
Technology orientation	Always seeking new technology and improved processing methods High investment in time and money for R & D	Continually developing and introducing new products Continuous effort is put into R & D

The start-up stories of Spice Co. and Export Co. are quite similar where both had fathers in the spice sector and both identified market opportunities related to problems faced by their father's businesses which they converted into profitable ventures (Table 3). It was also interesting to note that both of these entrepreneurs were university graduates, but in degrees unrelated degrees to production or business management. However, they used the expertise they gained through their degrees to develop their businesses in innovative ways. Mr. Perera successfully used his engineering training to

develop an innovative spice dryer for his father whereas Mr. Silva used his IT expertise to develop a web-based marketing platform for their spices.

The next section describe the innovative approaches taken by two firms in terms of new product, process, marketing and administration related activities.

3.2. Innovativeness

Both Spice Co. and Export Co. ranked innovativeness as the second most important EO dimension with mean scores 4.33 and 4.56 respectively. Table 4 compares the scores provided by the owners of the two firms for the individual innovativeness statements. Both owners agreed or strongly agreed for all the innovativeness statements except I5 regarding management innovations. The owners of both firms stated that they were not active in terms of management innovations. The only management innovation identified during the study was that Spice Co. had recently formed a limited liability company and Export Co. was planning the same move. One important difference between the firms was in relation to market innovations with Spice Co. scoring a 3.0 and Export Co. a 5.0 out of a possible five. Spice Co.'s primary market is the domestic hotel sector and as such, they do not need to develop special market innovations to capture their customers. Currently they lack the capacity to meet existing demand and as such, they have not made the effort to attract more customers through market innovation.

Table 4. The comparison of scores for the innovativeness statements

No	Statement	Score	
		Spice Co.	Export Co.
I1	In my firm during last five years, very many new product lines were introduced/marketed	4	5
I2	In my firm, changes in product lines have mostly been quite dramatic (new to the industry/new to the world)	5	5
I3	In my firm during last five years, many new processing methods have been introduced	4	4
I4	In my firm during last five years, many new marketing approaches have been introduced	3	5
I5	In my firm during last five years, many new administration/management approaches have been introduced	3	2

16	In my firm, there is a long-term commitment to invest in new technology, R&D, and continuous improvement	5	5
17	My firm actively introduces improvements and innovations	5	5
18	My firm is creative in its methods of operation	5	5
19	My firm seeks out new ways to do things	5	5

Both Spice Co. and Export Co. were very active in introducing new products lines to the market or making changes to existing product lines (Table 4). It was evident that Export Co. is more active in product innovation compared to Spice Co. This fact is confirmed by the comparative of scores provided by the firm owners for statement I1 . Export Co. has introduced many new products to the market within a short period of time compared to Spice Co. Moreover, Export Co. has introduced innovative products under a diversified range of products including; spices, dehydrated fruit and vegetables, food supplements in capsule form and non-food items such as cinnamon toothpicks. Spice Co. was also innovative in terms of their spice and machinery brands. However, they had proposed some product innovations in diversified categories such as; dehydrated fruit and vegetables and pharmaceutical products that had not been introduced to the market yet. Both firms came up with not only me-too type innovations that are only new to the firm, but also line extension type innovations that were new to the Sri Lankan processed-food market. This is reflected in the scores provided for statement I2 by the owners of the two firms (Table 4).

The owner of Spice Co. and Export Co. both marked “agree” for the statement I3 regarding the introduction of process innovations to their firms. As with product innovations, both firms were quite active in introducing process innovations. However, Spice Co. appeared to be more active in introducing processing innovations than Export Co. This can be attributed to the engineering knowledge and skills of Mr. Perera along with his passion for innovativeness compared to the owners of Export Co. Export Co. have introduced both me-too and line extension type process innovations while Spice Co. same up with a me-too type of a process innovation to process their only non-food item, cinnamon toothpicks. Spice Co. have introduced process innovations for both of their brands; spices and machinery. According to Mr. Perera the processing mechanism that he is going to use for their proposed products; dehydrated food products and pharmaceutical products are also going to be innovative and unique to Spice Co. Given his strong passion and commitment towards innovations, Mr. Perera was awarded the prize for best innovative entrepreneur by the National Enterprise Development Authority in 2017.

As noted under the case description, Spice Co.’s primary market was the domestic hotel sector. The company usually sold their items in bulk form to their customers. The customers were mainly

concerned about the quality of the product rather than its presentation. Hence, no special attention was paid for the market innovations and statement I4 was scored 3 by Mr. Perera. In contrast, Export Co. scored statement I4 as a 5.0. Because the firm heavily relied on an on-line platform for marketing its products to international customers, the firm had introduced several market-related innovations to improve its Using an online platform for marketing spices is in itself an innovation for small scale businesses in Sri Lanka whereas most spice producers tend to sell their products to wholesalers or retailers. In addition, Export Co. has several marketing innovations and good marketing practices that are only new to the business itself, but not to the processed food industry. As with the case of Spice Co. in relation to engineering, the owners of Export Co. drew on their IT knowledge and expertise to introduce these innovations to their business. Practices such as; appearing first on web search results, simple to use buying platforms and attractive web design may not be considered as innovative in other contexts, but these are innovative in the Sri Lankan context, particularly in relation to micro and small scale food businesses.

Both firms scored low on statement I5 regarding administration/management innovations. The firms both started operations as sole-proprietorships. Spice Co. later converted to a private limited liability company that is governed by a board of directors. Export Co. also has plans to convert to a private limited liability company within the next 12 months. In the world of business, these conversions are quite common when a business need extra capital for the growth. They usually attract investors to invest on the business by making them shareholders and in certain instances as with Spice CO. they may be appointed as directors. However, under the Sri Lankan context this business practice is not that common especially among micro and small scale firms that have a relatively short life span.

Both firms strongly agreed with statement I6 regarding their long-term commitment to invest in new technology, R & D and continuous improvement. Out of two firms Spice Co. was more technology orientated given the educational and professional background of the founder. Owners of both firms were very committed to R & D, in order to bring novel products and services. Both firms were highly growth oriented showing their entrepreneurial aspirations. Both firms had developed business plans and worked according to the well-stipulated short and long-term goals. Owners of both Spice Co. and Export Co. had a proper business vision and planned where they wanted to be in next five years. Statements I7, I8 and I9 were marked as “strongly agree” by both Mrs. Silva and Mr. Perera as they believed that their firms act innovative and creative in general.

The next section of the chapter compares the ways in which Spice Co. and Export Co. have demonstrated their competitive aggressiveness to challenge industry rivalry.

3.3. Competitive aggressiveness

Competitive aggressiveness was scored as the third most important EO dimension by both Spice Co. and Export Co. with mean scores of 4.20 and 4.40 respectively. Table 3 presents the comparison of scores provided by Mr. Perera and Mrs. Silva for the individual statements. The owners of both firms were well aware of the nature and intensity of the competition that they were facing in their markets. The spice market in Sri Lanka is highly competitive with a large number of buyers as well as sellers. Hence the owners of both firms tried in their own ways to find market niches with less competition so that they could obtain higher profits. Spice Co. selected the domestic hotel sector as their primary market while Export Co. chose to cater to the international market through an online marketing channel. The international spice market is also highly competitive and comprises of a large number of sellers from different countries. However, Mrs. Silva explained that Sri Lankan spices have a global reputation among the buyers for their high quality and flavour. Hence, that brand image helps Sri Lankan spice producers to sell their products without much competition.

Table 5. The comparison of scores for the competitive aggressiveness statements

No	Statement	Score	
		Spice Co.	Export Co.
CA1	My firm typically seeks to a competitive “undo-the-competitors” posture	4	3
CA2	My firm is very aggressive and intensely competitive	4	4
CA3	My firm adopts a price-cutting strategy to enhance its competitive position [Reversed]	1*	1*
CA4	My firm copies the business practices or techniques of successful competitors to enhance its competitive position [Reversed]	3*	1*
CA5	My firm uses unconventional strategies to challenge competitors	5	5

Note: * - the original scores provided by the respondents are provided here.

Mrs. Silva agreed to statement CA1 while Mr. Perera stayed neutral on firm’s “undo-the-competitors” posture (Table 5). Both firms were aware of its competition and have adopted strategies to challenge them and claimed those strategies as aggressive and intensely competitive in nature (i.e. CA2, Table 5). None of the firm owners were ready to cut down their product prices in order to remain competitive in the market.

Both firms strongly disagree with the use of a price-cutting strategy to enhance their competitive position (Statement CA3, Table 5) even when they introduced their products to the market for the first time. The owners of both firms chose product quality as their strategy to enhance their

competitive position rather than a price-cutting strategy. The use of a strategy based on quality required Export Co. to purchase high quality raw materials and use higher cost production processes. The owners of Export Co. said that because of this, there was limited scope for a price cutting strategy.

Export Co. strongly disagreed with statement CA4 (Table 5) and it was stressed that the firm has never attempted to imitate the business practices of their successful competitors. In contrast, Spice Co. was neutral in relation to adopting the strategy of imitating the practices of successful competitors to enhance their competitive position. The owners of both firms strongly agreed with statement CA5 (Table 5) to indicate that they both used unconventional strategies to challenge their competitors. This feature was more apparent at Export Co. than Spice Co. Being IT specialists, Mr. and Mrs. Silva used their knowledge and skills to beat their competitors in online markets. The strategies used by them were more technology oriented and unconventional in nature.

The next section of this chapter will analyse the risk-taking behaviour both Spice Co. and Export Co. The outcome of the cross analysis of risk-taking aspects of two firms will be discussed.

3.4. Risk-taking

Risk-taking dimension ranked at the fourth place out of five EO dimensions. Spice Co. recorded a mean score of 3.88 while Export Co. scored 3.75 out of a maximum possible score of 5.0. Table 6 below presents the comparison of scores provided by the two firms for the individual statements.

Table 6. A comparison of the two cases' scores for the risk-taking statements

No	Statement	Score	
		Spice Co.	Export Co.
RT1	My firm invests in high risk projects (with the probability of a very high return)	3	4
RT2	My firm adopts bold, wide-ranging acts that are necessary to achieve the firm's objectives	4	4
RT3	My firm believes that it is best to explore the environment in a gradual, timid and incremental way [<i>Reversed score</i>]	2*	2*
RT4	My firm commits a large portion of its resources in order to grow	5	4
RT5	My firm invests in major projects through heavy borrowing	4	2
RT6	In my firm, people in our business are encouraged to take calculated risks with new ideas	3	4
RT7	My firm emphasizes both exploration and experimentation for opportunities	5	5

RT8	My firm adopts a cautious 'wait-and-see' posture in order to minimize the probability of making costly decisions (the opposite to being bold and aggressive in exploiting opportunities) [<i>Reversed score</i>]	3*	3*
-----	--	----	----

Note: * - the original scores provided by the respondents are provided here.

Both firms have scored above three, the cut-off value considered for the study. The data shows that the two firms are not "strong" risk-takers, except in a few areas such as exploration and experimentation and for Spice Co., in the area of resource commitment. Export Co. treated itself as a risky business as they have built this online business in a country where PayPal is now supported by the law. PayPal being the mostly used money transfer method among online traders, the family had to find alternative approaches to by-pass the issue. Both firms have chosen one of the most competitive market to sell their products but later managed find niches that are relatively less competitive. This has again supported the idea of not being active risk-takers.

Owners of Both firms scored all eight statements in a quite similar pattern except for statement RT5 about their willingness to use heavy borrowing to invest in new projects. Spice Co. was willing to take on heavy borrowing to invest in a new project whereas Export Co. was not. In the interviews both firms said that they would not take out a financial loan unless it was essential. However, both firms obtained some form of a financial support for their start-up. Spice Co. received a government grant to start the business. Export Co. had taken out an informal loan with a friend so that they could buy their dehydration plant. Neither of the firms has sought a loan since the start-up phase. The owners of both firms highlighted the fact that they try to keep their debt level at a minimum. However, since both of the firms were planning for to expand, they had both planned to obtain loans in the near future.

Both Spice Co. and Export Co. were constantly exploring and experimenting to develop new opportunities (Statement RT7, Table 6). They were active innovators who developed new processes and introduced many new products to the market within a short period of time. Both firms invested heavily in research and development activities that supported the growth of their ventures (Statement RT4, Table 6). As noted under the case description, Spice Co. had a well-established machinery brand while the owners of Export CO. also owned another successful IT firm. Owners of both firms mentioned that they have used a portion of profit from those firms towards the growth and development of this business.

The final sub-section of this chapter will compare the level of autonomy between Spice Co. and Export Co.

3.5. Autonomy

Autonomy was ranked fifth out of five EO dimensions by both Spice Co. and Export Co. In terms of the mean scores; Spice Co. scored 3.60 while Export Co. scored 2.4 out of 5.0. Table 7 depicts the scores provided by firm owners for the individual autonomy statements. Both Mr. Perera and Mrs. Silva scored autonomy statements in a relatively similar pattern except statements A1 and A5. Mr. Perera scored strongly agreed to statement A1 as Spice Co. is governed by a board of directors comprise of four people. The autonomous actions and decisions of these four people are supported and encouraged by the firm. The decision making style at Spice Co. was identified as collective as a team effort but individual opinions are considered and respected. Mr. Perera was given a relatively higher power in decision making as the CEO and the founder of the business. In contrast, Export Co. is a family firm managed by a husband and wife where all the key decisions for the business were taken by the couple. Mr. and Mrs. Silva have the sole decision making authority at Export Co. whereas other employees were there only for the production purposes.

Table 7. The comparison of scores for the autonomy statements

No	Statement	Score	
		Spice Co.	Export Co.
A1	My firm supports the efforts of individuals and/or teams that work autonomously	5	3
A2	In my firm, the best results occur when individuals and/or teams decide for themselves what business opportunities to pursue	4	3
A3	In my firm, individuals and/or teams pursuing business opportunities make decisions on their own without constantly referring to their supervisors	2	2
A4	In my firm, employee initiatives and input play a major role in identifying and selecting entrepreneurial opportunities	3	3
A5	My firm usually seeks advice from experts (eg: NEDA/SED officers) when making decisions [<i>Reversed score</i>]	2*	5*

Note: * - the original scores provided by the respondents are provided here.

The other important difference to note between two firms regarding getting consultations and mentoring from experts for decision making. Mrs. Silva explained that they had received inputs from both government organizations (i.e. Small enterprise development division) and one of their family friends to make important business decisions. However, Mr. Perera relied on the opinions of his board of directors to make decisions rather than consulting with external authorities.

Appendix VIII – Cross-case report (between non-entrepreneurial firms)

Cross-case analysis report 2

1. Introduction

This section outlines the results of the cross-case analysis carried out between two non-entrepreneurial case firms; Snacks Co. and Sesame Co. The chapter begins with a comparison of the descriptive parameters between the two firms in terms of firm and firm-owners characteristics. The entrepreneurial orientation (EO) of two firms is then compared and contrasted. The practices and strategies related to the individual EO dimensions will be discussed and compared between two firms. These results will be presented according to the same order of ranking of the five EO dimensions used in the first cross-case report. The two non-entrepreneurial firms ranked the five dimensions in an order that is entirely different from each other and different from entrepreneurial firms too. Hence, using the same order as the previous report will assist to organize the results chapter in a logical order.

2. A descriptive comparison of two cases

The Annual Survey of Industries-2015 (ASI, 2015) conducted by the Department of Census and Statistics Sri Lanka classified the food processing industry into eight categories. Both Snacks Co. and Sesame Co. fell into the category of firms that are producing “other processed foods” based on their product range (Table 1). The firms are both registered as sole-proprietorships and operate as family businesses managed by a husband and wife team. The two firms employ additional staff where Snacks Co. has two non-family employees while Sesame Co. employs two family members. The employees of both firms were recruited on a contract basis. It is important to note that both of these firms were established quite a long-time ago compared to the average lifespan of small businesses in Sri Lanka (Ref). Even though both Snacks Co. and Sesame Co. were categorized under “other processed food” category, the product range of the two firms were quite different from each other. Snacks Co. specialized in producing a savoury snack called “*Murukku*” while Sesame Co. tended to produce confectionary items including sesame-based products. However, the revenues of both firms were dominated by these main products while their complete product-mix comprised several other products that were introduced from time-to-time. Both firms exclusively cater to the domestic market through retail outlets. Snacks Co. deliberately selected retail outlets located in rural areas to get away from the intense competition in the city while Sesame Co. chose to cater to customers who were within the same geographical area.

Both firms are owned and managed by middle-aged married couples who finished their formal education at school level. Owners of Snacks Co., Mr. and Mrs. Dias initiated the business as a primary source of income because they had no other sources of income at the time. They were able to identify opportunities in the processed food market and needed to start a business as they had to close down

their previous business. In contrast, Sesame Co. was started as a secondary source of income to support the Fernando family. Later the business became their main source of income after Mr. Fernando lost his full-time job. At the time of the interview, both families engaged with their businesses on a full-time basis.

In relation to the level of entrepreneurial orientation (EO), Snacks Co. recorded an overall EO score of 2.84 while Sesame Co. scored 1.94 out of a maximum potential score of five (Table 1). Both firms scored less than the cut-off mark of 3.0 for the EO screening test, hence they were classified as non-entrepreneurial.

Table 1. A comparison of the characteristics of Snacks Co. and Sesame Co.

	Characteristic	Description	
		Snacks Co.	Sesame Co.
Firm	Firm type/category	Other processed foods	Other processed foods
	Business structure	Sole-proprietorship	Sole-proprietorship
	Management	Family managed (husband and wife)	Family managed (husband and wife)
	Number of employees	Two (non-family)	Two (family members)
	Location	Colombo District, Western province	Colombo District, Western province
	Years of operation	Ten years	Seventeen years
	Product range	<i>Murukku</i> , spices, tea (packing and selling only)	Sesame products, other food items, confectionary items
	Market	Domestic retail market	Domestic retail market
Firm owner	Age	Early-fifties	Early-sixties
	Education	Both wife and husband: G. C. E. (Ordinary level)	Husband: Up to G.C.E. Ordinary level Wife: Up to G.C.E. Advanced level
	Business motivation	As a primary source of income Seeing market opportunity	As a primary source of income
	Involvement with the business	Full-time	Full-time
Level of EO		2.84	1.94

3. Entrepreneurial orientation

This section details the results of the cross-case analysis in relation to the entrepreneurial orientation of the two firms. As noted under the case introduction, the dimensions of the two firms were ranked in an entirely different order to each other. Table 2 summarizes the order of the ranking given by both firms along with the respective mean scores of the individual dimensions.

Table 2. Order of EO rankings by two firms

Rank	Snacks Co.		Sesame Co.	
	Dimension	Score	Dimension	Score
1	Risk-taking	3.13	Competitive aggressiveness	2.60
2	Competitive aggressiveness	3.00	Risk-taking	2.13
3	Autonomy	3.00	Innovativeness	1.89
4	Proactiveness	2.80	Proactiveness	1.50
5	Innovativeness	2.44	Autonomy	1.40

Given the inconsistency of above order of ranking, the cross comparison of EO dimensions between Snacks Co. and Sesame Co. will follow the same order of ranking used for the cross-case between two entrepreneurial firms. Hence, following section of this chapter will begin with proactiveness followed by innovativeness, competitive aggressiveness, risk-taking and autonomy. Following the same order will facilitate the organization of future case reports that cross-analyse between entrepreneurial and non-entrepreneurial firms.

3.1. Proactiveness

Both Snacks Co. and Sesame Co. ranked proactiveness fourth out of the five dimensions with mean scores of 2.8 and 1.5 respectively. Proactiveness is the only dimension that both firms ranked the same. Table 3 presents the comparison of individual statement scores given by the owners of the two firms.

Table 3. The comparison of scores for the proactiveness statements

No	Statement	Score	
		Snacks Co.	Sesame Co.
P1	My firm typically initiates action which the competition then responds to	2	1
P2	My firm is very often the first business to introduce new products, administrative techniques, operating technologies, etc.	1	1
P3	My firm is closely monitoring technological trends and identifying the future needs of customers	4	2
P4	My firm excels at identifying opportunities	4	2

According to the data, the difference between the overall proactiveness scores as well as certain individual statement scores given by two firm owners are appeared to be quite different from each other except for the statement P1 and P2 (Table 3). In broader sense proactiveness refers to the ability of firms to identify opportunities in the marketplace and seize them to make a profit. Accordingly, both Snacks Co. and Sesame Co. were not proactive at seizing market opportunities. Both firms were initiated to earn income or as a livelihood strategy. Snacks Co. was initiated because the Dias family had to terminate their previous business while Sesame Co. began its operations because the Fernando family needed a supplementary source of income to support their growing family needs.

Both firms either disagreed or strongly disagreed with statements P1 and P2 reflecting that they are not usually leaders in the market or the first to introduce new products, processes or administrative techniques. For of the scores provided for statements P3 and P4 the two firms are opposites. Although Snacks Co. scored low in terms of its overall proactiveness dimension, it scored high for statements P3 and P4 whereas the owner of Sesame Co. scored low for theses statements. Snacks Co. initiated its activities mainly to earn an income but, they chose to enter to the processed food industry as they saw the market opportunity. They were not that technology oriented by concerned about the changing consumer needs. The firm owner agreed to statement P4 since they were able to find a best fitting market.

The next section will compare the innovativeness of the two firms.

3.2. Innovativeness

The innovativeness dimension was ranked fifth and third for Snacks Co. and Sesame Co. respectively. However, Snacks Co. scored considerable higher for the innovativeness dimension than Sesame Co. even though the firm ranked this dimension in fifth place. According to the individual innovativeness statement comparison shown in Table 4, clear differences were observed across several statements including I1, I7, I8 and I9.

Mrs. Dias marked “agree” to the statement I1 regarding the introduction of new products while Mrs. Fernando was neutral. However, when the number of new products introduced by the two firms were compared, Sesame Co. had introduced more new products than Snacks Co. However, those products introduced by Sesame Co. were not sustained in the market for a longer period. Both firms relied primarily on their main products; *murukku* and sesame products even though they had introduced other supplementary products. The owners of Snacks Co. were very positive about their main product *Murukku* as they managed to increase its production and sales volume continuously. Hence, Mrs. Dias marked “agree” to the statement I1 (Table 4).

Table 4. The comparison of scores for the innovativeness statements

No	Statement	Score	
		Snacks Co.	Sesame Co.
I1	In my firm during the last five years, very many new product lines were introduced/marketted	4	3
I2	In my firm, changes in product lines have been quite dramatic (new to the industry/new to the world)	1	1
I3	In my firm during last five years, many new processing methods have been introduced	2	2
I4	In my firm during last five years, many new marketing approaches have been introduced	1	2
I5	In my firm during last five years, many new administration/management approaches have been introduced	1	1
I6	In my firm, there is a long-term commitment to invest in new technology, R&D, and continuous improvement	2	2
I7	My firm actively introduces improvements and innovations	3	2
I8	My firm is creative in its methods of operation	4	2
I9	My firm seeks out new ways to do things	4	2

In terms of statement I2, both firms agreed that the products they have introduced were not remarkable. This was because they were only new to their own firms, but not to the food processing industry. The products were also produced by several other competing producers, but both Snacks Co. and Sesame Co. had their own unique production process which helped them to withstand the competition.

Both firms either disagreed or strongly disagreed to statements I3, I4 and I5 regarding the frequent introduction of process, marketing and administration innovations. However, during the interview Mrs. Dias noted that they have experimented on their *Murukku* processing method and managed to come up with a unique processing method with new combination of ingredients. Yet, she has also disagreed to the statement regarding process innovations as it was their only process innovation and they were not quite sure about the time period this innovation took place. According to Mrs. Dias it was not a one-off innovation but happened as a trial-and-error experiment over the years.

Notable differences among the scores of two firms were observed for the statements I8 and I9 regarding the overall creativity and innovativeness of the two firms. The owners of Snacks Co. believed

they are more creative in its overall operation and always tries to do things in a unique way. This was reflected in their actions related to experimenting with their processing technologies, packaging and the way they targeted the market.

The next section will describe and compare the competitive aggressive behaviour of Snacks Co. and Sesame Co.

3.3. Competitive aggressiveness

Competitive aggressiveness was ranked first out of the five dimensions for Sesame Co. while it was ranked second for Snacks Co (Table 2). Despite the ranking difference, Sesame Co.'s overall score is lower than that of Snacks Co. (i.e. 2.6 and 3.0 respectively). Table 5 compares the scores provided by the owners of the two firms for the individual statements.

Table 5. The comparison of scores for the competitive aggressiveness statements

No	Statement	Score	
		Snacks Co.	Sesame Co.
CA1	My firm typically seeks to a competitive “undo-the-competitors” posture	2	2
CA2	My firm is very aggressive and intensely competitive	2	2
CA3	My firm adopts a price-cutting strategy to enhance its competitive position [Reversed]	1*	3*
CA4	My firm copies the business practices or techniques of successful competitors to enhance its competitive position	4	4
CA5	My firm uses unconventional strategies to challenge competitors	2	2

Note: * - the original scores provided by the respondents are provided here.

Owners of both Snacks Co. and Sesame Co. scored competitive aggressiveness statements in a similar pattern except for the statement CA3. Both firms marked “disagree” to statements CA1, CA2 and CA5 reflecting their non-aggressive behaviour towards their competitors. Both firms were well aware of the nature of their competitors and used their own strategies to challenge them. Both Snacks Co. and Sesame Co. work in the processed food industry which is a highly competitive market with large number of producers and buyers. In this market, Snacks Co. managed to locate a niche market in a rural setting in Sri Lanka which had a limited number of producers. Hence it was a less competitive environment. In contrast, Sesame Co. decided to cater their customers through the retail outlets located in their adjacent areas while battling the high competition.

Both firms used product quality as their main strategy of challenging the competition. The owners of both firms believed their products were of high quality compared to their competitor products and hence they had significant demand from their customers. It was interesting to note the difference

between two firms in relation to the statement CA3 about the use of a price cutting strategy to enhance their competitive position. Mrs. Dias (Snacks Co.) strongly disagreed with statement CA3 while Mrs. Fernando (Sesame Co.) was neutral. According to Mrs. Dias, Snacks Co. has never used a price-cutting strategy to challenge their competitors. She further claimed that, there is a common belief among customers that price is directly related to quality. Hence, they have never used pricing as a strategy for challenging competition. In contrast, Mrs. Fernando answer to statement CA3 was neutral because they chose to price their products based on current market prices. Sesame Co. tried to keep their prices less than or equal to their competitors' prices in order to maintain their sales volume. Hence, price cutting strategy was adopted where necessary.

Both firms agreed with the statement CA4 that they copied the business practices of successful competitors. The owners of both firms stated that they had copied some of the marketing strategies used by successful competitors in their sector. They were confident about their product quality and processing methods, but not about their marketing practices. As such, they sought to obtain ideas from their competitors. Both firms have copied packaging and labelling ideas from their competitors to provide eye-catching products for their customers. This may also reflect their lack of awareness of technology and other business-related activities. They are experts in production, t but struggle when it comes to marketing.

In addition to above, Sesame Co. has also practiced certain good practices that helped them to challenge their competitors. Practices such as; attractive product placement at retail outlets and earning the trust and goodwill of retail shop owners have helped Sesame Co. to remain competitive in the marketplace.

The next section of this chapter will describe and compare the risk-taking behaviour of Snacks Co. and Sesame Co.

3.4. Risk-taking

Snacks Co. ranked risk-taking first while Sesame Co. ranked it second out of the five EO dimensions. Unlike the other dimensions, the scores provided for many of the individual risk-taking statements by two firm owners are quite different. The comparison of those individual statement scores are depicted in Table 6 .

Table 6. A comparison of the two cases' scores for the risk-taking statements

No	Statement	Score	
		Snacks Co.	Sesame Co.

RT1	My firm invests in high risk projects (with the probability of a very high return)	2	1
RT2	My firm adopts bold, wide-ranging acts that are necessary to achieve the firm's objectives	4	2
RT3	My firm believes that it is best to explore the environment in a gradual, timid and incremental way [<i>Reversed</i>]	2*	4*
RT4	My firm commits a large portion of its resources in order to grow the business	5	2
RT5	My firm invests in major projects through heavy borrowing	2	3
RT6	In my firm, people in our business are encouraged to take calculated risks with new ideas	3	3
RT7	My firm emphasizes both exploration and experimentation for opportunities	4	2
RT8	My firm adopts a cautious 'wait-and-see' posture in order to minimize the probability of making costly decisions (the opposite to being bold and aggressive in exploiting opportunities) [<i>Reversed</i>]	3*	4*

Note: * - the original scores provided by the respondents are provided here.

The owners of both firms either disagreed or strongly disagreed with statement RT1 with regard to investment in high risk projects that provided high return. Mrs. Fernando strongly disagreed with this statement and said that they had never invested in high risk options. Rather, they always chose products and markets that they were familiar with when they wanted to introduce a new product. In contrast to Sesame Co., the owners of Snacks Co. did undertake a relatively risky decision when they decided to enter the food processing industry after terminating their first business. They knew that they could earn good profits in the food sector, but they were not familiar with food production. Hence, it was identified as a risky action to take since they were to enter into an unfamiliar market with a new product.

Snacks Co. agreed with statements RT2, RT3 and RT7 regarding firm's ability to take bold acts, active market exploration and experimentation. However, limited evidence was provided to support that they made bold decisions or active market exploration and experimentation. The only bold decision that was identified during the interview was when they decided to enter into the food processing industry. In terms of ..., Mrs. Dias repeatedly mentioned that they had no intention to develop new products as they were not capable of handling multiple products given their limited capacity and time constraints. However, she claimed that she was interested in exploring new markets in new geographical areas after expanding their business to the next level.

In contrast to Snacks Co., Mrs. Fernando of Sesame Co. disagreed with statements RT2, RT3 and RT7 reflecting their non-aggressive decision-making strategies and gradual exploration of the market. At the time of the interview, they were still producing the same products that they started producing seventeen years ago and they were still catering to the same market through retail outlets. Their production capacity and sales volume increased over the years, but they made no significant changes to their product line or to their marketing strategy. They were still producing in the confectionary category and no bold decisions were taken to make significant changes to their business.

Snacks Co. strongly agreed with statement RT4 that the firm commits a large proportion of its resources in order to grow the business while the owner of Sesame Co. disagreed with this. Mrs Dias started Snacks Co. by using the proceeds from the sale of their previous business. She said that they spent majority of their savings to develop Snacks Co. The firm managed to increase production volume rapidly as a result of committing a large amount of resources to grow the firm. It was apparent from Mrs. Dias’s explanation that they were quite good at managing finances and focused their spending on business development rather than personal consumption. In contrast, Mrs. Fernando from Sesame Co. stated that they did not spend much on business development. The size of the Sesame Co. firm has not changed much over the seventeen-year period that it has been operating. The owners of Sesame Co. obtained several financial loans over the lifetime of the firm, but it was appeared that those loans were spent on both business and personal requirements, but were not used to grow the firm.

Mrs. Dias of Snacks Co. disagreed with statement RT5 on using heavy borrowing to invest in major projects while Mrs. Fernando’s response was neutral. Accordingly, Snacks Co. has never sought a financial loan to support its business activities. However, Sesame Co. had obtained several formal and informal financial loans during multiple occasions. Snacks Co. aim want to remain debt-free whereas Sesame Co. is comfortable obtaining financial loans for both business and personal reasons. Sesame Co.’s strategy was to obtain financial loans when they were in a crisis and repay them without delay.

3.5. Autonomy

Snacks Co. ranked autonomy second equal with an average score of 3.0 (i.e. scored similar to competitive aggressiveness) out of five while Sesame Co. ranked it at fifth with an average score of 1.4 (Table 2). Table 7 compares the scores provided by two firm owners for the five individual statements that measured their level of autonomy.

Table 7. The comparison of scores for the autonomy statements

No	Statement	Score
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		Snacks Co.	Sesame Co.
A1	My firm supports the efforts of individuals and/or teams that work autonomously	5	1
A2	In my firm, the best results occur when individuals and/or teams decide for themselves what business opportunities to pursue	2	1
A3	In my firm, individuals and/or teams pursuing business opportunities make decisions on their own without constantly referring to their supervisors	2	1
A4	In my firm, employee initiatives and input play a major role in identifying and selecting entrepreneurial opportunities	4	1
A5	My firm usually seeks advice from experts when making decisions [Reversed]	4*	3*

Note: * - the original scores provided by the respondents are provided here.

Both Snacks Co. and Sesame Co. are family-owned small businesses where decision making authority was exclusively with the couples who owned the respective firms. As noted under the case description, both firms had two employees each where Snacks Co. employed non-family workers and Sesame Co. had two family members as employees. However, in terms of their respective management strategies, Snacks Co. was relatively flexible with their employees even though they were non-family members. Hence, they agreed with statement A1 and A4 indicating that they value the autonomous behaviour of their employees. However, Snacks Co. still did not want their employees to make all the decisions by themselves without referring to the owners. Employee ideas were considered, but the final decision was up to the owners. Hence, they disagreed with statements A2 and A3. In contrast, Mrs. Fernando from Sesame Co. strongly disagreed with all four statements from A1 to A4 indicating that they do not consider obtaining input from their employees in relation to decision making.

Mrs. Dias from Snack Co. marked “agree” for statement A5 that they usually seek advice from experts when making decisions while Mrs. Fernando from Sesame Co. was neutral for this statement. At Snacks Co., they occasionally contacted SME related government organizations for knowledge and mentoring. However, the owners stated that this was not a frequent practice. Mr. Fernando from Sesame Co. stated that they do not usually seek advice from outsiders. Rather they obtain advice from their own family. They consulted with their daughter and son-in-law when they had to make important business decisions. They treated their daughter as an expert because she was professionally qualified in business administration.

Appendix IX – Cross-case report (between entrepreneurial and non-entrepreneurial firms)

Cross-case analysis between entrepreneurial and non-entrepreneurial firms

4. Introduction

This section outlines the results of the final cross-case analysis carried out between the entrepreneurial and non-entrepreneurial firms. The chapter begins with a comparison of the descriptive parameters between two firm types in terms of the firm and firm-owners characteristics. The entrepreneurial orientation (EO) of two types of firms is then compared and contrasted with the objective of identifying important similarities and/or differences between entrepreneurial and non-entrepreneurial firms. The practices and strategies related to the individual EO dimensions will be discussed and compared between two firm types with the support of necessary literature.

5. A descriptive comparison of two cases

Table 1 summarises the descriptive parameters of the entrepreneurial and non-entrepreneurial firms. Both the entrepreneurial cases and the non-entrepreneurial cases produce what the Annual Survey of Industries (ASI, 2015) classify as “Other Processed Food”. This similarity was an important feature in case analysis as it mitigates the impact of firm type on firm’s nature of entrepreneurial orientation. However, one of the entrepreneurial firms was classified under more than one firm type as it produced different types of products. According to the Annual Survey of Industries, Sri Lanka (ASI, 2015) the “other processed foods” category comprised of a number of different firm types including bakery products, sugar and confectionary, spices, macaroni and noodles, etc. Hence, both firm groups represented one firm type but produced different types of food items.

It was interesting to note that entrepreneurial firms started their business as sole-proprietorships but have converted or are converting into private limited company structures with more sophisticated management styles. This conversion of legal business structures was notable as it happened within a shorter period of time as these entrepreneurial firms are still in the early stages of their business life cycles. In contrast, non-entrepreneurial firms originated and operated as sole-proprietorships for a relatively long period. Moreover, the owners of non-entrepreneurial firms showed no interest in converting their legal business structures. Accordingly, the two types of firms showed two different styles of managing businesses. The entrepreneurial firms were or are managed by a board of directors including as chief executive officer while non-entrepreneurial firms are family-owned and managed. Moreover, the non-entrepreneurial firms expressed no interest in upgrading their business structures or management styles to a different setting in a foreseeable future.

In terms of the number and composition of employees between two firm groups, entrepreneurial firms appeared to be larger as they had a comparatively higher number of employees compared to non-entrepreneurial firms. However, the composition of family and non-family employees seemed inconsistent among the two groups. One firm from each group employed family members while other does not. Recruiting employees on a contract basis seemed a common strategy for all firms regardless of their entrepreneurial orientation. However, entrepreneurial firms employed or are going to employ a few permanent staff members compared to non-entrepreneurial firms. As noted earlier, the non-entrepreneurial firms seemed established for a relatively longer period than entrepreneurial firms. The interesting difference was that entrepreneurial firms have progressed a lot compared to the non-entrepreneurial firms that were in business for a longer time.

Table 1. A summary of the key characteristics of the entrepreneurial and non-entrepreneurial cases

	Characteristic	Entrepreneurial	Non-entrepreneurial
Firm	Firm type/ category	Other processed foods One firm is also in Processed fruit and vegetable category	Other processed foods
	Business structure	Initiated as sole-proprietorships and later converted or will be converted to private limited liability companies	Sole-proprietorships
	Management	Different management styles (a board of directors vs family)	Family managed (husband and wife)
	Number of employees	A higher number of employees Either family or non-family employees Both permanent and contract basis	Less in number Either family or non-family employees All on a contract basis
	Location	Urban but different geographical locations	Urban, in the same geographical area
	Years of operation	Recently established compared to NE group	Started ≥ 10 years ago
	Product range	Both produce spices One is specialized in fruit and vegetable processing while one is into the production of non-food items	Snacks and confectionery items
	Market	Both domestic and international	Domestic retail
Entrepreneur/ founder (CEO)	Age	Relatively young owners	Aged than entrepreneurial firm owners
	Education	Degree level	Only up to school level
	Business motivation	Similar motives - Seeing the market opportunity One owner wanted to become an innovative entrepreneur/passion	Similar motives - As a primary source of income

	Involvement with the business	Part-time	Full-time
Level of EO		Avg – 4.075 (4.09+4.06)	Avg – 2.39 (2.84+1.94)

The entrepreneurial and non-entrepreneurial firms are different from each other in terms of their product differentiation strategies too. As noted earlier, both the groups of firms represented the same firm type of “other processed food” yet, produced a different range of food items. Entrepreneurial firms commonly produced spice items while non-entrepreneurial firms specialized in producing in snacks in confectionary items. However, the entrepreneurial firms showed differences among each other in terms of their product diversification strategy. One of the entrepreneurial firms categorised under two firm types as it has diversified its product line into two different product lines. The other entrepreneurial firm chose to diversify their product range following an unrelated diversification strategy and produced agricultural machinery to the market. In terms of market targeting, entrepreneurial firms acted differently from non-entrepreneurial firms in selecting their target markets. Entrepreneurial firms always touched the international market as their primary or at least secondary market whereas non-entrepreneurial firms only reached up to the domestic retail market. However, entrepreneurial firms showed no much interest to cater to the domestic retail market and chose to cater to different segments in the domestic market (Table 1).

Substantial differences were also observed between the entrepreneurial and non-entrepreneurial firms in terms of the firm-owner characteristics (Table 1). The entrepreneurial firm owners were young and well educated to degree level compared to the non-entrepreneurial firm owners who were much older and only educated up to secondary school level. Another prominent difference observed between the two case types was in relation to their motivation to start the businesses. The entrepreneurial firm owners were primarily motivated by a desire to take advantage of market opportunities and their strong passion for entrepreneurship. More specifically one of the entrepreneurial firm owners has declared his intension to become an innovative business person from the very beginning of his career. In contrast, the non-entrepreneurial owners were motivated by the need for a livelihood strategy to support their family. Accordingly, the entrepreneurial firm owners can be identified as “opportunity entrepreneurs” who started their businesses in order to capture the benefits of a market opportunity and to use their high level of creativity (Block et al., 2015). Both entrepreneurial firms fit into this category as their start-up motivations were to seize market opportunities while being innovative in the product-market strategies. On the other hand, the non-entrepreneurial firms were set up because the owners needed a means of supporting their families (i.e. necessity orientation) (Block et al., 2015). Out of two non-entrepreneurs one can be considered as entirely necessity-oriented whereas one was mixed-motivated with two start-up motivations (Block

et al., 2015). They wanted to seize the opportunity in the market while they wanted to support the family through a source of income. The owners of the entrepreneurial firms were involved with the business on a part-time basis as they had other commitments such as a full-time job or another business to attend to. In contrast, the owners of the non-entrepreneurial firms committed themselves to the business on a full-time basis as it was their primary source of income. This again confirms their nature of being necessity entrepreneurs rather than opportunity entrepreneurs. Non-entrepreneurial firm owners had no other alternative sources of income to support their families besides the businesses. Hence, they were engaged full-time with their businesses. In terms of the overall EO scores, it was clear that two entrepreneurial firms scored similarly to each other while two non-entrepreneurial firms were quite different from each other. The overall scores obtained by individual case firms for the EO test are also depicted in Table 1. Table 2 shows the comparison of mean scores of five EO dimensions among four firms. The following sub-sections of this chapter will compare and contrast the relevant EO practices adopted by two types of case firms.

6. Entrepreneurial orientation

This section details the outcome of the cross-analysis in relation to the entrepreneurial orientation of the entrepreneurial and non-entrepreneurial firms along with the support and justifications of the literature where necessary. Table 2 below summarises the dimension specific EO scores obtained by the four case firms on an individual basis as well as the average scores of entrepreneurial and non-entrepreneurial firms. The table also illustrates the score difference between the two firm types. In order to assure the logical flow of the discussion, the cross-case analysis will start with the dimension with the highest score difference between entrepreneurial and non-entrepreneurial firms. According to the summary statistics shown in table 2, the greatest differences are based on proactiveness and innovativeness while the least differences occur in relation to risk-taking and autonomy. Hence, the discussion begins with proactiveness, followed by innovativeness, competitive aggressiveness, risk-taking, and autonomy.

Table 2. The EO scores of the entrepreneurial and non-entrepreneurial cases

Dimension	Spice Co.	Export Co.	Avg E	Snacks Co.	Sesame Co.	Avg NE	Difference between E & NE
Proactiveness	4.50	5.00	4.75	2.80	1.50	2.15	2.60
Innovativeness	4.33	4.56	4.44	2.44	1.89	2.17	2.27
Competitive aggressiveness	4.20	4.40	4.30	3.00	2.60	2.80	1.50
Risk-taking	3.88	3.75	3.82	3.13	2.13	2.63	1.19
Autonomy	3.60	2.40	3.00	3.00	1.40	2.20	0.80

6.1. Proactiveness

According to table 2 above, Proactiveness is the dimension that yielded the highest overall score difference between two firm groups. The table below shows the average scores obtained for the individual proactiveness statements for the entrepreneurial and non-entrepreneurial firms along with the difference between two firm types for those individual statements (Table 3). The statement P2 shows the highest score difference between the two groups while P3 and P4 show the least score differences.

Table 3. The comparison of scores for the proactiveness statements

No	Statement	Avg. Score		Difference b/w E & NE
		E	NE	
P1	My firm typically initiates action which the competition then responds to	4.5	1.5	3
P2	My firm is very often the first business to introduce new products, administrative techniques, operating technologies, etc.	4.5	1	3.5
P3	My firm is closely monitoring technological trends and identifying the future needs of customers	5	3	2
P4	My firm excels at identifying opportunities	5	3	2

Clear differences were observed between the entrepreneurial and non-entrepreneurial firms in relation to their level of proactiveness shown during the start-up period as well as in their day-to-day business operations. More specifically, the entrepreneurial firms excelled in their proactive behaviour compared to non-entrepreneurial firms. In general, a proactive business is one that places a greater emphasis on forward-looking strategic planning and approaching opportunities. These features were prominent in the behaviour of entrepreneurial firms since their start-up period. As noted under the cross-analysis between two entrepreneurial cases, the two businesses were started as the owners were seeking to solve problems faced by their parents in relation to their businesses. Later the owners managed to take those solutions not only to solve the issues faced at the family level but also to seize the opportunities in the market. This observation again confirms the opportunity-oriented nature of entrepreneurial firms (Block et al., 2015; Niels Bosma & Harding, 2006) compared to non-entrepreneurial firms.

The proactive nature and the forward-looking perspective of entrepreneurial firms helped them to get the benefits and competitive advantage of being first movers in introducing different products and processes to the market. This outcome is coherent with the first-mover advantages of entrepreneurial firms are discussed by (Lieberman & Montgomery, 1988). The entrepreneurial firms had introduced

certain new products and processes to the market ahead of the competition (Lumpkin & Dess, 2001) where the non-entrepreneurial firms had only followed the market leaders. This is shown by the higher score differences resulted in statements P1 and P2 between entrepreneurial and non-entrepreneurial firms. As noted earlier, the forward-looking perspective in decision making and identifying the future needs of the customers are also identified as important aspects of firm proactiveness (Lumpkin & Dess, 1996).

The cross-analysis of the entrepreneurial firms showed that they always kept up to date on demand trends and changes in market demand. Entrepreneurial firms had a reasonably clear idea about how the processed food market was likely to change in the future and they designed products to capture this future market demand. Moving towards renewable energy, the use of organically produced crops, designing spice mixtures for specific curries, and placing food supplements in capsule form are some of the examples that they had developed to meet the future needs of their customers. They were aware that customers in the future will be more conscious about their health and the environment. They believed that their customers would also prefer ready-to-eat products to save time on cooking. In contrast, the two non-entrepreneurial firms, especially Sesame Co. showed no interest in the future needs of their customers and nor did they try to anticipate trends in the processed food industry. They had no significant plans for the future and focused on the present status of the business (i.e. statement P3). Among the non-entrepreneurial firms, Snacks Co. showed interest in future customer needs and thought about potential demand trends even though it was not as strong as actions taken by the entrepreneurial firms.

Technology orientation was identified as another important determinant of firm proactiveness (Lumpkin & Dess, 1996, 2001). Out of two types of firms considered, entrepreneurial firms were more technologically oriented given their owners' knowledge, special skills (i.e. engineering & IT), and the strong passion for technological and product innovations. Moreover, these firms invested reasonable amounts of their time and capital towards the R&D activities of their businesses. As individual firms, Spice Co. always sought for the new technology and processes while Export Co. researched on new product developments. However, this sort of technology orientation was not visible in two non-entrepreneurial firms. The non-entrepreneurial firms were not into much technology usage and where they used simple machinery to aid the production process. Many of their production activities were manual and they paid no specific attention to be technologically oriented future too (i.e. statement P3).

Business-related activities such as; technology orientation, R&D and competitive advantages of being first-movers in the industry may influence not only the proactivity of firms but also their innovativeness and competitive aggressiveness. Literature also supports the fact these three

dimensions are closely linked to each other (Lumpkin & Dess, 1996, 2001) and certain activities may represent more than one EO dimension. The next section will compare and contrast the innovation strategies used by entrepreneurial and non-entrepreneurial firms.

6.2. Innovativeness

Innovativeness dimension recorded the second-highest score difference between entrepreneurial and non-entrepreneurial firms (Table 2). Entrepreneurial firms recorded an average score of 4.44 while non-entrepreneurial firms recorded 2.17 indicating entrepreneurial firms are much more innovative than their non-entrepreneurial counterparts. The table below shows the average scores calculated for the entrepreneurial and non-entrepreneurial firms for the individual innovativeness statements along with the difference between two firm types for those individual statements (Table 4). It was interesting to note that, among the nine innovativeness statements, both the highest and lowest score differences were recorded from the statements that were related to the product innovations. Statement I2 regarding product innovations being dramatic marked the highest difference between entrepreneurial and non-entrepreneurial firms while introducing many new products (i.e. statement P1) recorded the least score difference. This indicates that both entrepreneurial and non-entrepreneurial firms have introduced quite a few products to their product lines during the past five-year period, yet only the entrepreneurial firms managed to introduce significantly new products that are not only new to their firms but also to the respective markets they operate in. According to the statement I3, it was clear that entrepreneurial firms have introduced more process innovations than non-entrepreneurial firms. The average score of entrepreneurial firms is twice as non-entrepreneurial firms. This finding can be attributed to the high technology orientated nature of entrepreneurial firms compared to the non-entrepreneurial firms.

Table 4. The comparison of scores for the innovativeness statements

No	Statement	Avg. Score		Difference b/w E & NE
		E	NE	
I1	In my firm during the last five years, very many new product lines were introduced/marked	4.5	3.5	1
I2	In my firm, changes in product lines have mostly been quite dramatic (new to the industry/new to the world)	5	1	4
I3	In my firm during the last five years, many new processing methods have been introduced	4	2	2
I4	In my firm during the last five years, many new marketing approaches have been introduced	4	1.5	2.5

15	In my firm during the last five years, many new administration/management approaches have been introduced	2.5	1	1.5
16	In my firm, there is a long-term commitment to invest in new technology, R&D, and continuous improvement	5	2	3
17	My firm actively introduces improvements and innovations	5	2.5	2.5
18	My firm is creative in its methods of operation	5	3	2
19	My firm seeks out new ways to do things	5	3	2

As noted above, in comparison to the entrepreneurial firms, the non-entrepreneurial firms have introduced a limited number of product and process innovations. Moreover, these product and process innovations introduced by non-entrepreneurial firms were limited in the degree of importance to the processed food industry. In a broader sense, entrepreneurial firms have introduced not only new-to-the-firm type innovations but also new-to-the-market type product/process innovations whereas the non-entrepreneurial firms only came up with the new-to-the-firm type of innovations that were imitations of what their competitors were doing. This observation helps to differentiate the four firms into two categories; innovation generators vs innovation adapters (Damanpour & Wischnevsky, 2006). Based on this categorisation, the entrepreneurial firms can be classified as innovation generators whereas the non-entrepreneurial firms can be classified as innovation adapters. However, this classification system cannot be applied in an absolute sense to the case firms. For example, certain innovations introduced by entrepreneurial firms were inspired by their competitors. This suggests that it is impractical for a small business to introduce new-to-the-market innovation all the time.

Schumpeter (1934) was one of the first scholars to relate innovativeness as a key determinant of entrepreneurship while focusing on four types of innovations; product, process, market, and organizational/management. Out of these four types of innovations, product and process were identified as the most commonly researched types of innovations in the literature (Avermaete et al., 2004; Cabagnols & Le Bas, 2002; Lumpkin & Dess, 1996) whereas market and organizational innovations were seldom considered in these studies (Karlsson & Tavassoli, 2016). This lack of market and management innovations is also apparent in the case firms regardless of their level of EO. Both entrepreneurial and non-entrepreneurial firms recorded a low level of market and especially management related innovations compared to their introductions of product and process innovations (i.e. statements I4 & I5). According to literature, it appeared that a lack of marketing and management innovations is a common feature among businesses. Tavassoli (2015) noted that most firms may turn

to market and/or organizational innovations during the maturity and obsolescence stages. However, non-entrepreneurial case firms had no significant market or organizations innovations even though they were in the industry for a quite long time.

In consideration of R&D and technological capabilities, entrepreneurial firms committed a large number of their resources to R&D and technology while the non-entrepreneurial firms showed little interest in R&D spending (i.e. statement I6). The average score of entrepreneurial firms on statement I6 is at its maximum (i.e. strongly agree=5) leading to quite a big difference among two firm groups. Entrepreneurial firms invested the majority of their time and capital on the product and process innovations while there were identified as more technologically oriented than non-entrepreneurial firms. In general, most innovation studies considered the role of R&D (Hirsch-Kreinsen et al., 2005) and technological capabilities as proxies of firm innovativeness (Grunert et al., 1997). However, all innovative activities introduced by firms are not about R&D and technology where innovations can primarily be based on new combinations of resources, people, ideas, knowledge, and/or technologies (Karlsson & Tavassoli, 2016).

Statement I7, I8, and I9 are focused on the overall innovativeness and creativity of small businesses. On average, entrepreneurial firms scored high on these statements compared to non-entrepreneurial firms indicating that they act relatively innovative in all aspects of business. The entrepreneurial firms scored highest (i.e. 5) on these statements where non-entrepreneurial firms scored much lower creating a considerable difference between two groups.

Entrepreneur or business owner's personal traits are also being investigated as important determinants of firm innovativeness. In terms of the educational background and experience of the entrepreneur, it has been suggested that entrepreneurs with a post-school qualification are more innovative than other entrepreneurs (Avermaete et al., 2004) (The term "entrepreneur" is used to refer the small business owners collectively). This suggestion in the literature is supported by the results of the case analysis where owners of both entrepreneurial firms completed their formal education up to degree level while owners of non-entrepreneurial firms had no formal education beyond the school level. Leiponen (2000) noted that education not only contributes to the technical, communicational, and social skills of entrepreneurs but also improves the ability to learn which is crucial for innovation. In addition, studies have emphasised the importance of the entrepreneur's experience on firm innovativeness. However, there is little evidence to support that entrepreneurs of small firms with a higher number of years of working experience are more innovative than others (Romijn & Albaladejo, 2002). Interestingly out of the four case firms, the owners of the non-entrepreneurial firms had more past experience while engaging in their businesses on a full-time basis

whereas entrepreneurial firm owners only completed few years in their respective businesses and engaged with the business in a part-time basis. However, the data received from four case firms are not adequate to make a solid statement on the relationship between business experience and the level of innovativeness.

The next section of the analysis focused on comparing the level of competitive aggressiveness between entrepreneurial and non-entrepreneurial firms.

6.3. Competitive aggressiveness

Competitive aggressiveness dimension recorded the third highest difference between entrepreneurial non-entrepreneurial firms (Table 2). According to the average scores, the entrepreneurial firms act more competitively aggressive than non-entrepreneurial firms. The table below shows the individual statements that were used to measure the competitive aggressiveness of firm owners. The data presented are the average scores of entrepreneurial and non-entrepreneurial firms along with the difference of scores between two firm types (Table 5). The data of competitive aggressiveness dimension showed important differences compared to the previously discussed two EO dimensions. Two individual statements recorded negative differences indicating that non-entrepreneurial firms scored higher than entrepreneurial firms (i.e. CA3 & CA4). The highest score difference was recorded at statement CA5 while the least was recorded at statement CA3. The activities and strategies adopted by two types of firms to challenge and withstand their rivals are compared below.

Table 5. The comparison of scores for the competitive aggressiveness statements

No	Statement	Avg. Score		Difference
		E	NE	b/w E & NE
CA1	My firm typically seeks to a competitive “undo-the-competitors” posture	3.5	2	1.5
CA2	My firm is very aggressive and intensely competitive	4	2	2
CA3	My firm adopts a price-cutting strategy to enhance its competitive position [Reversed]	1	2	-1
CA4	My firm copies the business practices or techniques of successful competitors to enhance its competitive position [Reversed]	2	4	-2
CA5	My firm uses unconventional strategies to challenge competitors	5	2	3

As noted under the case description, the two types of firms were chosen from the same food processing industry even though they represented different firm types and product categories. Hence,

all firms were in a relatively similar competitive market with a large number of sellers and homogenous products. It was interesting to note that, both firm types tried to move away from the intense competition and managed to find market niches within the same food processing industry but with low competition. Hence, the statement CA1 received a low average score from both firm types while the difference between two firm types was also recorded a low value. The only exception was one non-entrepreneurial firm (i.e. Sesame Co.) that does not seek such a specific market niche. As explained under the summary of the entrepreneurial cross-case analysis, in the marketing literature this strategy of finding markets with low competition intensity is known as “blue ocean strategy” (W. C. Kim & Mauborgne, 2004). Firms that adopt this strategy chose to operate in an *unknown* market space, untainted by competition. All these firms except Sesame Co. managed to find their own blue oceans within the red ocean of the processed food industry. In detail, entrepreneurial firms were players of the competitive processed spice market in Sri Lanka where first chose domestic hotels as their primary market while the second decided to market their spices through an online portal mainly targeting international customers. The blue ocean chosen by the second entrepreneurial firm is not completely a blue ocean considering the number of producers in both the local and international markets. However, the inherent reputation of the quality of Sri Lankan spices in international markets provided the necessary competitive advantage for this firm. In addition, the IT knowledge and expertise of the couple who owned the second entrepreneurial firm helped them to excel in online markets. One of the non-entrepreneurial firms has also chosen to cater to a niche market found based on geographic isolation. This can also be described as practicing the blue ocean strategy where that market was untapped by producers of similar products.

It was also interesting to note that these firms have used “product quality” as their main strategy against the competition regardless of their level of EO. Owners of both firm types were very confident about the quality of their products. However, according to the literature factors other than product features and quality are used by firms to compete against their industry rivals. Pricing and advertising are two commonly employed strategies by firms (Aluf & Shy, 2001; Chaganti et al., 1989). However, low product pricing was not identified as a common strategy against competition among entrepreneurial firms. This is depicted by the lowest average scores recorded at the statement CA3. Moreover, the statement CA3 recorded the least difference between two firm types in the competitive aggressiveness dimension. Besides the overall low scores, one of the non-entrepreneurial firms showed an exception where the owner stated that they have used price-cutting as a strategy against the competition. Others did not employ this even as a market entrant strategy due to two reasons. One was that the entrepreneurial firms could not afford to deliver their products at a lower price given the fact that they had to spend high on maintaining raw material and process quality. On the other

hand, one of the non-entrepreneurial firms, (i.e. Snacks Co.) hesitated to adopt the price-cutting strategy as they perceived price as a proxy of product quality (Verma & Gupta, 2004).

Statement CA4 recorded interesting differences between two firm types as non-entrepreneurial firms recorded a higher average score than entrepreneurial firms (Table 5). Hence, the difference between the two firm types was recorded as a negative value. This was because entrepreneurial firms never tried to copy their competitors' strategies to maintain or enhance their competitive position in the market while non-entrepreneurial firms accepted that they have copied certain good business practices of their competitors. Moreover, firms have not attempted to practice advanced advertising methods for their products even though the literature suggested strong associations between advertising and competition (Aluf & Shy, 2001; Erickson, 2003). This was a common practice among all case firms regardless of their level of EO. However, the non-entrepreneurial firms have not adopted this strategy as they were not in a strong financial status to practice any advertising while entrepreneurial firms had more demand than that they can cater. Hence, they decided there was no need for practicing advertising to increase their sales.

The next section of this chapter will focus on the risk-taking aspects of entrepreneurial and non-entrepreneurial firms.

6.4. Risk-taking

Risk-taking is identified as the EO dimension with the second least average score difference between entrepreneurial and non-entrepreneurial firms (Table 2). The entrepreneurial firms appeared to be risk-takers than non-entrepreneurial firms even though the score differences pertained to the individual statements remained comparatively low. These small differences can also be argued as entrepreneurial and non-entrepreneurial firms behave in a slightly similar pattern in terms of their risk-taking aspects. The table below is a summary of individual measurements of risk-taking dimension across two firm types (Table 6). The highest value difference is recorded at statement RT1 and RT7 while the least was recorded at RT5, RT6 and RT8 (Table 6).

Table 6. The comparison of scores for the risk-taking statements

No	Statement	Avg. Score		Difference between E & NE
		E	NE	
RT1	My firm invests in high-risk projects (with the probability of a very high return)	3.5	1.5	2
RT2	My firm adopts bold, wide-ranging acts that are necessary to achieve the firm's objectives	4	3	1

RT3	My firm believes that it is best to explore the environment in a gradual, timid and incremental way [<i>Reversed score</i>]	2	3	-1
RT4	My firm commits a large portion of its resources in order to grow	4.5	3.5	1
RT5	My firm invests in major projects through heavy borrowing	3	2.5	0.5
RT6	In my firm, people in our business are encouraged to take calculated risks with new ideas	3.5	3	0.5
RT7	My firm emphasizes both exploration and experimentation for opportunities	5	3	2
RT8	My firm adopts a cautious 'wait-and-see' posture in order to minimize the probability of making costly decisions (the opposite to being bold and aggressive in exploiting opportunities) [<i>Reversed score</i>]	3	3.5	-0.5

The concept of opportunity *versus* necessity-based entrepreneurship can also be incorporated to explain the nature of risk-taking among two types of firms. Block et al. (2015) claimed that that necessity entrepreneurs are found to be more risk-averse compared to the entrepreneurs who are motivated by opportunity and high level of creativity. Hence, it was clear that entrepreneurial firms were more risk-takers than non-entrepreneurial firms which started their business activities out of necessity.

On the other hand, the entrepreneurial firms are non-family firms (one is already a company and the other one is going to be a non-family firm in near future) whereas non-entrepreneurial firms are completely owned and managed by family members. The literature also supported the notion that even if family firms do take risks while engaged in entrepreneurial activities, they take the risk to a lesser extent than non-family firms (Naldi, Nordqvist, Sjöberg, & Wiklund, 2007). This also supports the idea of entrepreneurial firms acting as risk-takers compared to the non-entrepreneurial firms.

The statements RT3 and RT8 resulted in negative differences among two groups indicating that non-entrepreneurial firms scored higher than entrepreneurial firms. The negative value in RT3 is a result of one non-entrepreneurial firm believing that they need to explore the market in a gradual way rather than being aggressive while taking the risk. On the other hand, the entrepreneurial firms disagreed with the idea of gradual exploration of markets and business environment. The responses for the statement RT8 followed a similar pattern where the same non-entrepreneurial firm stated that they adopted a "wait-and-see" posture in making costly decisions as opposed to being aggressive and risk-

seeking. The responses of entrepreneurial firms to this scenario was *indifferent* as they were positive towards both “wait-and-see” and “aggressive” approaches in costly decision making.

The perception of heavy borrowing and debts was not consistent among two firm types (i.e. RT5). One firm from each category was not against borrowings while the other firm tried to keep its debt at zero levels. However, non-entrepreneurial firms were not motivated to invest in risky projects through heavy borrowing. The entrepreneurial firms were more active in exploring new product-market opportunities compared to the non-entrepreneurial firms. The non-entrepreneurial firms were not confident to step outside their comfort zone. Hence, RT7 became one of the statements that recorded the highest difference between entrepreneurial and non-entrepreneurial firms.

The final sub-section of this chapter will compare and contrast the level of autonomy between entrepreneurial and non-entrepreneurial firms.

6.5. Autonomy

According to the average value differences of five EO dimensions depicted in Table 2, Autonomy resulted in the least difference between entrepreneurial and non-entrepreneurial firms. The value is even less than one and showed a clear difference when compared to the values obtained for previously discussed dimensions. It can be even be argued as non-entrepreneurial firms behave quite similar to the entrepreneurial firms in terms of their autonomous behaviour. The table below compares the average scores of entrepreneurial and non-entrepreneurial firms recorded for the individual autonomy statements (Table 7). The table also illustrates the calculated differences in average scores between two firm groups.

The highest score difference was recorded for the statement A2 while the least was recorded for the A5. The statement A5 showed no difference between entrepreneurial and non-entrepreneurial firms on average.

Table 7. The comparison of scores for the autonomy statements

No	Statement	Avg. Score		Difference between E & NE
		E	NE	
A1	My firm supports the efforts of individuals and/or teams that work autonomously	4	3	1
A2	In my firm, the best results occur when individuals and/or teams decide for themselves what business opportunities to pursue	3.5	1.5	2

A3	In my firm, individuals and/or teams pursuing business opportunities make decisions on their own without constantly referring to their supervisors	2	1.5	0.5
A4	In my firm, employee initiatives and input play a major role in identifying and selecting entrepreneurial opportunities	3	2.5	0.5
A5	My firm usually seeks advice from experts (eg: NEDA/SED officers) when making decisions [<i>Reversed score</i>]	3.5	3.5	0

According to the average scores calculated for the statement A1, it appeared that both entrepreneurial and non-entrepreneurial firms supported its employees or family workers who wanted to act autonomously (Table 7). As noted under the two case summaries, Sri Lanka is a culture with high power distance and moderate collectivism (Hofstede & Bond, 1984). The high level of power distance observed in Sri Lankan culture accepts the decision making authority of the members in the higher levels of organizational hierarchy (H. R. Gamage, 2014) while lower-level members do not question that behaviour. This high level of power distance was apparent in the decision-making style of all four case firms. Even if they consider the ideas of the lower echelon members, the final decision was taken by the owner-managers. However, both types of firms maintained a good employer-employee relationship which was based on moral terms (H. R. Gamage, 2014). Employees were treated like family by owner-managers.

The collectivist culture is also shown in the decision-making aspects of these family and non-family firms regardless of their level of EO. Decisions of all firms were taken collectively either by husband and wife in family firms and or by the collaboration of board members. In addition to the family members, the firms sought expert advice for decision making to a certain extent (i.e. statement A5). However, it was also clear that none of the owners of these two firm types had autonomy as a start-up motive (Alstete, 2008; Van Gelderen & Jansen, 2006; Wilson et al., 2004). This similar behaviour of entrepreneurial and non-entrepreneurial firms suggests that autonomy may not be regarded as a strong dimension to distinguish between two firm types especially under the cultural context of Sri Lanka.

Appendix X– Survey questionnaire

Entrepreneurial Risk Management Behaviour of Micro and Small-Scale Firms in the Agriculture Processing Sector in Sri Lanka

1. Owners' Personal information

01	Name						
02	Age						
03	Gender						
04	Level of education	No sch.	Gr 1-5	Up to O/L	Up to A/L	Diploma	Degree
05	Years of experience in business						
06	No. of previous start-up attempts			successful			Unsuccessful
07	Sources of income & % from each	Business		Employment		Other	

2. Business information

01	Name of the business						
02	address						
03	DS division						
04	Proportion of ownership	Family %			Non-family %		
05	No of employees	Family #			Non-family #		
06	Nature of business	Fruit processing			Vegetable processing		
		Fruit & vegetable processing			Essential oils		
		Dairy processing			Other processed foods		
		Other (Please specify)					
07	Product range						
08	Year of establishment						
09	Annual turnover	Less than Rs. 1 Million		Rs. 1 Million – Rs. 5 Million			
		Rs. 5 Million – Rs. 15 Million		Rs. 15 Million – Rs. 50 Million			
		Rs. 50 Million – Rs. 100 Million		Above Rs. 100 Million			

3. Please circle the letter that best describes the stage of your businesses today.

A	Entry
B	Growth
C	Consolidation
D	Entry of the next generation
E	Exit

4. Risk propensity attributes

The following sentences describe how various people deal with risky situations and what their attitude towards risky decisions are. We would like to learn how you think about these issues.

Could you please read each sentence and then rate to what extent that statement is true for you?

For your answers, a five-point scale is provided: **strongly disagree (SD)**, **disagree (D)**, **neither disagree nor agree (N)**, **agree (A)**, or **strongly agree (SA)**

	Statement	SD	D	N	A	SA
1	I always take calculated risks in my business decisions					
2	When introducing new products, I am always willing to accept a certain level of risk					
3	I never shy away from taking up an opportunity due to the risk of failure					
4	I always encourage employees to take risks without fear of punishment					
5	I always have a strong tendency, to commit a large amount of resources to high risk projects					
6	I always aggressively exploit potential opportunities regardless of the level of uncertainty					
7	I always seek financial credit as a means of funding my business activities					
8	I always tend to venture into business areas that no one else has ventured into					
9	When it comes to business, I like to play it safe					
10	I find planning difficult because the future is so uncertain					
11	Even when I know that my chances are limited I try my luck					
12	In my work, I only set small goals so that I can achieve them without difficulty					
13	My decisions are always made carefully and accurately					
14	When there are a number of solutions to a problem, I find it difficult to make a choice					
15	I always tend to imagine the unfavourable outcomes of my actions					
16	I express my opinion even if most people have the opposite view					
17	I am not good at making sense of ambiguous and uncertain situations					
18	I take up challenges more often than other small business owners do					
19	I postpone investments until they really need to be done					

5. Risk scenario questions

RISK-SITUATION [A] -- INVESTING IN A NEW PRODUCT

Imagine you have some capital available and want to invest it in a profitable way. You are approached by an engineer who specialises in food processing machinery. This engineer has come up with a design for a new food processing system with a peeler, chopper, boiler and along with packaging and labelling in one compact unit. There is nothing of this calibre on the market at present, but it would require a serious capital investment to bring the product to the market-place. This new system could be very successful and make you a considerable profit; however, if the public does not get excited by the final product and sales are low, your investment will be a serious failure for you.

So the critical question is: Is it better to be cautious or take a risk? In such a situation, how likely is it that you would decide to invest in this new processing system?

Definitely not

For sure

0 1 2 3 4 5 6 7 8 9 10

RISK-SITUATION [B] -- INVESTING IN SHARES

Imagine that you have a reasonable level of knowledge about investing in the stock market. This time you are keen to look at some middle-sized companies for an investment of about Rs. 500,000. A company called 'AgbiZ' catches your interest. By looking at the recent annual reports, you realise that the chances of enhancing its profitability in the coming months seems very promising because they will market a new product. However, there have also been some bad news about the company in one of the financial newspapers. You are confused as to whether these reports are a real reflection of the prospects of the company. Thus, you don't know for sure whether the value of 'AgbiZ' will increase or decrease.

So the critical question is: Is it better to be cautious or to take a risk? In such a situation, how likely is it that you would decide in favour of this investment?

Definitely not

For sure

0 1 2 3 4 5 6 7 8 9 10

6. Perceived business environment risk

The business environment is a dynamic structure which changes over time from different aspects such as market, HR, finance, legislation and politics. The business owners respond to these changes in unique ways according to their perception of the change occurred. These changes may impose benefits or losses towards the business depending on the way those are perceived by the owner.

- 6.1. For each of the sources of change/risk listed below, please indicate how do you feel about them:
1. The **potential for your business to benefit** long term (Very Low to Very High)
 2. The **likelihood of this potential benefit happening** long term (Rare to Almost Certain)

Source of change/risk	The potential to benefit from this change					The likelihood of this potential benefit happening				
	Very low	Low	Medium	High	Very high	Rare	Un-likely	Possible	Likely	Almost Certain
Hazard risks										
Climate										
Environmental changes										
Financial risk										
Interest rate volatility										
Access to finance										
Access to specialty loans/grants for SMEs										
Market risk - product										
Finding new markets										
Local demand										
Competition										
Domestic economy fluctuations										
Purchasing power of consumers										
Consumer knowledge about brands										
Market risk – input price										
Raw material costs										
Labour costs										
Quality of raw materials										
Agreements with input suppliers										
Capital cost of processing equipment										
Input availability										
Operational risk										
Seasonality of crops										

Perishability										
Theft										
HR risk										
Availability of trustworthy people as labour										
Availability of labour with the right attitude										
Employee safety										
Technology changes										
Strategic risk										
Business relationships (within supply chain)										
Reputation & image										
Regulatory and Legal risk										
Waste disposal										
Health regulations										
Quality standards										
Employee benefits										
PayPal related regulations										
Tax rates										
Political risk										
Change in leadership that revises economic policies										
Change in leadership that revises trade policies										
Corruption										
Social risk										
Work/life balance										
Other (please specify)										

6.2. For each of the sources of change listed below, please indicate how do you feel about them:

1. The **potential for your business to lose** long term (Very Low to Very High)

2. The **likelihood of this potential loss happening** long term (Rare to Almost Certain)

Source of change/risk	The potential to benefit from this change					The likelihood of this potential benefit happening				
	Very low	Low	Medium	High	Very high	Rare	Un-likely	Possible	Likely	Almost Certain
Hazard risks										
Climate										
Environmental changes										
Financial risk										
Interest rate volatility										
Access to finance										
Access to specialty loans/grants for SMEs										
Market risk - product										
Finding new markets										
Local demand										
Competition										
Domestic economy fluctuations										
Purchasing power of consumers										
Consumer knowledge about brands										
Market risk – input price										
Raw material costs										
Labour costs										
Quality of raw materials										
Agreements with input suppliers										
Capital cost of processing equipment										
Input availability										
Operational risk										
Seasonality of crops										
Perishability										
Theft										

HR risk										
Availability of trustworthy people as labour										
Availability of labour with the right attitude										
Employee safety										
Technology changes										
Strategic risk										
Business relationships (within supply chain)										
Reputation & image										
Regulatory and Legal risk										
Waste disposal										
Health regulations										
Quality standards										
Employee benefits										
PayPal related regulations										
Tax rates										
Political risk										
Change in leadership that revises economic policies										
Change in leadership that revises trade policies										
Corruption										
Social risk										
Work/life balance										
Other (please specify)										

7. Risk management strategies

Risk management strategy	Do you use this strategy in your business?			Applicability of the strategy to your business				
	Y	N	N/A	Very low	Low	Medium	High	Very high
Managing Hazard Risk								
Insurance against hazard risks								
Adjusting the production according to the weather conditions								
Managing Strategic Risk								
Diversifying into related business ventures								
Diversifying into unrelated business ventures								
Multiple income sources								
Producing number of product lines								
Planning resource allocation								
Managing debt								
Keeping debt low								
Involving family over the longer term								
Collective decision making among partners (family or board members)								
Limiting family involvement								
Planning capital spending								
Using SWOT								
Having a good business vision								
Using business plans								
Using long and short-term plans								
Using external advice and mentors								
Managing knowledge risk								
Study in business management								
Study in the technical domain								
Use of workshops and programmes								
Obtaining support from government organisations								
Sourcing expert knowledge (eg: development officers)								
Managing Operational risk								
Keeping stocks (both raw material and final product) low due to perishability								
Maintaining adequate stocks								
Producing only for the orders received								
Keeping stocks low at the retailers to reduce losses								
Installing CCTV to prevent theft								
Continuous product innovation								

Managing HR risk									
Using contract instead of permanent labour									
Process automation and modern technology									
Involvement of the family for labour if needed									
Managing Market risk – product prices									
Monitoring customer satisfaction									
Monitoring market trends									
Monitoring competitor activities									
Spreading sales									
Using social networks for marketing									
Monitoring technology changes									
Using market surveys prior to introducing products									
Use high quality (+health benefits) to compete									
Using low price as a market entrance strategy									
Keeping product price high as a marketing strategy									
Selling products on credit to attract retailers									
Managing market risk - input prices and quality									
Using local inputs									
Purchasing inputs using credit									
Purchasing raw material in bulk									
Utilising a network or hub of suppliers to ensure quality									
Vertical coordination									
Developing agreements with buyers									
Maintaining a product margin (in response to cost fluctuations)									
Managing Regulatory and Legal Risk									
Re-using waste water									
Re-using solid waste for energy production									
Ensuring clean/standard production processes (for health regulations)									
Proper reporting and compliance									
Managing Political Risk									
Doing nothing/stay neutral of political changes									
Using bribes									