EVALUATING THE RISK OF RUIN:
A CRITICAL EXAMINATION OF NEW
VENTURE RISK AND RETURN

by

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ABSTRACT

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New ventures play an important role in any economy, yet the dynamics of the process are poorly researched and badly understood. This study provides a detailed analysis of start-up businesses in New Zealand, exploring the risks and returns of new ventures as well as the motivations behind the start-up decision. It analyses new business formations from 1987 to 1993 and determines their success rates and growth. This leads to the conclusion that the high failure rates, when combined with the low growth rates of survivors, results in returns that are on average insufficient to justify the high risks involved. Despite insufficient returns, far more new ventures are started than the economy can absorb. It is this oversupply of new firms which is identified as the underlying cause of the high business failure rates.

A survey is used to investigate the motivations of people in the process of founding a business. New venture founders, as a group, are shown to have unrealistic expectations as to the financial returns that can be achieved. While their estimates of the risk of starting a business are reasonably accurate, they tend to believe that this risk only apply to others. When viewed through the eyes of their founders, a new business is an extremely attractive proposition providing high rewards, in both financial and non-financial terms, with only a modest risk of failure.

The phenomena observed are at odds with neo-classical economics, but are consistent with emerging theories, particularly evolutionary economics. The role of new ventures in economic development is explored. The views presented provide a fresh perspective on the nature and role of business start-ups, which is in marked contrast to commonly held views upon which many public policy initiatives are based.

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Chapter 1

1. INTRODUCTION

1.1 BACKGROUND

The actions of entrepreneurs, in starting up new businesses, are widely considered to be one of the major driving forces behind the modern market driven economy. These entrepreneurs, by seeking to further their own self interest, create the competitive pressure and innovation that drives economic progress. Governments encourage the formation of new firms in the belief that they will enhance economic growth and employment. The majority of the firms that start-up eventually fail, and few grow to a significant size. Yet small firms make up a sizeable sector of the economy, providing up to half of private sector employment and a substantial portion of GDP. Despite this general recognition of the importance of small firms, there is limited research undertaken on this sector of the economy, and what little research is produced tends to focus on the more entrepreneurial firms, looking at their characteristics and success factors. The dearth of research on small businesses is to a large extent due to the dearth of available information and the difficulty and cost of generating suitable data. A substantial proportion of the capital invested in private enterprise is invested in small and start-up businesses, yet almost nothing is known about the financial performance of this sector. This study is aimed at providing some insight into this key sector of the economy and will focus in particular on start-up ventures.

The role of the start-up business in the market economy is an important one. The activity of entrepreneurs, in starting up new ventures and attacking the positions of existing firms in the market place, is a major driving force behind economic development. Existing firms that cannot adapt to the changing environment in a competitive economy will be driven out of business. The importance of this

process has long been recognised and Schumpeter (1942) aptly described the process as "creative destruction". He saw the role of entrepreneurship as one of creating wealth by breaking down market structures and creating new ways of conducting business. The entrepreneur, being a rational investor, should expect to achieve a return on investment commensurate with the risks involved in participating in this process. Given that the risks are high, the expected returns should be higher than comparable investments of lower risk.

1.2 SCOPE OF THE STUDY

This study looks at the risks and returns associated with starting up a business in New Zealand and attempts to explain the process that occurs. In doing so it looks at the economy as a whole, rather than at individual firms. It is only by looking at an economy as a whole that the true picture can be found. While many start-ups are small and have characteristics of limited interest to those studying entrepreneurship, they nevertheless comprise the bulk of start-ups and hence should not be ignored. Anyone who starts up a business is making an investment and this investment outlay, like any other, must provide an expected return adequate for the risk involved, otherwise, being a rational investor they should place their money elsewhere. The process of starting up a business is of course far more than an investment decision. It is a means for individuals to gain employment, status and independence; an attempt to achieve self actualisation. Nevertheless, the performance of these firms from the financial perspective is of paramount importance, and it is this aspect which the study concentrates upon, although other aspects are considered.

The risks associated with an investment can be defined in various ways. For some, such as listed shares, risk can best be described as the variability of returns. For others, such as bonds, variation of returns can be less important and the risk of default may be the major focus. This is because there is a high probability that the interest and principal will be repaid and a low probability that a default will occur and the expected return will not be achieved. When dealing with a start-up business the risk will be of both types. If the business is successful, expected

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returns will be difficult to predict. In addition, there is a high chance the business will fail. For the founder of the new venture this normally means their entire investment will be lost. It is this expectation of loss on failure of the business that is the major component of risk with a start-up business, although the returns if successful cannot be ignored.

When an individual or group found a business, they normally invest a substantial proportion of their wealth in the venture and hence have an undiversified risk. Unlike venture capitalists, with their portfolio of many investments, individuals cannot diversify away the risk and hence should rationally expect a higher return than is demanded by venture capital providers.

It is generally accepted that the risk associated with starting up a business is far higher than investing in an established firm. If the risk involved in a new venture is high, the rational investor must expect a high return to justify the risk involved, especially where it is an undiversified risk. Where would this high return come from? As new firms compete with existing firms in the same market place, it is difficult to see any advantage a new firm would have over an existing firm, apart from entrepreneurial zeal. The disadvantages are only too obvious. Why would the founders of new businesses think they can gain the higher returns needed to justify the additional risks they take? Indeed, do they even think in such terms?

This study is designed to examine start-up businesses in New Zealand. It will investigate the relationship between risk and reward, and explain this relationship as far as possible and determine why the identified characteristics exist.

1.3 HYPOTHESIS AND RESEARCH QUESTIONS

The central hypothesis of this study is that when viewed on an economy wide basis, the financial rewards obtained from starting up a business are on average insufficient to justify the risk associated with starting up a business. This central theme can be broken down into the following points.

- The risks of starting up a business are higher than for comparable established businesses because of the high failure rate that occurs in the early years.

- The returns from start-up businesses that survive their start-up phase, are unlikely to be significantly higher than comparable established businesses. This is because it is difficult to find significant advantages which new firms hold over more established firms, apart from the strength of the motivation of their founders. Newness, on the other hand come with many obvious disadvantages.

- A "rational" investor should not choose an investment in a start-up business if it has a higher risk and a lower return than investing in a more established business, assuming all else is equal.

If the evidence points to entrepreneurs accepting high risk for inadequate return, then an explanation must be found for this behaviour. Investors make their decisions, not on actual outcomes, but on their expectations of what the outcomes will be. Hence explanations will be sought for entrepreneurial behaviour. The most logical explanations are:

- business founders underestimate the risk associated with starting up a business; and/or

- they over estimate the rewards.

To answer this question, business founders expectations at the time they are starting up a business will be analysed. However, it must be recognised that starting up a business is not only a financial decision and other motivating factors will be analysed to complete the picture. Finally, the results will be placed in a theoretical framework, and the ability of current economic theory to explain the phenomena observed will be analysed.

1.4 Layout of the Report

In order to produce a coherent document that can be readily understood, the individual parts of the study will be dealt with separately. The theory, methodology, results, and discussions of each part will be dealt with sequentially. In essence, the thesis can be regarded as a series of separate studies designed to provide a picture of the financial economics of start-up businesses in New Zealand. The individual pieces are designed to combine into a coherent whole, providing a comprehensive view of start-up businesses.

Numerical results will be presented in graphical or tabular summary form in the body of the text, with the details presented in appendices. This is designed to make the work more easily comprehensible to the reader, while still providing detailed supporting data. The sequencing of topics is as follows:

- The study begins by looking at the major element of risk for the start-up firm; the risk that the firm will fail. It analyses all businesses that started up in New Zealand in the period 1988 to 1994 and tracks their survival.

- The next section deals with the role of small business in the economy and explores the effect the high volume of new ventures has on failure rates, and examines the need for the number of new ventures being founded.

- The results are analysed in the context of current economic theory, and the ability of economic theory to explain entrepreneurial behaviour is examined and alternative theories explored.

- The risk and returns for new ventures are then analysed in order to establish whether or not outcomes are consistent with rational investor behaviour.

- Next the expectations of business founders are analysed. Their expectations as to risks and rewards are examined and their motivations analysed. These are then compared with actual outcomes in order to ascertain whether or not they appear to be behaving "rationally".

- The implications of the results are then presented and recommendations for further study are made in the concluding chapter.

1.5 LIMITATIONS OF THE STUDY

Any study that includes small businesses faces a number of difficulties. These limit the researchers ability to obtain the type of data that would be desirable in a thorough investigation of many of the key issues affecting small firms. In New Zealand, as in most other countries, there is very little data regularly and systematically collected on small firms. Apart from firms issuing securities to the public or those with a 25 percent or greater overseas ownership, there is no requirement to provide financial information to anyone other than the Inland Revenue Department. Hence, any analysis of the performance of small firms must rely on information supplied by the firms themselves. Collecting such data is difficult as it is a major imposition on the firms. Indeed, the trend is to require small businesses to supply less information rather than more, as the compliance costs of even the limited requirements that currently apply, are considered to be a major imposition on these businesses.

The result is that research on small businesses is very limited, and what is done tends to involve small sample sizes and concentrates on specific sectors. The results are often not amenable to detailed statistical analysis. The design of research on start-up businesses faces these limitations, and compromises must inevitably be made. This results in key questions being unanswered, and conclusions which lack the rigorous proof that would be obtained in the ideal world. Nevertheless, this type of research is valuable, as without it the true nature of what occurs in this key sector of the economy will remain a mystery, with decisions being made on the basis of conventional wisdom based on conjecture and anecdotal evidence. This study certainly has major shortcomings, however, it does provide valuable insight into start-up businesses. The specific limitations of this study are as follows:

- Data on start-ups is only available for a specific period of time, namely from 1988 until continuity in the data was lost in 1995 due to changes

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made to the database. The data available is extremely limited, primarily consisting of employee numbers, industrial classification, geographical location and firm type. Section 37 of The Statistics Act 1975 prohibits Statistics New Zealand from releasing raw data to researchers, or indeed from providing any information which could identify any particular undertaking. Thus, data which is detailed enough to provide cross correlations of the major characteristic of the population would have major gaps, as every unit of data containing less than three firms would be deleted to prevent identification of the firms involved.

• The cost of purchasing data was a limitation as the budget for the project was relatively small.

• The survey work on individuals in the process of starting up a business was less comprehensive than ideal due to the unwillingness of those distributing the survey to place a heavy imposition on start-up firms. Unless the survey was quick and easy to complete, it would not have been possible to obtain an adequate sample size, or gain nationwide distribution.

• The time periods of the two parts of the study are different. The study compares the results of a survey of those starting a new venture in 1997 with statistics of businesses which started up in the period 1978 to 1993. This inevitably raises the question as to the comparability of the two sets of data.

• The results can only be considered to be valid for New Zealand during the time in which they were obtained. There is only limited comparative data from other times and places which can be used to determine the wider applicability of the conclusions reached.

1.6 SIGNIFICANCE

This study contributes to the literature on small business and start-up ventures in the following ways:

- It provides the first comprehensive study of the failure rates of start-up businesses in New Zealand, and in doing so rectifies the methodological flaws found in similar earlier studies.

- It is the first study to include the new enterprises of existing firms as part of the population of new firms.

- It is the first study to comprehensively deal with the issue of the volume of new firm formation as an underlying cause of business failure rates.

- It looks at the issue of the returns achieved by new firms on an economy wide basis and provides not only evidence that the returns must on average be inadequate for the risks involved, but also an explanation for why this occurs.

- It brings together data and theory from various sources and combines them with the findings of the study to create a unique view of new firm formation which is able to explain, not only what is occurring, but also why.

- It provides an example of evolutionary economics at work, and in doing so supports and contributes to the understanding of this emerging field of economics.

- It provides evidence that is useful in formulating public policy that deals with the encouragement of new venture formation, and casts doubt on the advisability of the widespread use of programs to encourage the unemployed to start up new firms.

Chapter 2

2. THE FAILURE RATE OF START-UP BUSINESSES

2.1 INTRODUCTION

The major risk associated with starting a business is that it will fail during the start-up period. This part of the study focuses on this risk of failure by looking at start-up businesses in New Zealand during the period 1988 to 1994. It examines the outcomes of starting up a business in terms of failure rates, and rewards in terms of growth in business size. In the absence of actual data on financial returns, business growth was used because it is one of the fundamental determinants of an increase in the value of a firm. During the period 1988 to 1994, an average of 23,000 new stand-alone business ventures were started each year in New Zealand. This chapter looks at the survival rates of all of these businesses and the growth rates achieved. Later these results are analysed in terms of what might be expected if the start-up decisions made were based on "rational" wealth maximisation.

2.2 REVIEW OF THE LITERATURE

As will be seen shortly, the studies that have been done on businesses' failure rates are controversial, with researchers and commentators divided into two camps. On one side there are those which show high failure rates. Opposing them are those who refuse to accept the figures and explain them away while criticising the methodology used. There is certainly plenty of scope for differences of opinion as many of the studies have major methodological flaws, and those that do not, often produce contradictory results. The sources of the major variations in results are firstly, the differences in the definitions used for failure and secondly, there are the differences in the databases used for the analysis and in the sampling methods employed. It is helpful to understand the definitions of failure that can be used before exploring the various studies, and the controversies they engender.

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2.2.1 Defining Failure

One of the problems of estimating failure rates is defining what is meant by failure. Watson and Everett (1993) believe that failure definitions should not be used unless they meet the following criteria:

- They must be objective and verifiable so that researchers working independently are able to replicate results.

- They must have relevance and representational faithfulness, in other words they must represent what they purport to describe.

- They must be reliable and free from bias.

- They must be simple. Simplicity gives measures that are less prone to error, more easily replicated and more generalisable.

Unfortunately, these ideals are seldom met in practice.

The various definitions of failure have been canvassed in the literature. Cochran (1981), Berryman (1982), Haswell and Holmes (1989), and Watson and Everett (1993) have surveyed the literature and all support the use of the following definitions of failure which have wide general acceptance:

- Earnings based. A firm has failed when its return on capital is significantly lower than can be obtained on similar investments.

- Solvency based. A firm has failed when it goes out of business as a result of court insolvency proceedings, or ceases operations leaving creditors unpaid.

- Liquidation or bankruptcy criteria. A failure occurs when a company is involuntarily liquidated or a firm or individual is declared bankrupt.

- Loss cutting. Failed firms are those which are closed or disposed of at a loss in order to avoid further losses.

- Simple discontinuance. A firm ceases trading for any reason.

The number of failures is obviously going to be highly dependent on the definition that is adopted. For example, Dickinson (1981) finds "voluntary" dissolutions are five times as high as those resulting in creditors loss. The relationship between the different definitions is presented in Figure 1.
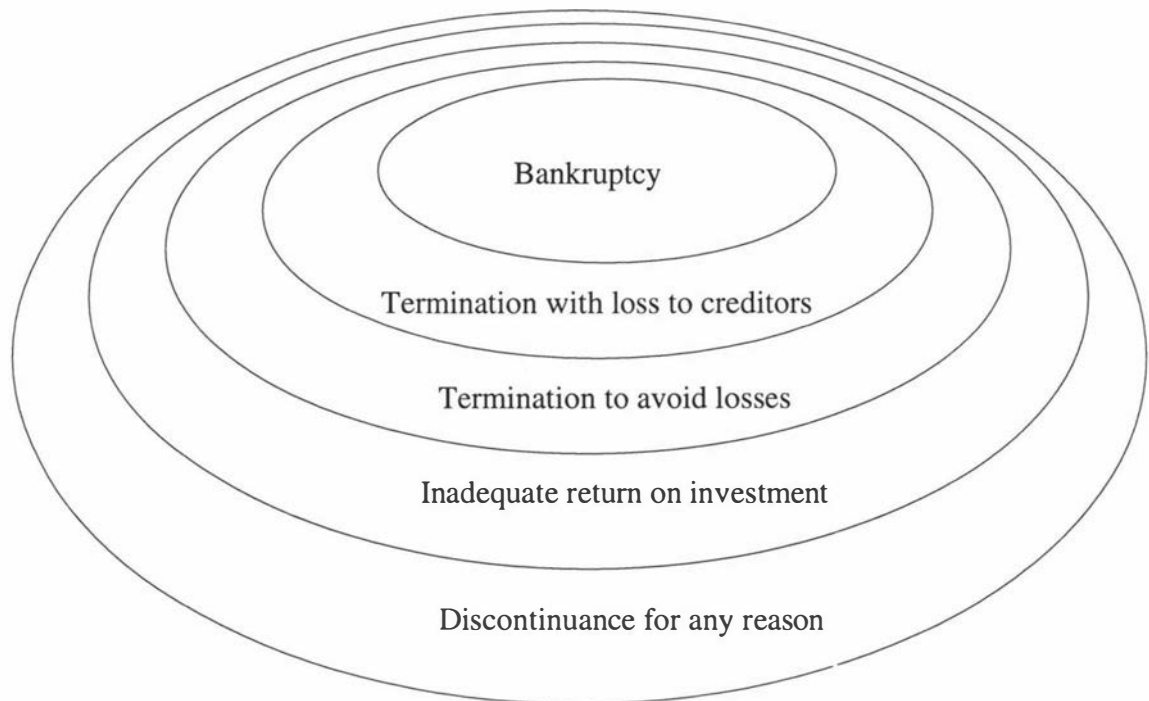
Figure 1   Definitions of Business Mortality
A diagrammatic representation of the relationship between the different definitions of business failure based on Cochran (1981, 53).

Even these definitions of failure have their variations. As an example, the simple discontinuance category is often extended so that businesses which are sold for any reason are classified as having failed. Such businesses may in fact be highly profitable and continue to trade for decades.

Crawford (1979), Madique and Zirger (1985), and Jennings and Beaver (1997) believe a different approach is required and support a definition based on the achievement of expectations. Madique and Zirger state that, "Success is defined as the achievement of something desired, planned or attempted." Jennings and Beaver believe that a business is a failure when it fails to satisfy the "principal stakeholder's aspirations". From the economist's point of view, an earnings based

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criteria may be superior. In practice it is very difficult to obtain such statistics owing to the difficulties of accurately quantifying stakeholders aspirations and finding out if they were met. Many firms generating an inadequate return continue to trade for considerable periods of time because it is less costly than closure. These, so called "living dead", may make up a considerable portion of businesses currently trading. One common reason for continuing to trade while making less than an economic return is to avoid incurring early termination penalties where a lease on business premises is backed by a personal guarantee.

Liles (1974, 4) in his classic book on entrepreneurship goes one step further when he classifies the majority of firms as "marginal". Such firms provide support for working proprietors, but often at a lower level than might be obtained by employment if they could or would seek work elsewhere. If Liles is correct, it would seem that a significant proportion of new ventures that continue to trade would be classified as failures, if the definition of achievement of profit expectations was used: this is because it is difficult to believe that many entrepreneurs starting up a new venture do so in the expectation that they will earn less than they could as someone else's employee. The concept that businesses still trading, and which can be expected to continue to trade for the foreseeable future, should be classified as failures would be inappropriate in most circumstances and unlikely to win wide acceptance.

Criteria based on insolvency are useful as statistics are readily available. They tend to give lower failure rates, because firms that fail without the intervention of the courts or where the existence of unpaid creditors is not reported to a credit agency, slip through the net. In theory, insolvency based statistics are reliable and easily reproducible, but in practice they have their difficulties. They are dependent on the insolvency laws that apply in the jurisdiction where the cases are heard, and such laws change over time, as do attitudes to insolvency. Escaping ones creditors by filing for bankruptcy has become more acceptable over time, hence it may be becoming more common.

Determining which businesses shut down to cut losses is difficult as, human nature being what it is, no one wants to admit their business has failed financially.

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They prefer to offer less damning explanations. In addition, there are difficulties in obtaining a suitable sample for a study, thus while loss cutting may have merit as a definition of failure, determining failures based upon it is impractical.

In practice, the definition of failure adopted is often determined by the availability of data and the purpose of the study. Dennis (1997) correctly points out that, "Allowing the data set to dictate definitions and, therefore, counts has been a matter of convenience and cost. That strategy is understandable, but it is also backward. The preferable technique is to begin with a definition and then develop methodologies designed to obtain the desired information. The definition should be intuitively satisfactory rather than exclusively a convenience." However, it is notoriously difficult to obtain statistics on small businesses, and locating and tracking statistically significant samples of businesses over extended periods of time is costly and time consuming. While the use of existing databases for tracking business failures has its problems, the information they contain is too valuable to ignore, and they are the only source of comprehensive statistics.

The definition of failure that is of most interest, and indeed the one purportedly achieved in most of the studies that have been undertaken, is that involving the involuntary failure of a business. This is where a business has stopped trading in spite of a desire on the part of the owner/s for it to continue. Using the criteria of bankruptcy, and ceasing to trade resulting in a loss to creditors, are clearly too restrictive to achieve this objective. The best definition would seem to be businesses that ceased trading because of an inadequate return on investment, however it is almost impossible to obtain such statistics and the definition is highly subjective. For this reason, simple discontinuance is often seen as the best definition for practical purposes and its use as a proxy for failure has many supporters, such as Fredland and Morris (1976). However, Fredland and Morris were willing to accept either discontinuance or a change of ownership as failure and suggested that both indicate that resources have been shifted to more profitable opportunities. The main reason that this compromise is normally accepted is the difficulty experienced in distinguishing between ownership change and exit. For example, Ganguly (1985) used discontinuances including some changes of ownership, because the Value Added Tax (VAT) database that

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produced his statistics could not distinguish between change of ownership and some births. The ideal solution would be to use total discontinuances less voluntary discontinuances. It would be possible to debate, as Fredland has, that a business should also be classified as a failure where it is sold due to the existing owners being unable to achieve an adequate profit. There are many, such as Kirchhoff (1990), Massel (1978), and Sullivan (1996) who criticise failure statistics for including such firms as failures. The better view would be that one should wait and see if the new owner can continue to trade the business and only include it as a failure if and when it does indeed cease trading.

2.2.2 Database and Sample Selection

In order to generate failure statistics, two approaches can be taken. One approach is to conduct research using a survey of a selected sample, or alternatively interrogate a database that has been generated for other purposes. This second approach has dominated failure rate research and the limitations of the method have resulted in considerable controversy surrounding the outcomes obtained. The selection of the correct database and the understanding of the true nature of the data it contains, are crucial in obtaining meaningful results.

Any database which captures a population or sample of firms, and collects data from those firms, can potentially be used to detect the failure of firms. It can do this either by providing data that indicates failure, or by the simple fact that data ceases to be provided by the firm. If the life span of firms is to be determined, it is also necessary for the database to include new firms as they are born. Perhaps the earliest example of this concept is the study by Hutchinson, Hutchinson and Newcomer (1938) which looked at the city directories produced for Poughkeepsie in New York. These directories listed details of every business in the city from 1843. By tracking every business from when it appeared in the directory until it failed to appear, it was possible to determine the lifespan and failure rate of firms in the town over a 94 year period.

The most frequently used, and most controversial database is Dun and Bradstreet's (D&B) United States database, which has been collecting data on business failure

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rates since the 1870's. It began collecting firm age data in 1956. Many of the studies conducted using this database have been highly influential, especially work by Birch (1987) which has formed the basis for much of the current public policy related to small business. Despite the widespread use of the D&B database, there is a substantial body of opinion that states it is unsuited for the purpose. These criticism revolves around three characteristics of the database. Firstly, what does it records as a birth and is the birth date accurate. Secondly, what does it record as a death and how well is this done. Thirdly, does it include all businesses, and if not, does it present a representative sample. It is worthwhile looking at the D&B database in some detail, as much of the literature on business failure and new firm formation is based on research using this database. Failure to understand the database and its weaknesses makes it difficult to understand the controversies that plagues research in this area.

2.2.2.1 The Nature of the D&B Database

The D&B database is generated as part of Dunn and Bradstreet's main line of business, which is providing credit reports to its customers. In order to do this, it must maintain a database containing credit information on firms. The normal way for a firm to first appear on the database is for someone to ask for a credit rating on the firm. This process is supplemented by an active process of searching out new firms by D&B agents. Each time a new credit report is requested, a firm's file will be updated. In addition, files are updated from court records of bankruptcies (U.S. corporate bankruptcy equates to the term receivership in N.Z.), involuntary liquidations and any event which gives a firm an adverse credit rating, such as any reported closure leaving creditors unpaid.

Duncan and Handler (1984) detail other methods used by D&B to obtain listings, namely firms which self report themselves, and those which are culled from other databases, such as those containing firms that obtain a banking relationship or purchasing business insurance. Phillips and Kirchhoff (1989) report that notices of company incorporations are also used to update the file. They say firms that are

added to the Dun's Market Indicator (DMI) files of the database are at least contacted, so that they can be correctly classified.

Dun and Bradstreet Information Services (DBSI) database of U.S. firms contains the names of all active and inactive firms listed with D&B. Ten million of the 18 million firms on the DBSI database that make up the DMI files (Duncan and Handler 1994, 11). It is the DMI files which are normally used for failure studies. The DMI files only include firms for which all data elements are present. The DMI files are designed for two customer types, those seeking credit checks as already mentioned, and marketers who want to analyse firms for their location and characteristics. These marketers want information on confirmed, active ongoing business concerns and hence expect the file to be up to date and accurate.

2.2.2.2 Is the D&B Database Complete and Accurate

Entries made in the D&B database which are used as the basis for providing credit ratings of firms may not necessarily be either complete or accurate. Entries generated from self reporting and by culling from other databases will only be as accurate as the sources they use. Williams (1993) reports that D&B do not carry out a detailed investigation of any of these firms until a customer requests a credit report on the firm in question. She estimates that only 60 percent of the firms in the DMI file have had an investigation following a credit check. Clearly, D&B are in no position to guarantee the completeness or the accuracy of the entries on their database. Indeed, they would not claim the database is complete as firms can ask to be omitted from the DMI files and about 0.5 percent do so.

A study by Birley (1984) tested the DMI files normally used for failure studies by comparing them with state unemployment insurance ES202 files. She found that 96 percent of the new firms in the ES202 files were not found in the DMI files. Aldrich et al. (1989) also tested the D&B file for businesses located in North Carolina and found that the DMI files missed 75 percent of the newly found firms listed in the ES202 file, and over 90 percent of those firms newly appearing in the telephone directory. The telephone directory listings are more numerous as the ES202 file does not include firms without employees. Duncan (1994) reports that

the U.S. IRS receive tax returns from 19.5 million businesses, which is far more than the 10 million firms on the DMI files. Duncan, who was the chief statistician at D&B, explained the difference was caused by D&B only tracking "true" businesses, and screening out solo operations, shell companies etc.

Davis, Haltiwanger and Schuh (1996, 70) investigated the accuracy of the DMI files for employee statistics and found that in 1986, the DMI files gave a figure for total employment by companies listed on the file which was nine million (8.1 percent) greater than the Bureau of Census figures. They suggest the discrepancies are greatest amongst small businesses and that the D&B files do not accurately track births or deaths. They cite an investigation done by the U.S. General Accounting Office which placed special emphasis on lay-offs and plant closures. This study found that between 1982 and 1984, 81 percent of mass lay-off events in the DMI files were not correctly identified. They concluded the D&B DMI files were not designed for statistical analysis and are "unsuitable for generating job creation and destruction figures."

Begin (1979) investigated how well the D&B database records the death of businesses after noting D&B figures showed business bankruptcies had increased by a factor of 1.2 in the period 1949 to 1975, whereas figures from the Administrative Office of the U.S. Courts gave a figure of 1.4. He found part of the answer lay in the differences in coverage. D&B did not include financial organisations and farmers, whereas the court records did. Begin's statistical analysis of the two databases revealed that during the period 1949 to 1962, the two databases represented the same population, but during the period from 1963 to 1975 they represent a different population. Begin concluded that the two databases were not censuses, but merely large samples that did not describe the same underlying population.

Massel (1978) notes that D&B tabulate failed businesses that are eligible but not listed in its files. This practice overstates failure rates by adding previously unidentified firms which fail without locating the corresponding missing firms that did not fail. Gallagher and Stewart (1985) found the U.K. version of the D&B database had 40 percent of firms in the 0-19 employee range, whereas

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annual census of production had 70 percent of businesses in this size range. They estimate only 25 percent of firms with less than 20 employees are covered in the D&B DMI files.

An additional problem, which affects time series analysis, was reported by Lane (1991) who found that the data collection procedures changed in 1984 when the database coverage was increased to include the agricultural, financial and real estate sectors. This seriously affects pre and post 1984 data comparisons. Storey and Johnson (1987) report a similar problem between 1987 and 1980 in the U.K., which resulted in an apparent increase in business failures starting in 1979.

There appears little dispute that the D&B DMI files do not provide complete coverage of all firms in the population, and the evidence points towards the files being a biased sample which under-represents small firms. Thus even if D&B data was capable of accurately recording births and deaths, the results generated from it would be questionable.

2.2.2.3 Accuracy of D&B Data in Detecting Births and Deaths

The most damning criticism of the use of the D&B database is the accuracy with which it detects births and deaths. Firstly, it records as births, events which represent the formation of a new firm only in the legal sense. When a firm changes its legal form, it is classified as a new birth (Cochran 1981, 55) even though it may have been trading successfully for many years. Secondly, a firm will normally first appear on the database when the first request is made for a credit rating of the firm. The date at which this occurs will be recorded as the birth. Phillips and Kirchhoff (1989) report that, on average, a firm is two years old when it is first interviewed by D&B and added to the DMI files as a birth.

D&B routinely update their records every two years, although most records are updated more regularly when credit checks are requested. On average, a file is updated every 13 months. When an establishment disappears, it is checked for two years to make sure it does not reappear. Phillips and Kirchhoff (1989) describe the process as imprecise. When simple discontinuance is used as the

definition of failure, it is the disappearance of the firm detected during a routine update of its file that marks its death. The only deaths that are accurately recorded are those resulting from court insolvency proceedings, or where a firm ceases operations leaving creditors unpaid. Massel (1978) reports that 74 percent of such failures are bankruptcies. Another difficulty was discovered by Begin, Cests and Apilado (1979) who found discrepancies resulting from the misclassification of business bankruptcies as personal bankruptcies by the U.S. courts. They estimated nine percent of personal bankruptcies were actually related to a failed business. If this figure is correct, business bankruptcies could be double the number recorded on the D&B files.

A study by Williams (1993) looked at a sample of the DMI files which represented 1,534 Pennsylvania firms which had started in business between 1979 and 1984. In 1991, the DMI files indicated that only 788 (52 percent) of these firms were still viable. When this was checked by locating the firms, it was found that 12.9 percent of those listed as still being in business had in fact ceased trading. More damning was the fact that 50.3 percent of those firms which the DMI files showed had failed were still in business. Williams suggests that the accuracy of failure statistics can be improved by only using the 60 percent of firms that are on the credit side of the database, i.e. those which have a credit check performed on them.

It can be seen that the D&B DMI files do not record births of new firms when they happen, and often do not record them at all. They include changes of ownership as births. They are a poor source for detecting the time a firm dies unless this death involves court proceedings.

2.2.2.4 Can We Rely on D&B Based Failure Statistics?

It can be seen that the D&B DMI files are not designed for use in determining failure statistics, and the accuracy of results they give is highly questionable. They represent only a sample of businesses and the way they are generated indicates that they are a biased sample, particularly with regard to smaller businesses. They are not designed to accurately detect either birth or death. The many firms that are

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born and die before they enter the DMI files go undetected, and these very young firms have a high failure rate as will be seen later. Despite the unsuitability of the DMI files, they have been extensively used as a source of failure statistics and employment data, and the results of this research has been, and continues to be used extensively in public policy formation in the U.S. and has had a major influence throughout the Western World.

2.2.2.5 Alternative Data Sources

If the D&B files are unsuitable, what are the alternatives? Any database can be used if it accurately records the birth of each firm, tracks the individual firm through time, and is capable of detecting its death when the firm ceases to supply data. The exit event must be accompanied by some form of check to confirm that the firm has indeed ceased trading. The database must include all firms of the type being studied, or a random sample large enough to produce statistically significant results.

Busenitz (1996) studied the problem of database selection for U.S. based studies and concluded that state sales tax records were the best source for identifying new businesses, but noted difficulties in obtaining tax records for all states. Tax authority records are undoubtedly a gold mine of information, especially income tax records. Unfortunately, they are generally unavailable to researchers. Some studies have, however, used sales tax records. In particular, Ganguly (1985) uses VAT data from the United Kingdom to study business failures. The VAT registrations did not produce entirely accurate birth and death statistics as, for unincorporated firms, it is the individual rather than the firm which is registered. This means some changes of ownership were detected as a death followed by a birth. Similarly, only enterprises subject to compulsory registration were included in the study, so firms reaching the threshold for compulsory registration were recorded as births when they may have been trading for some years. The statutory compulsion to register for tax purposes and to file returns is perhaps the only way of guaranteeing an accurate census of businesses. In some jurisdictions, such as New Zealand, tax information is used by government statisticians for national

surveys in recognition of its superiority in locating firms. Haswell and Holmes (1989) suggested the use of the Australian Bureau of Statistics database for failure studies, although to date this suggestion has not been taken up.

There have been other data sources used from time to time. Cochran (1981, 55) notes the U.S. Department of Commerce's Survey of Current Business which operated from the second world war until the early 1960's gave details of new business formations, discontinuances and transfers of ownership. The publication of this data was stopped after challenges to its accuracy. Hudson (1989a) used company registrations in the U.K. as births and liquidations as deaths.

It is, of course, possible for researchers to select their own sample and this has been done on many occasions. Williams (1987) used banks to locate and survey new firms. Others have used managed shopping centres because of records they possess on clients. Bruno et al (1987, 51) point out the difficulty in selecting a sample, citing the need to decide a frame of reference on when the firms were founded, the business sector, industry and the location. Busenitz and Murphy (1996) go as far as to call sample selection the "archiles heel" of entrepreneurial research. Birley et al. (1995) provide a cautionary tale for those attempting to find a random sample of firms with particular characteristics. They abandoned an attempt to locate a sample of 100 high growth entrepreneurial firms in Europe, finding the effort was so huge and the errors so large that it was impossible to achieve the objective. Most of the studies that have relied on sample selection, other than from the type of database discussed earlier, have ended up with small and highly biased samples, producing results with little general applicability.

2.2.3 Previous Studies on Business Failure

Business failure rates are a key economic statistic and data on business closure is quite widely available through sources such as liquidation statistics. However, these types of statistics cover firms of all ages and do not cover all forms of failure. It is new and early stage firms that are the key to failure statistics as they are the main contributor to overall business failure rates. Despite this, relatively little work has been done on the failure rate of start-up ventures.

Studies on the mortality rate of businesses are not just a recent phenomenon. A good example of an early study is the one conducted by Hutchinson, Hutchinson and Newcomer (1938) which looked at failure rates in the city of Poughkeepsie in New York from 1843 to 1936. They traced the lives of 10,033 firms by looking through the city directories to find when they started and discontinued. They classified the sale of a business as a death. The results, presented in Figure 2, show that business mortality rates were at least as high a century ago as they are currently. The study found that failure rates were relatively uniform throughout the period studied and this points towards the conclusion that failure rates have probably always been comparable to those experienced today.
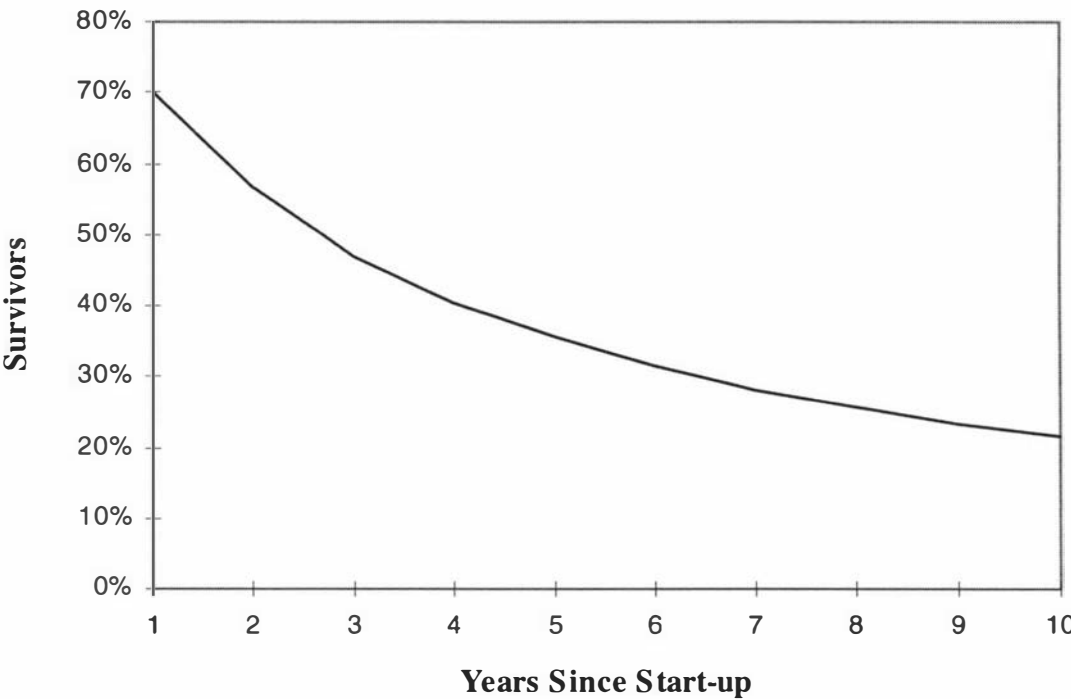
Figure 2   Failure Rates in Poughkeepsie 1843-1936

The results of an early example of a failure rate study. Hutchinson, Hutchinson and Newcomer (1938) looked at failure rates in the city of Poughkeepsie in New York. They achieved this by tracing all businesses in the city through the city directories to find when they started and discontinued. The graph shows the average life span of all new businesses in the city from 1843 to 1936.

A listing of all the failure rate studies that were found in the literature can be found in Appendix 1 on page 174. Most studies have been done on the failure of businesses in the United States, with the predominant source of data being the

D&B DMI files. Not all the results are consistent with one another, even where the same database has been used. For example, Duncan and Handler (1994) found that 69.7 percent of firms founded in 1983 were still trading in March 1993, yet Birch (1987, 18) analysed data for the period prior to 1985 and concluded that 50 percent of new entrants survived five years, 38 percent 10 years and 31 percent for 15 years. Both studies used the D&B DMI files and there is no reason to assume that the time difference in the studies can explain the difference in survival rates. A figure of 50 percent of new businesses failing within five years is the most generally accepted figure for the U.S., and is supported by an analysis by Altman (1993).

Two studies are worthy of more detailed consideration because of the methodology used. The first of these is the study by Ganguly (1985). This study used VAT registrations as a proxy for births and deaths in the period from when VAT was introduced in 1973 until the research finished in 1982. As every firm with a turnover exceeding the threshold for registration must register for VAT, it is an effective method of detecting all firms that commence trading. Throughout the life of every business it must file VAT returns and this is enforced by the tax authority. The absence of a return is conclusive evidence that a firm is no longer trading.

Ganguly looked at all businesses each year to see how many were still trading. Those that had ceased trading would have failed during the previous year, with an average lag of six months before the death is detected. Similarly with births, VAT registrations in the prior year would on average be six months old at the end of the first year. Hence, businesses that registered for VAT in 1975 and ceased to be registered for VAT during the 1977 year, would on average have survived two years. VAT registrations are not ideal for detecting births and deaths, because as mentioned earlier, many ownership changes are registered as a death followed by a birth. In addition, as businesses reach the turnover threshold for registration, which increased from £5,000 to £19,500 during the period of the study, they will appear as births when they have in fact already been trading for an unknown period of time. The results are presented in Figure 3.

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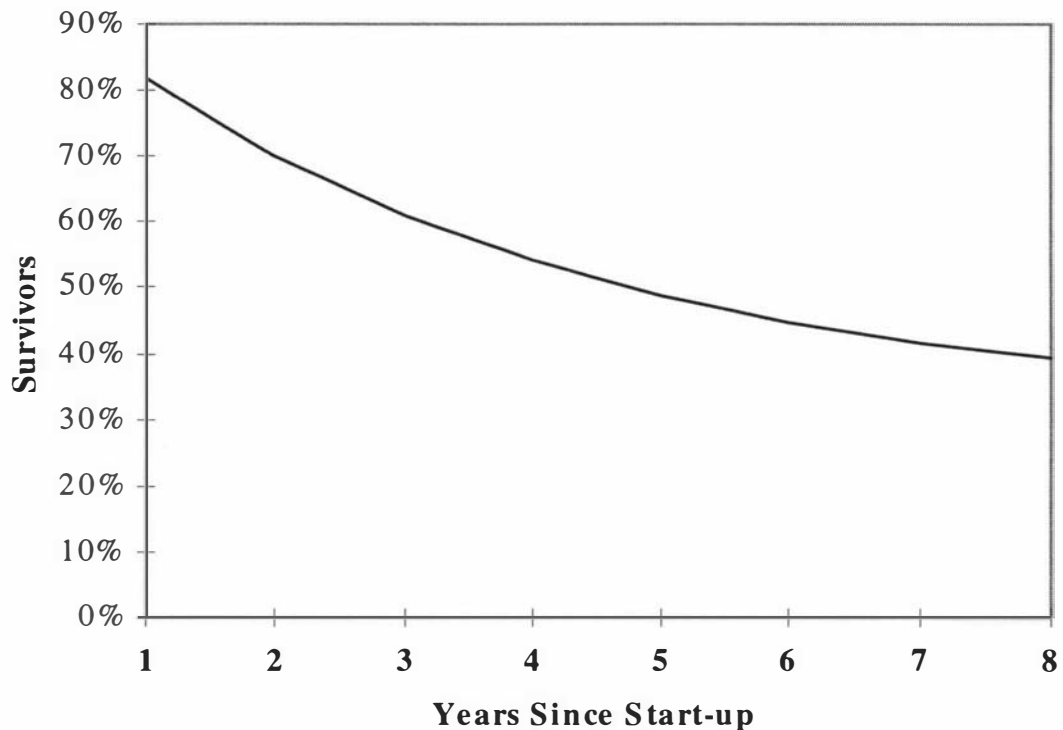
Figure 3   Survival Rates of Businesses in U.K. 1973 - 1982
Results of a study of the survival rates of start-up businesses in the United Kingdom conducted by Ganguly (1985) using VAT registration and deregistration to detect the birth and death of firms.

The second study worth noting in detail is that conducted by Williams (1987) who used a sample of 13,780 businesses started in Australia in the period 1973 to 1985.   The study was conducted with the assistance of banks, who provided the data and conducted exit interviews of failed firms.   The study has come in for considerable criticism, particularly from Haswell and Holmes (1989) who believe the sample was biased because one third of the sample were located within multi-store shopping centres. They also question whether the criteria for identifying the time of births and deaths were adequately defined. Nevertheless, the study is one of very few that have obtained a large sample of new firms and tracked them through life until death. The problems with Williams' study are typical of most studies on small businesses, and if only studies using perfect methodology had been published in the past, there would be almost no information of this type available on small firms. The failure rates obtained by Williams are presented in Figure 4.

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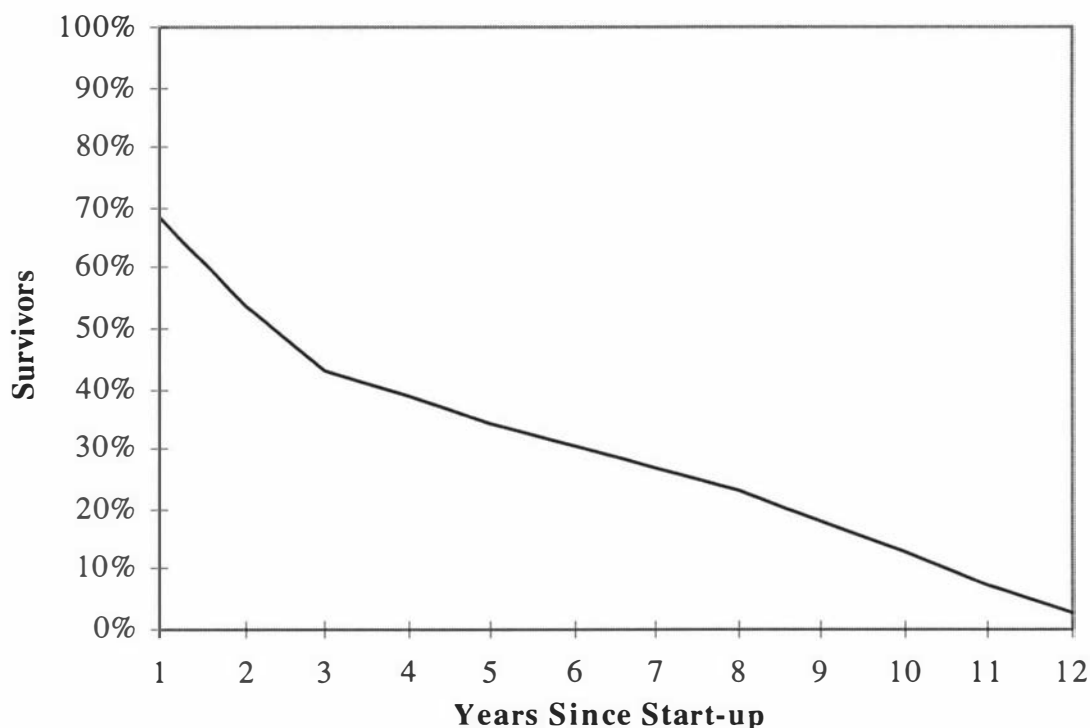
Figure 4   Survival Rates of Businesses in Australia 1973 - 1985
A graph of the survival rates of a sample of Australian start-up ventures conducted by Williams (1987). Banks were asked to monitor new ventures for a period of 13 years and provide data on, amongst other things, the life spans they achieved.

2.2.4 The Controversy Over Failure Rates

Failure rate statistics have generated considerable controversy, with many critics dismissing the accuracy of the figures. One cause of this controversy is misquoting or just guessing at figures. Some New Zealand examples of this are Sullivan (1996), and Hamilton and English (1993). Sullivan helps perpetrate the frequently repeated myth that reputable studies show 80 percent of new ventures fail by saying, "there is always the well meaning person willing to advise ... four out of five small businesses fail within the first five years." This figure is clearly at odds with the studies that have been conducted, and quoting unfounded exaggerations as if they were legitimate studies gives them substance in the minds of readers, particularly given the frequency with which such unfounded figures are bandied around. The Hamilton and English example looks more convincing to the uninitiated, but is just as deceptive. Their book, which is very widely distributed, is aimed at people starting up a small business and purports to use failure statistics

from Williams (1987). It claims this study shows that 53.6 percent of failures occur within the first year and 87.8 percent within three years. Williams (1987) was a longitudinal study and businesses at the end of the study ranged from one to 13 years of age. Seventy percent of the sample was five years old or less when the study was terminated. It made no attempt to sample the entire small business population and only looked at failure amongst its sample of start-up businesses. As the average age of the businesses was just over three years old at the end of the study, it was natural that most of the failures that occurred in the sample were in the very early years. Haswell and Holmes (1989) fall victim to similar faulty logic when they attack Williams' (1987) study on its methodology, claiming the outcome must be questioned because the results of an earlier study also carried out by the University of Newcastle showed that only approximately 19 percent of firms in existence in 1973 had closed by 1978. This argument is faulty as one of the studies looks at start-ups and the other looks at businesses of all ages, and hence are not comparable. Similar examples of the misinterpretation of statistics occur throughout the world even amongst leading experts in the field, for example Bannock (1981) makes the statement that, "in the United States about 50 percent of new ventures fail within two years and only a tiny minority last 10 years", which is clearly unsupported by the facts. These exaggerations and misinterpretations of the actual outcomes of studies are one side of the problem.

Not everyone ignores the statistics or makes up their own. Many commentators construct plausible arguments that explain why the figures presented are wrong. Bates and Nucci (1989) offer such an explanation for high failure rates when they state "Individuals with small periods of intermittent self employment income account for a minuscule portion of the employment generated .... Yet this large group of very small operations is most responsible for the image of 'high failure rate'." What they fail to grasp is that the failure rates they are referring to come from the D&B database which is heavily under-represented with small firms and the fringe operators do not appear in it. In addition, the studies that have reported on failure rates for different sized businesses do not support this contention. Studies such as Freeman, Caroll and Hannan (1983) and Mata, Portugal and Guimaraes (1995) have shown that size is not a strong determinant of failure rate.

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Perhaps the most common method employed to explain away the difference between the failure statistics and the "true" rate is to use figures based on one definition of failure in an attempt to disprove figures produced based on a less restrictive definition. Massel (1987) argues that failure rate statistics are myths and argues that D&B data does not actually give the failure rates claimed. He looks at the 0.43 percent failure rate for all firms on the D&B database for 1974 and claims that even if 57.4 percent of failing firms were less than five years old, the failure rate must be very small. He fails to appreciate that the D&B definition of failure, closure with a loss to creditors, is only a small percentage of total closures. The studies he criticises are actually measuring discontinuance for any reason, which can also be derived from the D&B database. Massel believes that business opportunities are being overlooked, because of a belief that the, "chances of success are more remote than they actually are."

Studies denying the existence of high failure rates continue to be produced and published in spite of the obvious fallacies they contain. A recent example is Ford (1997) who looked at D&B data and found that the average annual failure rate of new firms was one percent per annum and that 40 percent of failures were businesses less than five years old. He claims that the belief in high failure rates is due to what he calls the "the confusion of the inverse", whereby because 40 percent of the firms which fail are young, people believe that 40 percent of young firms fail. This is, of course, not the case, and he only obtains a low failure rate by using the most restrictive definition of failure possible. No researcher well versed in failure rate studies has ever claimed a high failure rate for this form of failure.

Some commentators do appreciate the difference that failure definition has on survival rates and choose to explain away the difference by claiming most closures are not "real" failures. A New Zealand example is Higham, who is quoted in Sullivan (1996) claiming true failure rates are only 20 percent of those reported. He states 20 percent of failures are actually businesses that have changed their names, 20 percent have been sold and are trading under another name, 20 percent have changed their legal structure and 20 percent were successful businesses that just stopped trading. No supporting evidence is given. Others make an effort to make the adjustments based on actual figures such as Aley (1993) and Welles

(1993) who report on a study by Kirchhoff which "corrected" D&B data to show a failure rate of just 18 percent over an eight year period. Kirchhoff corrected for ownership changes and switching from partnership to corporate form, which had previously being recorded as deaths, and obtained a 54 percent failure rate, before explaining away a further 36 percent of failures as being "voluntary terminations".

The concept that a significant proportion of business failures are voluntary is often used to explain away the high death rates shown in the statistics, however, there is little evidence to support the notion that people with successful businesses simply close them down. Some studies have addressed the question. Gaskell, Van Auken and Manning (1993) looked at a sample of 182 businesses, of all ages, in the apparel and accessory products industry that had ceased trading. They classified 28.6 percent of the businesses closures as being due to personal reasons, which included retirement, ill health and personal conflicts etc. However, they also classified selling the business at a profit in this category. As these "voluntary closures" were not questioned in detail, or classified by type, it sheds little light on the actual number of businesses that "fail to make a go of it", especially as the sale of a business as a going concern is a common occurrence. Watson and Everett (1996a) in their study of shops in Australian managed retail centres, sought to prove that small businesses do not have high failure rates. They found an annual failure rate of 4.2 percent when "failed to make a go of it" was used and 3.9 percent when simple discontinuance was used. When changes of ownership were included as failures, the figure rose to 9.4 percent. Some of the "failed to make a go of it" category would have exited via the sale of their business, hence that category was higher than simple discontinuances. When bankruptcy was used as a definition, the failure rate dropped to 0.7 percent. It is obvious from Watson and Everett's article that they made the common mistake of assuming that high failure rates reported for start-up businesses mean that small businesses of all ages have high failure rates.

The Watson and Everett study does, however, show that the use of simple discontinuance as a definition of failure does not lead to large over estimations of failure rates and in fact, probably leads to a slightly lower rate than the "failure to make a go of it" definition. This is because many failing businesses are sold.

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Holmes and Schmitz (1995) show firms sold soon after start-up have very high failure rates, even when compared with other businesses of a similar age and that as businesses get older, the failure rate upon sale diminishes markedly. He attributes this to the fact that many businesses are sold because they are failing and these businesses are a high risk for their new owners. This is consistent with Chochran (1981) who quotes figures showing that 34 percent of all the businesses sold or liquidated had been sold to avoid losses.

A business generating an adequate return on the capital employed will have greater value when sold as a going concern than the amount its assets would generate from liquidation on closure. If a business generates an adequate return, the rational investor will sell it as a going concern rather than closing it down. There are, of course, a class of businesses where the business is inextricably linked with the owner. These "proprietorial" businesses cannot be sold as they cease to exist when the owner departs. Older proprietorial businesses will be voluntary terminations when they close, however, it is unlikely that they would make up a significant part of the closures of businesses in their first few years of life. It is illogical for someone to undertake the considerable risk of starting a business just to close it down after a short period. If these proprietorial businesses form a significant part of early stage failures, they should be detectable in the statistics as they will tend to be small businesses which operate in certain industries, for example, professional practices and specialised trades. Unfortunately, there is little data on which to obtain an accurate estimate of how significant these voluntary closures are. If voluntary closures were high, one would also expect that sales of young firms as going concerns would be high, given that sale is more profitable than voluntary closure. Holmes and Schmitz (1995) looked at the tenure of U.S. managers, based on U.S. Census Bureau data, and found most businesses were still owned by their founders. Eighty eight percent of businesses between seven and 12 years of age were still owned by their founders. Even for businesses 23 years or older, 49 percent were still owned by their original founders.

Marcus (1967) used the proportion of firms reporting a loss for tax purposes in 1945 as a predictor of exit rates in 1946, and found that it explains 92 percent of

variations in exit rates. He estimated the population could sustain about 11 percent of firms making losses without the need for any failures. Tests on a second data set for 1951-55 confirmed this result. This second data set showed the proportion of firms reporting a loss declined sharply up to an age of five years, but for firms older than five years no consistent relationship between profitability and age could be found.

A common theme put forward by those who argue that business failures are far lower than the studies to date have indicated, is that involuntary business failures are preventable and that with proper management they could, at least in theory, be eliminated. Dennis (1997) studied the number of businesses started up and found that the numbers were larger than previously recognised and concluded that, "If there are more starts than previously recognised, there are also more exits." It is this aspect of the available data that has been overlooked by those who claim that business failures are over estimated. One can look at the relationship between start-ups, failures and the number of firms in existence, which is as follows:

Firms at start of the year + Start-ups - Closures = Firms at year end

or

Start-ups - Closures = Growth in number of firms

Thus, figures on the number of start-ups and total firms will automatically generate the number of closures.

There are a number of studies that quote start-up statistics including Cochran (1981), Birley (1986), Lane and Schary (1991), Acs (1992), Bianchi (1993), and U.S. Small Business Administration (1997, 26). These show the number of new firms, depending on the year and location of the data quoted, is normally in the range of seven to 17 percent of the number of firms in existence at the beginning of the year. As the total number of firms will only increase in line with the growth in population, or GDP, or similar indicators, it is inevitable that a large portion of new ventures must fail. The failure rates put forward by the detractors of the studies of failure rates are clearly unrealistically low when viewed against the number of new firms starting up. This will be dealt with in detail in Chapter 3.

An examination of studies producing failure rate statistics does provide ample cause for criticism. Even so, there is a consistent pattern of high failure rates that cannot be explained away by any of the arguments put forward by those who believe that the true business failure rate is low. The rates will, of course, differ depending on the definition used, the location of the study, the segment of the economy examined and the time frame used. Even given the variations in results, there is a uniformity in failure rate statistics that clearly points to high failure rates being an integral part of the capitalist economy, with only moderate variation over time. It must also be remembered that just because a sample is small, or biased, or methodologically defective, it does not mean that the results generated are wrong. While such studies do not prove their results are correct, neither do they provide evidence that the results generated are wrong. Given the importance of the issue, there is clearly a need for new and improved studies to settle the controversy and provide a more adequate basis for public policy decision making.

The survival rates of the business population overall is also an important issue as failure is not confined to start-ups. As mentioned earlier, the figures from D&B on overall failure rates are readily available and give figures of around one percent per annum or less. However, their restrictive definition of failure means most closures are missed. There have been only a few studies that have tracked total overall closures. Bates and Nucci (1989) tracked 125,000 small U.S. businesses of all ages and found that 34 percent of those trading in 1982 had discontinued operations by late 1986, giving an annualised closure rate of six percent. Acs (1992) found that 38.6 percent of U.S. manufacturing firms in existence in 1980 had ceased trading in 1986, giving an annual closure rate of 5.6 percent. Dunne, Roberts and Sameulson (1988) looked at U.S. manufacturing firms and found that between 1963 and 1982, on average, 38.6 percent of firms present in the U.S. Census Bureaus' census of manufacturers were not present at the next five-year census. Behreman and Deolalikar (1989) found 45.6 percent of Indonesian firms with more than 20 employees in existence in 1975 survived until 1985.

Whilst these figures of overall business closures are strongly affected by the failure of businesses in their earlier years, they nevertheless show that there is a high turnover in the business population as a whole.

2.3 RESEARCH APPROACH

As detailed earlier, the definition of failure to be used and the source of data are two critical factors in the design of this type of research. In this study, we are investigating how many firms fail to "make a go of it", that is, close in spite of the desire to continue in business. The study should cover all firms, except agricultural enterprises which should be excluded as their characteristics are different from other businesses.

The failure criteria selected for this study is simple discontinuance. This is the most comprehensive as it includes all businesses which cease trading for any reason. Its shortcoming is the inclusion of closures which cannot be regarded as business failures. While this is a problem, its importance should not be over estimated. Firstly, the primary objective of this study is determining the failure rates of start-up businesses. The probability that anyone will undertake the great risks involved in starting a business, then simply abandon it in its infancy is small if the business is indeed profitable. Secondly, any business which is established and giving an adequate return on investment is worth considerably more than its liquidation value if it is sold as a going concern. The rational investor would sell the business rather than closing it down, as this would yield a higher return. Proprietorial businesses, that is a business so closely intertwined with the owner that is ceases to exist once the owner departs, are an exception to this, as mentioned earlier. Examples are professional practices and many sorts of specialist crafts.

If simple discontinuances of these proprietorial businesses are a major component of failures they should be able to be detected by their characteristics. They will tend to be sole traders or partnerships, and they will tend to fall into certain occupational categories. For example, we can assume that they will not make up a significant portion of sectors such as manufacturing, retailing and distribution. The significance of proprietorial businesses in contributing to failure rates is examined later in the chapter.

Classifying those businesses which voluntarily discontinue operations while generating an economic return as failures will introduce a bias to this study, but the effect will be small. In the vast majority of cases, businesses that are voluntarily discontinued will be ones where the owners simply cannot make a go of it, especially when this occurs in the early years of life.

As has been previously pointed out, research on business failure rates is hampered by the lack of data collected on the subject, as well as the difficulty of tracking firms and determining when they fail. While statistics are not collected on failure rates in New Zealand, they are nevertheless available from other sources. All that is needed is a database collected for another purpose which captures new firms as they appear and will allow the detection of deaths as firms disappear from the database. The Statistics New Zealand business demography database used for compiling the Annual Business Directory Update was found to be the most suitable for the purpose. This database captures each new business when it registers for Goods and Services Tax (GST), a process which is compulsory for every business with a turnover exceeding $30,000. There is a statutory requirement for every business to supply data annually for the survey and non-responders are followed up to ensure the completeness of the data. Deregistration for GST purposes is the definitive end point showing the business is in fact no longer trading. In this way, the data on the database detects the birth and death of every business.

The database tracks businesses at two levels. The first is the enterprise, which is the legal entity involved in trading, such as a company, partnership or sole trader[1]. The second level is what is know as a business activity unit. This is a separate operating unit engaged in one, or predominantly one kind of economic activity from a single location or base. For the purposes of this investigation, the activity unit was used as it has several advantages over using the enterprise as the object of study.

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[1] For the purpose of this study, data from other types of organisations e.g. incorporates societies, producer boards, government organisations, voluntary organisations etc. were excluded as they have different characteristics to conventional trading organisations and are outside the scope of the study.

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1. Most businesses, particularly the smaller ones are sold on an assets basis, rather than selling the legal entity containing the business. Thus, an enterprise unit ceasing to exist will often mean a change of ownership rather than a closure of the business. Activity units, on the other hand are tracked through ownership changes and changes in organisational form, for example, from sole trader to company. When they disappear, they have indeed ceased trading.

2. From the economic point of view, it is of greater interest to determine the life cycles of economic activities. Enterprises, particularly companies, may consist of a number of different business ventures all moving through cycles from birth to death. The fact that a legal entity continues is of far less interest in the context of this study than the fate of each of its trading activities.

The area of most interest in this study is how the ventures of the typical entrepreneur fare, with the new ventures of established firms being of secondary importance. For this reason, the statistics on new businesses started by existing firms are not extensively analysed in this study.

The Business Directory database contains a variety of data on each activity unit, and for the purpose of this study, data was divided out by organisational type, and by industry classification. Industry grouping was done by using the first digit on the New Zealand Standard Industrial Category (NZSIC) number with the exception of group six which was broken out into three groups, wholesale, retail, and restaurants etc. Twelve of the five figure NZSIC subcategories were excluded as they did not represent trading activities, eg. 93500 business, professional and labour associations. For this reason, the total number of activities is less than found in the Statistics New Zealand Annual Business Directory. Some analysis was also conducted on data broken out to three figure SIC categories. The organisational types used were sole traders (individuals), partnerships and companies. The data excludes all agricultural enterprises such as farming and horticulture.

The figures used in this report have been derived from data supplied by Statistics New Zealand which were extracted from their business demography database. The database at the time of this study contained useable data from 1987 to 1994, thus it was possible to obtain failure rates of businesses born in the period 1988 to 1993. Businesses born in 1988 have six years of survival data, but those founded in 1993 have figures for only one year of survival. Data from periods prior to 1988 is not available in an useable form. A change in the database was made in 1994 whereby the method of selecting companies to be added to the database was changed from mandatory GST registrations to one of economic significance. This occurred when the Business Directory was matched with the Inland Revenue Department 'FIRST' business database. The result is that voluntary registrations are now included on the database once they reach the size for mandatory registration.

This increase in coverage caused by the change in the database resulted in 13,311 additional enterprises being added to the database (Trewin 1994) and has made the database less useful for continuing the study, by altering the definition of birth and death for data from 1994 onwards. While this change will probably not affect the detection of deaths to a great extent, it will make the detection of births difficult as enterprises started with less than a $30,000 turnover will appear as births once they reach this threshold, even though they may have been trading for a number of years. Of particular concern would be businesses that fluctuate in and out of the $30,000 threshold which would be detected as repeated births and deaths. Therefore, it will not be possible to accurately track the businesses in this study beyond 1994 because of the changes made to the database. While the database was not designed for doing longitudinal studies, it was nevertheless well suited for the purpose prior to the changes.

It is important to recognise that the database is updated only once a year, hence businesses will on average be six months old when detected as a birth on the database and their death will similarly have occurred at some time in the year prior to its detection. This has the effect of blurring the data by an average of six months at both birth and death, hence actual life spans of individual firms can be up to a year more or less than that stated, however the errors will average out and

should not distort the results significantly given the number of firms in the database.

2.4 FAILURE RATE STATISTICS

The results which follow were achieved by analysing the Statistics New Zealand Business Demographics database using data from its inception in 1987 through to 1994. Data from 1995 onwards has not been used due to the changes made in the database compilation.

2.4.1 Failure Rates of Start-up Firms
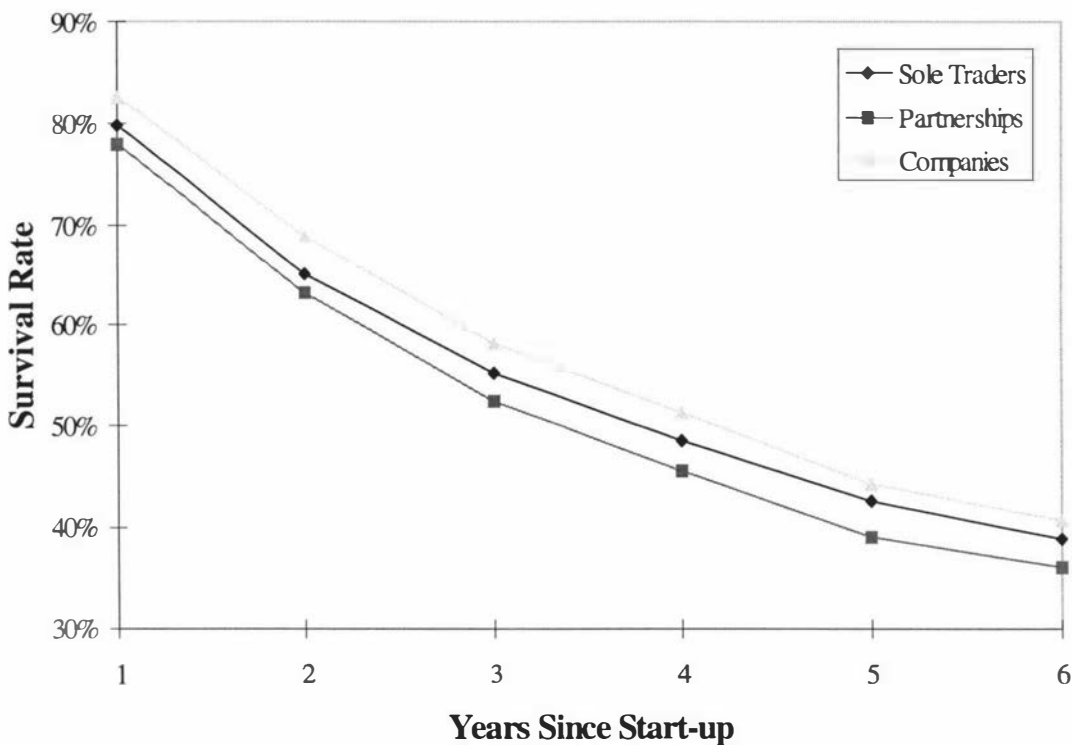
Figure 5   Survival Rate of Business Activities
This graphs the percentage of new firms which are surviving at the end of each of the first six years of life. It includes all new business activities that were not part of an existing enterprise that were started in New Zealand in the period from 1988 to 1993. The data is broken out according to the legal form adopted by the business at start-up. It should be noted that the figures for year 1 survivors are the average of data from six years, whereas those for six year survivors represent only one year, i.e. 1988 start ups.

The most obvious question to be asked is how many new ventures fail to survive. This information is presented in Figure 5 and detailed in Appendix 2 on page 179.

The figures are for the survival rates for new ventures where the enterprise has a single business activity. The survival rates for companies, sole traders and partnerships are presented separately.

The overall failure rates are consistent with previous studies given the differences in methodology and definitions of failure employed in the studies, as are the differences shown between the organisational type. Williams (1987), in his Australian study, found three year survivorship rates were 39.7 percent for sole traders, 56.1 percent for partnerships and 56.2 percent for companies. Ganguly (1985, 150) in the U.K. found 48.6 percent of sole proprietorships and partnerships combined were still trading in their fifth year, compared with 44.4 percent of companies. The small difference between the failure rates of corporate and non corporate organisational forms is perhaps contrary to popular perceptions which tends to associate failure with small businesses started up by sole traders.

It is incorrect to assume that high failure rates are just associated with start-up businesses. Failure rates are also high for new ventures of existing businesses. The failure rates of stand-alone start-up businesses and new activity units of existing activity units (multies) are compared in Table 1 and presented in Appendix 1, page 180. The fact that the failure rates are so similar is perhaps surprising, given that in this analysis, many of the new activities of multies would be generally considered to be of lower risk than stand-alone new ventures. They may, for example, be a new branch office in a different geographic location as this would be classified as a new activity.

Table 1   Comparison of Survival Rates of Single and Multi Activity Units
A comparison of the survival rate of stand-alone new ventures with those started up by existing enterprises. The figures are for all new activity units of single and multi enterprises started during the period 1988 to 1993 in New Zealand.

	Survival Rate					
	1 Year	2 Years	3 Years	4 Years	5 Years	6 Years
Singles	80.4%	66.2%	55.8%	49.0%	42.5%	39.2%
Multies	85.1%	73.0%	63.7%	55.7%	49.5%	46.5%

2.4.2 Failure Rates of Different Industrial Sectors

The differences in survival rates between different sectors of the economy are listed in Table 2. For convenience, a five year time frame is used. Generally the start up phase of a business is considered to last for five years, hence these results can be regarded as the percentage of businesses started in 1988 and 1989, which survived the start-up phase.

Table 2   Survival Rates by Industry Sector

The percentage of New Zealand stand-alone new ventures started in 1988 and 1989 which survived their first five years in business. Failure rates are given by the first digit of their NZSIC category except for category six which is broken into three sub-categories due to the large number of businesses within this sector of the economy. The data is derived from the Statistics New Zealand business demography database using relevant data for the period 1988 to 1994.

NZSIC Category	Business Sector	5 Year Survivorship Rate (%)
1	Agriculture, Hunting, Forestry and Fishing	41.4
2	Mining and Quarrying	35.5
3	Manufacturing	44.8
4	Electricity, Gas and Water	40.0
5	Construction	42.8
61	Wholesale Trade	42.6
62	Retail Trade	37.4
63	Restaurants and Hotels	39.9
7	Transport	43.7
8	Business and Financial Services	41.7
9	Community, Social and Personal Services	50.2
Overall		42.5

These figures show that high failure rates are economy wide.   The five-year failure rates of firms broken down into three digit SIC categories were also obtained and can be found in Appendix 4 page 183. As expected, the variation in failure rates is greater once the rates are broken down into smaller categories. If one excludes the few categories that have very few firms in them, the survival rates vary from the low 30's to just above 60 percent. At the low end, the retailing

of food, beverages and tobacco products shows a survival rate of 32.8 percent and the investment category 34.6 percent. The group with the highest survival rate was banking which showed a 63.2 percent survival. As can be seen, high failure rates are economy wide even at the three digit SIC level.

Three digit SIC categories give the opportunity to explore the question of how significant voluntary closures are. As mentioned earlier, the logical candidates for closing down while making an economic return are proprietorial businesses, i.e. those that cease to exist when the owner leaves. The three digit SIC categories were divided into two groups. The first group was categories which were likely to contain significant numbers of proprietorial firms and the second group contained all others firms. Fifteen percent of categories were classified as potentially proprietorial and they represented 27 percent of firms. The potentially proprietorial group had an overall five-year survival rate of 44.5 percent compared with 40.9 percent for the non-proprietorial category. Thus, the data does not lend support to the contention that voluntary discontinuances of viable firms plays a large role in explaining the reasons for high failure rates.

2.4.3 Failure Rates of All Firms of All Ages Combined

Failures of start-up businesses form a part of failure rates in general, hence comparing new ventures with businesses of all ages combined is useful. The survival rate for all business activities in existence in 1987, broken down into single and multi activity categories, is presented in Appendix 3, page 181 and in Figure 6.

It can be seen that the concept of business activities being permanent in nature is something of a misconception. Obviously, a significant portion of the failures are businesses in the early stages of life, however failure does not stop after the first few years, as the life cycles of most business activities are relatively short. If it is assumed that the average failure rates given in Table 1 apply to start-ups from earlier years, then 59 percent of the 1987 singles and 61 percent of multies which failed in the five following years were five years or less old.
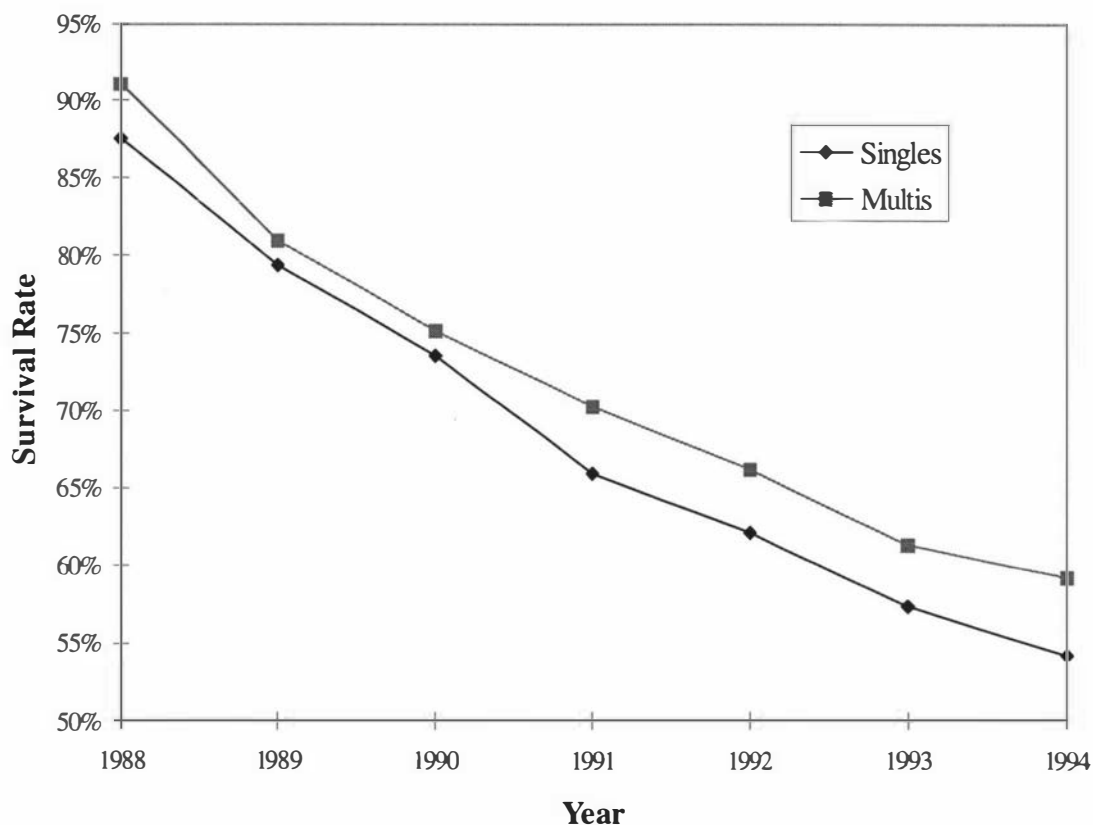
Figure 6   Survival Rate of all Businesses in Existence in 1987
This looks at how many New Zealand businesses in existence in 1987 survived the next seven years. The figures are broken out into singles, that is enterprises with only one activity unit, and multies firms that carried out more than one type of business activity, or operated in more than one geographical area.

The survival rate of firms in existence in 1987 which were calculated to be older than five years is presented in Figure 7. This demonstrates that the risk of failure is an integral part of being in business irrespective of the age of the business. It is interesting to note that once firms less than five years of age are eliminated, the failure rate over time is close to linear, lending support to the generally held contention that the elevated risk of failure associated with start-up and early stage businesses is largely eliminated after five years.
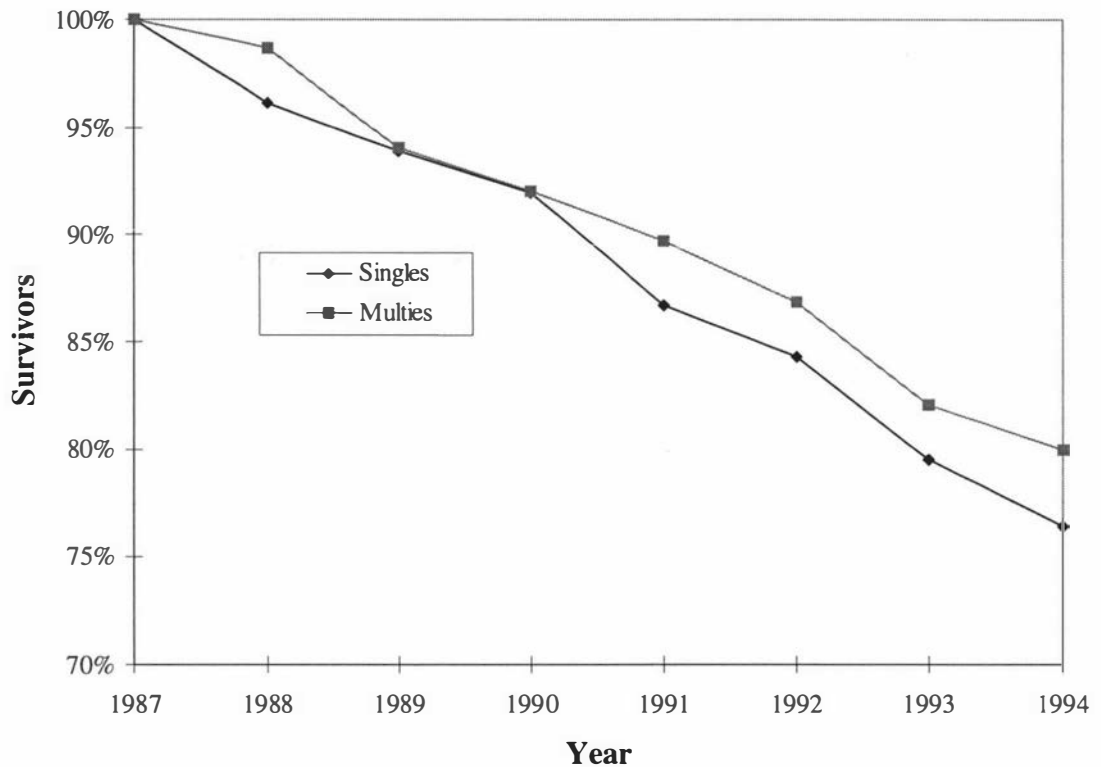
Figure 7   Survival Rate of 1987 Firms Five Years and Older
This shows the survival rates of all businesses five years or older that were in existence in 1987. The
figures were arrived at by adjusting the figures on the assumption that failure rates for businesses five
years and under in age were the same in earlier periods as those found in the 1988 to 1993 period.

2.4.4 The Effect of Start-up Size on Failure Rates

It is common to dismiss the results of failure rate studies on the grounds that most
failures are of very small enterprises that have little chance of survival.   An
analysis of the failure rates of different sized new ventures was carried out to test
this argument. Overall results are shown in Figure 8 with more detailed figures
presented in Appendix 5, page 186. The only measure of company size that was
available on the database was employee numbers, so this has been used as the
measure of size. The highest survival rate is at four to five employees, with
failures remaining relatively constant as size increases beyond this point. As can
be seen from the detailed figures in Appendix 5, singles have a slightly declining
survival rate as size becomes larger, but multi start-ups have an increasing
survival rate with size, with the highest success rate occurring for businesses of 25
or more employees.   It should be noted that multies tend to be larger in size,
forming around half of the largest category.

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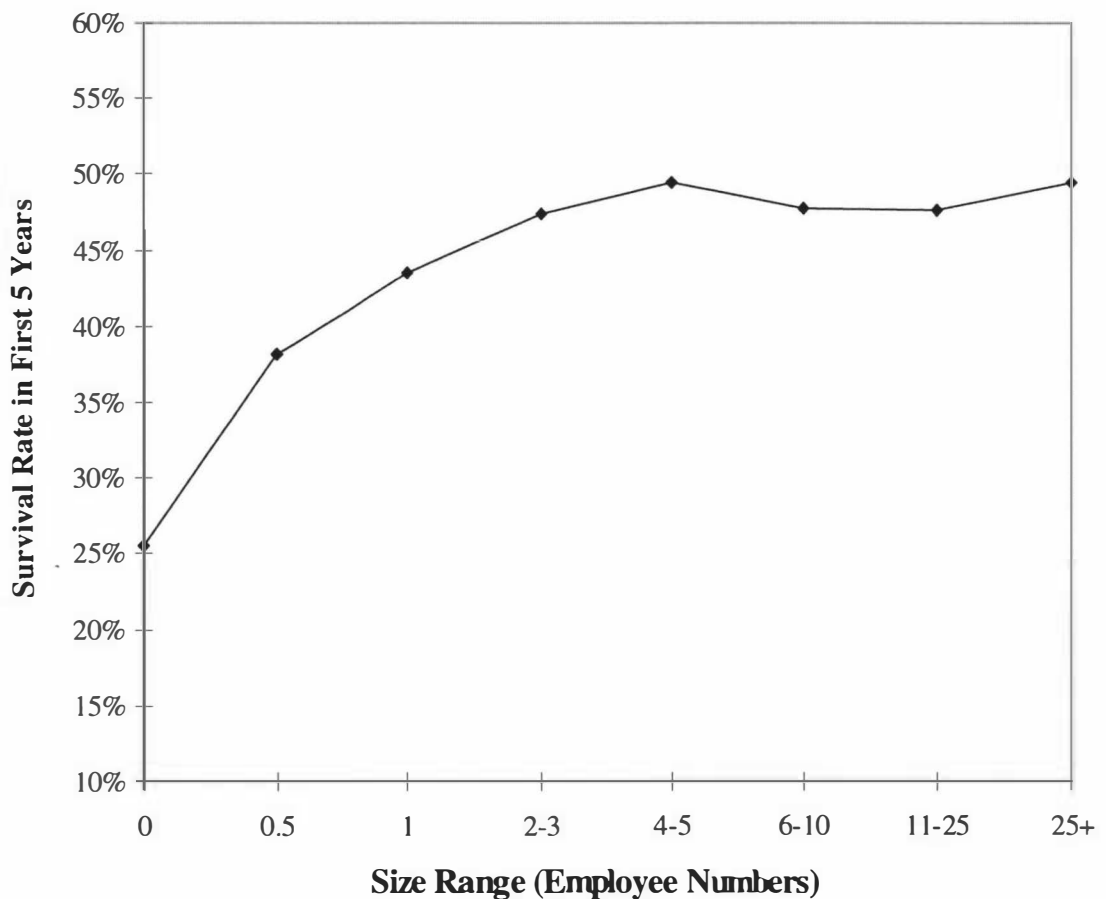
Figure 8   Effect of Size on Failure Rate
A comparison of the failure rate of firms based on the number of employees at the time of start-up. It looks at the percentage of firms in each size category, born in 1988 and 1989 that survived their first five years in business. The figures are for stand-alone new ventures and multies combined.

It is clearly evident that high failure rates do not result from a large number of small firms failing, and thereby obscuring lower failure rates amongst larger firms. The hazard of failure is just as great, if not greater for larger start-up firms as it is for the smallest categories of firm. Fredland and Morris (1976) also report higher failure rates with increasing size, although some other studies have shown the opposite.

2.4.5 Growth Rates of Start-up Businesses

The risks of starting up a new venture are clearly high. Financial theory describes the "rational investor" as only being willing to accept additional risk if there is an expectation of a higher return.   Thus, it would seem, in a world of "rational

investors", the returns from starting up a business, if successful, must be high to justify the risk. In competitive markets, abnormal returns associated with high profit margins will quickly be eliminated, hence a high return on investment for a new venture will need to come from another source. This source of returns is rapid growth. Thus, for entrepreneurs to achieve high returns, we would expect successful start-ups to grow rapidly.

From the financial point of view, it is of course, growth in cash flow from the investment, either now or in the future, which is important. To achieve this, a firm will normally need a growth in turnover with new turnover generating a return of more than the firm's cost of capital. Firms, as a rule, need to increase staff numbers as they increase turnover, particularly where the increase in turnover is significant. While at the level of the individual firm, the relationship between growth in employees and growth in firm value may not be strong when taken on aggregate for a large number of start-up firms the relationship will be stronger. Thus, growth in employee numbers will be an indicator of growth in the value of a firm, or more correctly the absence of growth is an indicator that firms in this category would not have, in aggregate, increased their value to become substantially more than the start-up cost. For this reason and in the absence of anything better, growth in employee numbers is considered an useful proxy for growth in returns to investors. It would, of course, be better to have a more direct measure of investor returns, but such data only exists in Inland Revenue files or the accounts of individual firms, both of which are inaccessible.

Figure 9 and Appendix 6 on page 188 show the growth in employee numbers for the activities started in 1988 and 1989, which managed to survive their first five years in business. Businesses which had no employees when first entering the database were excluded from the analysis.
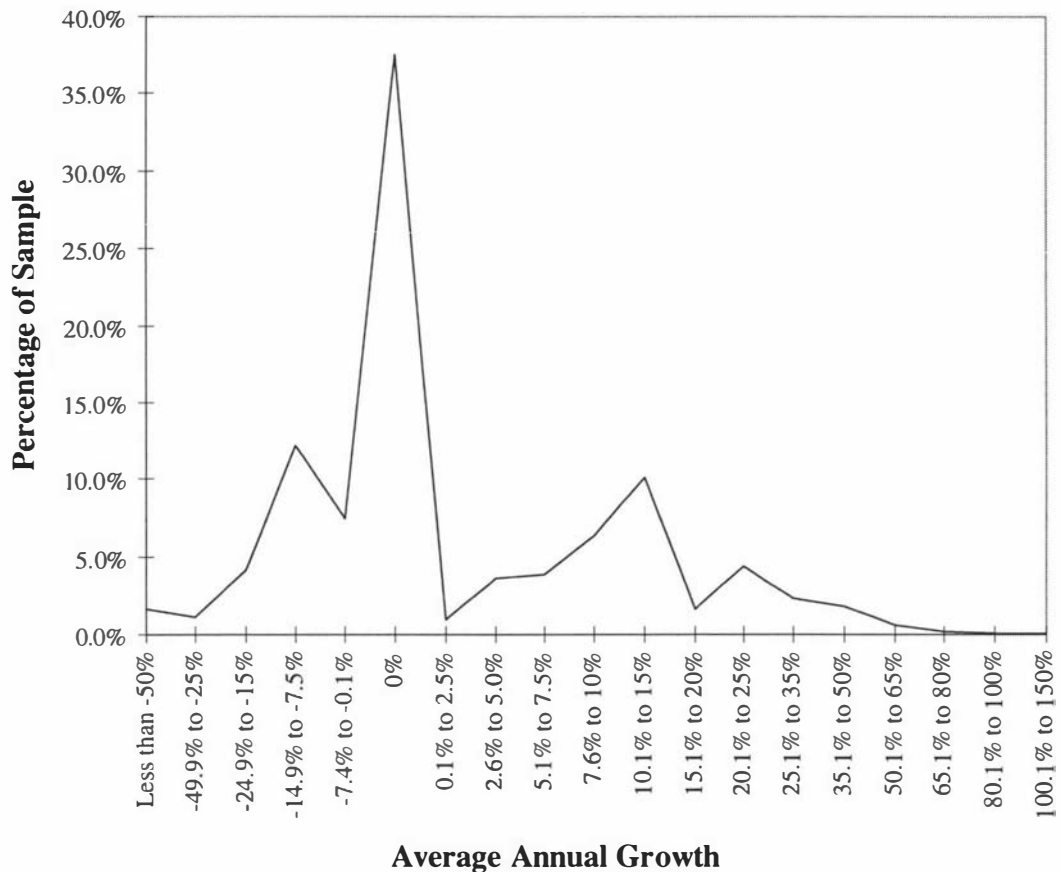
Figure 9   Growth Rates of Firms Surviving Five Years

This graph presents the distribution of average annual compound growth rates achieved by stand-alone start-up firms which survived their first five years in business. It includes both single and multi activity enterprises which were started in 1988 and 1989. Firms with no employees at start-up were excluded from the sample.

If one accepts that there is a relationship between growth in employee numbers and growth in value of the firm, then it is reasonable to conclude that the majority of those ventures which survive are not showing the level of growth that would indicate high investment returns.   Only 36 percent show positive growth, 37 percent show no growth and the remaining 26 percent have shed employees since starting up. Only 5.2 percent of survivors, i.e. 2.2 percent of start-up ventures, show growth of better than 25 percent per annum. These figures, which give an average growth of approximately 2.7 percent per annum, do not provide evidence that successful new ventures grow rapidly as the growth rate profile is not dissimilar to what might be expected from a sample of well established businesses. This is perhaps not surprising as it is difficult to see any advantages

apart from entrepreneurial zeal, which new ventures would have over there more established rivals, while the liabilities of newness are obvious.

These results are consistent with the pattern of growth found by Dunkelberg and Cooper (1982) who analysed a random sample of 1,805 U.S. firms belonging to the National Federation of Independent Businesses, an organisation with a membership of half a million. For firms up to five years old they found 15 percent had negative growth, 40 percent had zero growth and 22 percent had growth of more than 20 percent. This was quite similar to the figure for firms of all ages in their sample, which showed 14 percent with negative growth, 40 percent with zero growth and 11 percent with growth of more than 20 percent. Birley (1987) also studied the questions of whether or not new firms employment size is set at the beginning and if not, how fast they grow. She found that employment for most firms was set at the beginning with little growth in full or part time jobs.

Employees at Start-Up
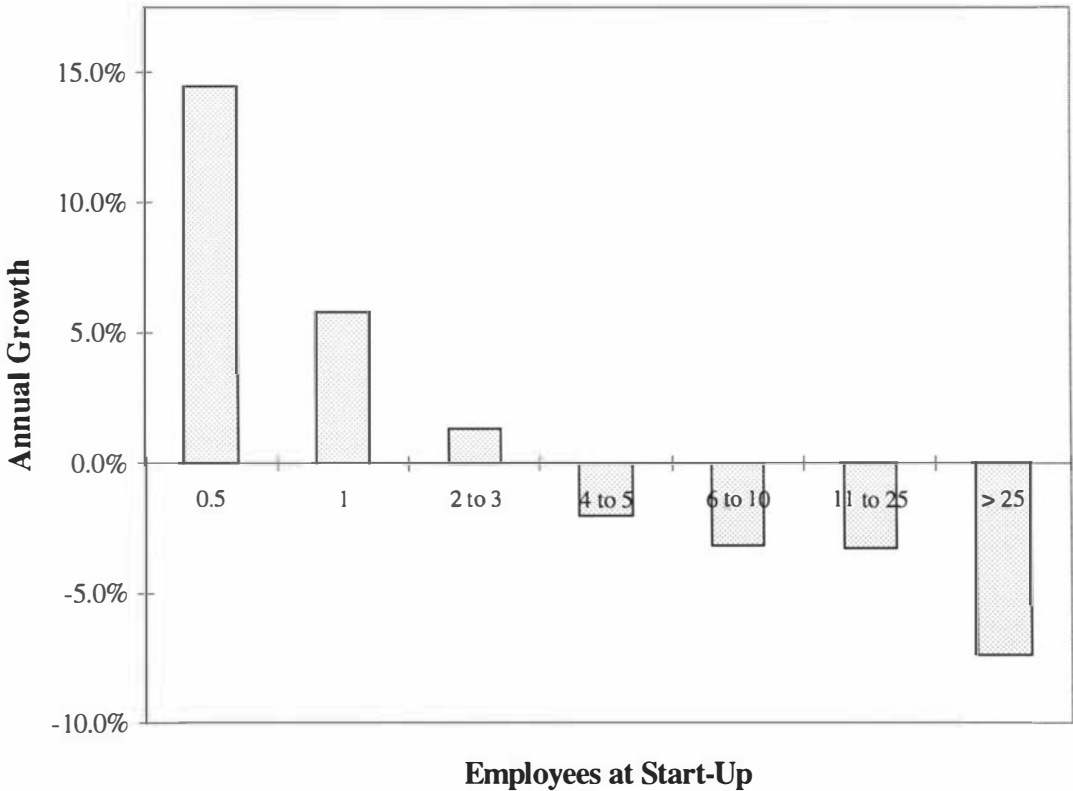
Figure 10 Effect of Start-up Size on Growth of Singles
This graph shows the effect of size on annual average compound growth rates achieved by stand-alone ventures which survive their first five years in business. Size is measured by the number of employees at start-up.

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The effect of size on growth is, of course, an important consideration as the large number of small businesses in the sample could be disguising the growth rates of the smaller number of larger businesses. This is not, in fact, the case as can be seen from Figure 10 and Appendix 6.

It is interesting to note that the overall weighted average growth rates of singles and multies was the same at 2.7 percent, however, as can be seen from Table 3, the pattern of growth is different with smaller multi start-ups growing faster than for similar sized singles. As the multies have far fewer small start-ups, this higher growth has less effect on the average. For larger start-ups, the multies grow at a slightly slower rate than singles. The differences between the two categories are perhaps not as important as the similarities. Singles are started by individuals, most of whom will be starting their first venture. Multies are started by established firms who should in theory have superiority in terms of experience of starting and managing a business, as well as knowledge of the environment in which they are operating. It is, therefore, surprising that they seem no better at growing their new enterprises. Differences in the characteristics of the two types of ventures may account for this in part, for example, where a start-up is a new branch office there may be no expectation of growth. Nevertheless, the similarities are striking, leading to the possibility that the two types of start-ups are more similar than may have previously been appreciated.

Table 3   Comparison of Growth Rates of Singles and Multies
This table shows the annual average compound growth rates achieved by the new ventures of existing enterprises which survive their first five years in business, and compares them with those achieved by stand alone ventures. They are split out according to their size at start-up, measured in terms of employee numbers. Also shown is the total number of surviving firms in each category.

	Singles		Multies	
Employees at start-up	Number of Firms	Growth (% per annum)	Number of Firms	Growth (% per annum)
Less than 1	644	14.5	23	24.5
1	5,605	5.8	227	10.5
2 -3	6,221	1.3	533	5.6
4-5	1,472	-2.0	249	0.9
6-10	941	-3.2	253	-1.9
11-25	406	-3.3	179	-3.5
25+	125	-7.4	118	-6.4

2.4.6 Geographical Differences in Failure Rates

The geographical distribution of failure rates is also of interest as failure may be higher in declining areas or in rural locations. To determine if this is true the firms in the study were analysed according to the regional council area, or the urban area in which the firm was located. The details of five-year survival rates for firms born in 1988 and 1989 can be found in Appendix 7, page 191. The most noticeable feature of the data is that the survival rates in the four largest cities are almost identical to the failure rates in the provincial and rural areas as is shown in Table 4 .

Table 4   The Effect of Location on Survival
The five-year survival rates of new ventures started in 1988 and 1989 broken out according to whether or not they were located in one of the four main metropolitan areas in New Zealand.

	Five Year Survival Rates (%)		
	Singles	Multies	Overall
Provincial and Rural Areas	42.3	52.3	42.7
Main Metropolitan Areas	42.6	48.3	42.6

There is some indication that depressed areas have lower survival rates for single enterprises. The West Coast region had a survival rate of 34.9 percent and the Northland region produced a figure of 39.3 percent. These regions are perhaps the most economically depressed areas in New Zealand. Despite this, the variations between different regions and metropolitan areas are in general smaller than might be expected, certainly not large enough to offer encouragement to select any particular region as a preferred area for establishing a business.

2.4.7 Concluding Comments

The analysis of New Zealand failure rates has shown that, in line with previous overseas studies, the failure rates of start-up businesses are high. What is perhaps more surprising is the pervasiveness of the phenomena, with the new ventures of existing firms being almost as likely to fail as those started up as stand-alone

ventures. No type of business, when split out according to its three digit SIC category, showed a five-year survival rate of greater than 63 percent, and there was little variation across different geographical locations. Even when examining the growth rates achieved by surviving ventures, the growth rate characteristics of singles and multies were surprisingly similar. Thus, a high risk of failure can be seen to be an inherent and inescapable risk associated with starting up a new business venture, not only for new stand-alone ventures, but also for the ventures established by existing firms.

Chapter 3

3. NEW VENTURES, THE MORE THE BETTER?

3.1 BACKGROUND

The focus of attention on small business as a source of economic and employment growth dates back to Birch (1979), who analysed Dun & Bradstreet data on U.S. firms over four periods of time from 1969 to 1976. Birch concluded that 66 percent of all net new jobs in the period studied were generated by firms with less than 20 employees. This study has proved to be highly influential. It was seized upon by the large industry centred on providing assistance to small business, who used it as the basis for seeking greater assistance for small businesses and start-ups in particular. Nevertheless, Birch's conclusions were not accepted without challenge. The same data when analysed by Armington and Odle (1982) showed no disproportionate job generating characteristics for small businesses. They found that only 39 percent of new jobs were generated by firms of less than 100 employees, approximately the same as the share small firms have of total employment in the U.S. Later, they revised their figure upwards to 52 percent as the controversy generated re-appraisals of the figures. Birch countered by upping his figure to 80 percent (Curran, 1986, 33).

In New Zealand, like most other western nations, the belief that small firms and start-ups in particular, are the key to growth in jobs has come to influence government policy. The Enterprise Allowance Scheme set up by the last Labour government provides financial support for a period of up to twelve months to encourage the long term unemployed to start up their own businesses, and the Labour Party still adheres to its belief in the job generating ability of small business. In its August 1993 policy document (New Zealand Labour Party, 1993) it states "In economies similar to ours, 80 percent of all new jobs have come from enterprises that employ fewer then 20 people." National led Governments have

also endorsed the job generating power of small business at various times, reflecting the conventional wisdom of our time.

Those who have studied the subject in detail tend to be more wary in their approach. Curran (1986) in his review of small business research advises caution and emphasises that the job generating powers of small business is generally overstated. While acknowledging the need for more research, Curran states "the spread of detailed research to more specific areas seems unlikely to fundamentally change the sceptical stance of most researchers to date on the contribution of employment made by small firms." Brock and Evans (1989) come to similar conclusions. Bannock and Peacock (1989) state the consensus in the U.K. is that no more than 10 percent of total employment today is accounted for by firms that were started up in the past 10 years. They, like many others, recognise that attributing new jobs to small business is simplistic. The different roles of small and large business must be recognised. In general, it is the role of large firms to reduce the labour costs of mass produced consumer goods and in doing so, create additional consumer spending power which the small firms can exploit. As consumers spend a smaller proportion of their income on traditional goods and services they have more money to spend on less traditional goods and services. The innovation and flexibility of small firms is best able to test this new diversity of demand and exploit the opportunities created.

Davis, Haltiwanger and Schuh (1996) in their study of U.S. manufacturers showed the highly dynamic state of employment by individual firms with jobs being created and lost as businesses go through cycles of prosperity and adversity. They conclude that large mature employers account for most newly created jobs and state that, "Conventional wisdom about the job creating prowess of small business rests on statistical fallacies and misleading interpretations of data." Their work, while highly influential, has failed to convince opponents that small business job creation prowess is a myth. Carree (1996), amongst others, has argued strongly against their findings and believes that they overrate the statistical distortions present in earlier studies.

It is not proposed to analyse this controversy in detail as it is not essential to the question under investigation. It is sufficient to say that while the job creating ability of small business remains controversial in academic circles, it has gained wide acceptance in the minds of the public, to the point where there is an almost unquestioned belief that small business is the major source of job generation. In addition, public policy initiatives to encourage new business start-ups based on this belief are widespread.

It is important not to fall into the trap of assuming that the economy will perform better if there are more small firms and less large ones. As Bannock and Peacock (1989) point out, small firms and large firms in the main do not compete directly with one another. Small firms carry out services which in many cases would not be economical for large firms to perform. Economists recognise there is an optimum size range for firms in a particular industry and that over time competitive pressures will ensure producers achieve a size distribution within an industry that leads to the greatest economic efficiency. Many industries have large economies of scale and small firms simply cannot compete. The size distribution of firms within an economy will have some optimum configuration and competition will act as an optimising force. If Governments follow the principle that small firms are better because they produce more jobs and introduce policies that ensure this happens, over time the average size of firms will drop. This process if successful can only produce jobs at the expense of economic efficiency. Prais (1976) in his study of the size distribution of firms concluded that economies go through phases where the share of employment generated by small firms fluctuates. Bannock and Peacock (1989) identify these movements in the U.S. and U.K. as follows:

Table 5   Share of Employment Generated by Small Business
The changing trends over time in the contribution that small firms make to total employment as presented in Bannock and Peacock (1989).

Period	Trend
1910-1935	Downward
1936-1950	Upward
1951-1970	Downward
1970 onwards	Upward

Loveman and Sengenberger (1991) come to the same conclusion, finding that during the 1970's the trend in O.E.C.D. countries towards centralisation in business organisations ceased and the share of employment contributed by small businesses began to increase. Acs (1992) reached a similar conclusion. Blau (1987) looked at self employment and found that it had trended down for almost a century before reversing in the 1970's. Prais (1976, 47) concludes that the trend towards larger firms in the period prior to 1970 was largely due to merger activity as his analysis shows that average plant size did not increase. This is an important point as the distinction between large and smaller firms and the trend in size may be less important if the average size of the individual business units within each enterprise has remained unchanged.

Thus it is evident that the size distribution of firms can be expected to change over time and the direction of trends can change as economies go through different phases. The changes shown in statistical analyses of average firm size may be due to changes in ownership structure, caused by merger and divestiture activity, as much as they are due to any fundamental shift in the role of the small firm in the economy.

Even if Birch's contention on the job generating power of small firms is accepted without question, this does not mean the creation of more new firms will lead to any increase in employment, for it is only those firms which survive and grow who provide a positive contribution to employment. New firms must generate economic growth before they can create added employment. If new firms drive existing firms out of business, destroying as many jobs as they create, no contribution is made toward increasing total employment.

The purpose of this chapter is to explore this question. It will determine if there is evidence of an oversupply of new ventures in New Zealand, and seek evidence that determines how representative these results are of other places and times.

3.2 RESEARCH APPROACH

In this section further analysis of the data used in Chapter 2 is conducted. In order to identify evidence of oversupply, an examination of new stand-alone ventures must be considered in conjunction with the new venture activity of existing enterprises as they will compete side by side in the economy. By combining the data for multies and singles, it is possible to determine the level of start-up activity in comparison with the firms that exist in the economy as a whole. In doing so, evidence is sought as to whether or not there is an under-supply of new ventures in the economy.

3.3 RESULTS

Given the obvious high discontinuance rate of businesses shown in Section 2.4.1, it is useful to find the rate of turnover in businesses which is occurring in the New Zealand economy. The following figures which are the total for all activities, i.e. singles plus multies demonstrate this phenomenon.

Table 6   Births and Deaths of Business Activities 1988 - 1993
This table presents the total number of New Zealand business activities (both single and those making up part of a multi activity enterprise) for the period 1988 to 1993. It also provides the annual start-ups and closures and the annual increase in the total number of surviving business activities. Source: Statistics New Zealand, Business Demography Database.

	1988	1989	1990	1991	1992	1993
Total activities present	173,304	177,306	178,362	186,251	196,898	197,310
Start-ups	22,946	24,080	21,201	30,489	30,859	25,871
Failures	19,919	20,078	20,145	22,600	20,212	25,459
Increase in total activities	1.78%	2.31%	0.60%	4.42%	5.72%	0.21%

These figures show that on average during the period of the study, businesses in their first year of operations represented 14.3 percent of total business activities. Clearly there are far more start-ups than can be sustained by the growth in the economy. The point is further demonstrated by looking at the figures on an industry by industry basis as shown in Table 7.

The economy wide oversupply of new ventures is clearly evident. The figures show there were 5.75 times as many new business activities started up as the

economy was able to sustain. If all business activities started up had survived, the number of business activities in existence would have increased by 91 percent during the six years of the study and doubled in six and a half years. During the period of the study, unemployment was relatively high and new firm formation could have solved this problem, however, the reality is that GDP growth was being deliberately constrained in order to control inflationary pressure. In any event, the rate of new business formation was far too great to be able to rely on the unemployed as a work force even assuming they possessed the required skills.

Table 7   Oversupply in Business Start-ups Analysed by Industry Sector
The following figures show the oversupply of new ventures. They are combined figures for singles and multi activity enterprises. The increase is the annual percentage increase in the number of business activities in existence. The new activities are those started up during the year as a percentage of the previous years total, and the failures during the year are also expressed as a percentage of the previous years total. The figures are the average for the period 1988 to 1993.

	Increase in Activities (%)	New Ventures (%)	Failures (%)	Oversupply in Start-ups (%)
Agric. Hunting Forestry & Fishing	4.1	18.1	14.0	341
Mining and Quarrying	-0.1	11.7	11.8	∞
Manufacturing	0.4	11.4	11.0	2,750
Electricity Gas and Water	-2.6	4.9	7.5	∞
Construction	0.9	13.2	12.3	1,367
Wholesale Trade	3.6	16.6	13.0	361
Retail Trade	-0.1	12.5	12.6	∞
Restaurants and Hotels	3.2	16.0	12.8	400
Transport	2.2	15.3	13.1	595
Business and Financial Services	7.2	19.9	12.6	175
Community, Social & Pers. Serv.	3.2	12.0	8.8	275
All Industries Combined	2.5%	14.3%	11.8%	475

The country's almost static population growth during the period provided little evidence of a need for an increase in the number of firms. Clearly, the high business failure rate is an inevitable consequence of the number of start-ups. All new firms cannot survive or the average size of businesses would rapidly decrease over time. Figure 11 shows the dramatic increase in the number of business activities that would occur if there were no failures and all businesses continued to exist, even in the face of increased competition.

During the period of the study, 82 percent of business activities which started up either went out of business or forced another business somewhere in the economy

to cease trading. As indicated earlier, it is not just start-up ventures that have high failure rates, more mature businesses also suffer a sizeable risk of failure. The business environment in New Zealand during the period of the study was obviously very hazardous for established firms as well as for new comers. The underlying reason for the high failure rate is that the volume of start-ups vastly exceeded the economy's ability to absorb new firms.
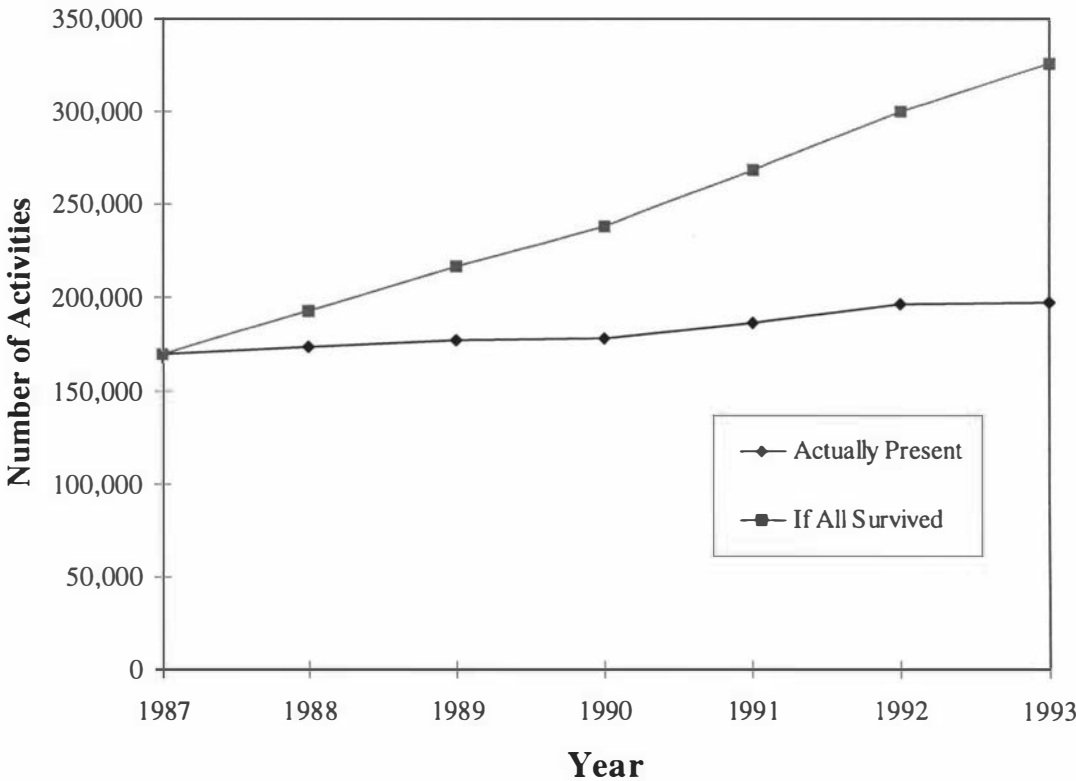
Figure 11 Oversupply in New Ventures
This graph looks at the actual number of business activity units that were in existence in New Zealand during the period 1987 to 1993, and compares them with the number of activity units that would have existed if all new business activity units had survived.

Table 7 shows that the oversupply varies between industry sectors, but no sector had less than 7.5 percent of activities failing each year. As would be expected, there is a strong correlation between the failure rate in an industry and the rate of new venture formation expressed as a percentage of existing business activities (correlation coefficient 0.83). What is of more interest is the correlation of 0.91 between the number of new ventures in an industry and the growth in numbers of business activities in that industry. Thus, it would seem that either entrepreneurial activity is reasonably efficient at allocating new ventures according to the growth

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potential of each industry, or growth is caused by the oversupply itself. The more reasonable conclusion is that entrepreneurs tend to seek out opportunities in areas where they see growth opportunities and they are reasonably efficient in this process. This is consistent with the earlier results that showed high failure rates to be consistently high throughout the economy, in terms of industrial sector, geographical locality, and business type for both single and multi venture enterprises.

3.4 EVIDENCE FROM OUTSIDE NEW ZEALAND

As the time of this study was one of major reform in the New Zealand economy, it could be argued that the large oversupply of new ventures was a result of the inevitable upheaval that occurs in economies undergoing the transformation from high protection to an open market economy. While it would have been informative to compare the results during this period of reform with non-reform period data, this was not possible as the entire period for which data was available was one of on-going reform. Therefore it is necessary to look elsewhere for comparisons. There is considerable evidence that the results obtained for New Zealand may not be unusual. Birley (1986) in a study in Indiana in the U.S. examined birth and death rates from 1978 to 1982, a period of low U.S. growth, and found a similar pattern to that found in the current study. The details are given in Table 8.

Birley also cites studies by Hollander (1967) who found that in the U.S. entries ranged from 8.0 to 9.5 percent of existing firms, and Jacoby (1971) who found a birth rate of 9.6 percent. Cochran (1981) quotes U.S. Department of Commerce figures for the 1950's and 1960's that give discontinuance rates of seven to eight percent throughout this period. Lane and Schary (1991) look at the formation of new corporations in the U.S. and find a rate of about seven percent for the period 1970 to 1976, with a surge in 1977 that hit a peak of 13 percent in 1980 and 1982. Acs (1992) looked at figures in the U.S. and found that, during the six year period from 1980 to 1986, annual manufacturing entries were 6.5 percent of firms in existence in 1980, and exits ran at a rate of 5.6 percent. He found that most

European countries had a lower entry rate of around five percent. However, Bianchi (1993) looked at turnover in companies for 1982 to 1992 and found that the birth rate varied between 15.3 percent and 17.6 percent, and the death rate varied between 14.0 and 16.3 percent.

Table 8   Business Turnover Rates - A United States Example

Figures produced by Birley (1986) which show births and deaths as a percentage of existing firms in Joseph County Indiana from 1978 to 1982.

		Births and Deaths as Percentage of Existing Firms				
		1978	1979	1980	1981	1982
Agriculture	Births	23.5	14.3	3.8	7.3	10.3
	Deaths	7.8	3.6	11.3	3.6	3.5
Manufacturing	Births	6.6	8.8	5.0	6.4	7.3
	Deaths	4.5	3.4	6.3	5.0	6.6
Transport	Births	14.8	11.6	14.1	16.9	12.7
	Deaths	8.5	8.2	17.6	14.8	13.4
Service	Births	6.0	7.2	5.6	5.7	6.0
	Deaths	4.1	3.2	4.3	4.6	3.4

U.S. Small Business Administration (1997, 26) provides statistics from the U.S. Department of Labour, Employment and Training Administration showing the turnover of companies. This has been used to calculate the data presented in Table 9. While this data represents only companies, it will be representative of U.S. businesses in general. The report also provides figures that show that the growth rate of the number of companies filing tax returns has been the same as the growth in returns filed by all non-farm businesses, which indicates that the figures are not being distorted by a change in the preference for using the corporate form as compared with partnerships and proprietorships.

Table 9   Turnover in U.S. Companies 1982-1995

Data on the start-ups and failures of companies in the U.S. expressed as a percentage of the number of firms in existence at the end of the previous year. It is calculated from data presented in U.S. Small Business Administration (1997, 26).

Year	Total Firms at Year End	Starts as % of all Existing Firms	Failures as % of all Existing Firms
1995	6,057,000	13.7	11.8
1994	5,992,000	13.8	11.4
1993	5,851,000	13.5	11.6
1992	5,741,000	13.0	12.0
1991	5,687,000	12.8	12.0
1990	5,639,000	13.8	12.5
1989	5,568,000	13.5	12.5
1988	5,513,000	13.9	12.2
1987	5,420,000	14.8	11.2
1986	5,230,000	14.4	12.7
1985	5,142,000	14.4	11.7
1984	5,009,000	14.3	10.7
1983	4,837,000	13.3	12.0
1982	4,777,000	12.6	11.1

The data sources used for these studies fail to capture all firms, and in general exclude very small firms from the sample. As small firms make up a large percentage of total businesses, the births and deaths will tend to be understated as a greater proportion of larger firms will be well established and hence less prone to turnover.   The data from Bianchi (1993) which captures all companies irrespective of size is possibly the most representative.

Figures from the United Kingdom can be calculated from the VAT registration data provided in Ganguly (1985, 143) and these are detailed in Appendix 8 on page 192. This shows that firm births, based on VAT registration, averaged 11.0 percent of existing firms per annum and deaths 9.1 percent for the period 1973 to 1982. Actual births and deaths will be slightly lower due to some registrations and deregistrations not being actual births. See page 68 for details of the deficiencies in the use of this database for detecting births and deaths.

It should be noted that these figures exclude new ventures by existing enterprises, therefore are not directly comparable with the New Zealand data. Figures that do

not include the new business activities of existing enterprises will inevitably understate the magnitude of any oversupply of new ventures.

Clearly, there has been evidence available for a considerable period of time as to the high number of births when compared to existing firms. Star and Narayana (1983) were possibly the first ones to question conventional wisdom on the number of new business starts. They show estimates, from what are generally considered to be reputable sources, giving start-ups ranging from 250,000 to 750,000 per year in the U.S. They then defined conventional wisdom as being a belief that 400,000 new businesses started up each year. By examining the number of start-ups derived from Dunn and Bradstreet data and from the Illinois Retailers Occupational Tax data, and using this data to extrapolate across the population of firms as a whole, they came up with estimates that between 1,810,000 and 3,400,000 new starts occurred during 1980.

Reynolds (1995) in his study of the process used in starting up a new venture, estimated from his random sample that more than seven million U.S. adults are in the process of starting up a business at any one time. The first study which specifically seeks to confirm Star and Narayana's views on the number of business start-ups is Dennis (1997), which is based on a 1985 study in which 36,000 U.S. households were surveyed. From this data Dennis estimated that there were 4,553,000 entries that year in the U.S. involving 6,211,000 active owners. He estimates that five percent of the adult population start a business each year. Of the 4,553,000 entries, 78.5 percent were de novo starts. On a per capita basis, this is about 75 percent higher than is found in the current New Zealand study, but it must be remembered that this study only includes businesses with a turnover of $30,000 or more in their first year, whereas, Dennis included all starts, hence the figure given by Dennis is consistent with the New Zealand experience.

The New Zealand oversupply figures which were presented in Table 7 are for a short period of time, and it is reasonable to assume that considerable variation will occur over time. The economic reforms under way in New Zealand during this period will undoubtedly have had an influence, but there is no reason to assume that the oversupply in new business start-ups is isolated to this period of time or to

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New Zealand. Devlin (1985) pointed to the trend in New Zealand when he showed an increasing rate of small business closures when compared with new company registrations. He calculated the five-year moving averages of the ratio of companies struck off or dissolved over new company formations. This showed a steady increase from 43.1 percent in 1976 to 66.5 percent in 1982. Storey (1982) found that new firm formation had increased steadily since 1950 but was quite volatile on a year by year basis. It seems probable the oversupply of new firms is as old as the free enterprise system, and the study by Hutchinson, Hutchinson and Newcomer (1938) gives failure rates as far back as 1844 which are similar to modern studies. They give one of the main causes of failure as "overcrowding", hence it would seem that even more than a century ago, the number of new business starts was far in excess of that which the economy could sustain.

An important point to recognise is that none of these studies, except the current one, have looked at the start-up businesses which include the new ventures of existing enterprises, and hence they will all underestimate the total number of new business activities. As the new ventures of existing firms compete with those of stand-alone start-ups, they must be included if a complete picture is to be gained and the true magnitude of the overcrowding is to be appreciated.

3.5 HOW MUCH OVERSUPPLY IS DESIRABLE

The extent to which an oversupply of new ventures is necessary to create economic efficiency is uncertain. The market forces which generate economic efficiency need a constant supply of new businesses in order to generate the competitive conditions which are the driving force of economic progress. New efficient firms that meet customer needs drive out those existing firms that are least able to survive the competition, because of inefficiency or the inability to meet market needs. Schumpeter (1942) named this process "creative destruction" and while emphasising the importance of competition pointed out that it was not necessary for actual competition to be present, merely the ever present threat. He states:

...competition .... acts not only when in being, but also when it is an ever present threat. It disciplines before it attacks. The businessman feels himself to be in a competitive position even if he is alone in his field .... in many cases though not all, this will in the long run enforce behaviour very similar to the perfectly competitive pattern. (Schumpeter 1942, 85).

This economic philosophy is the basis for most current anti-trust legislation which assumes that competitive conditions will exist providing there are no significant barriers to new entrants. There is a general recognition that competitive conditions are not reliant on vast numbers of new enterprises constantly testing out existing firms in the market place. Thus, it would seem the large oversupply of new ventures currently seen in New Zealand, or elsewhere for that matter, cannot be justified on the basis of its role in the competitive process, if currently accepted economic theory on the subject is sound.

It is obvious that over time the number of businesses in existence can be expected to increase, and in an ideal world where managers were perfect and firms were infinitely adaptable, competitive pressures would be maintained by the mere threat of new entry and just sufficient new firms would be required to cope economic expansion. If the distribution of firm size remained constant the number of firms would expand in proportion with the increase in population. It might be argued that the expansion in firms should be in line with economic output, for example real GDP, however in a world of zero population growth and increasing economic efficiency, real GDP could be expected to steadily increase without the need for an increase in firm numbers. Hence population provides a better basis for examining the need for an increase in the number of firms. With populations doubling about every 25 years, which represents an annual growth rate of 2.8 percent, an equivalent percentage of new firms would be required each year.

As was shown in Section 2.2.4, there are many researchers and other commentators who believe that failure rates are vastly overstated, and only

consider firms that fail with a loss to creditors should be considered as failures. They believe that the annual failure rate is around one percent. If you believe that failure rates are this low, then the need for more new firms appears obvious, as without them economic growth will be inadequate and existing firms will be able to expand their output free from the competition required to optimise their efficiency. This belief can only be consistent with reality if there are large numbers of firms which close while profitable and new firms are simply coming along to fill the void created. It is, of course, very difficult in many situations to distinguish between cause and effect. Are the high number of start-ups caused by the high numbers of voluntary closures of profitable businesses? There are many who would argue this. Some who do, like Kirchhoff (1994) and Armington (1986) have produced estimates of the number of U.S. start-ups that occur, which in both cases are at the lower extreme of around 500,000 annual starts. If it is believed that new starts are this low, then it is logical to assume there are inadequate numbers of new firms starting up. This view is only consistent with a very benign view of the competitive process, whereby starting up a new firm and having it succeed is straightforward and it is incompetency that leads to failure. Opportunities are so abundant that entrepreneurs are willing to abandon profitable ventures in order to seek better opportunities elsewhere. This is clearly not Schumpeter's creative destruction at work.

If Dennis's figure of 3.5 million new business starts in the U.S. is accepted, then the concept of a benign environment for new firms becomes difficult to sustain. As Dennis (1997) points out, "If there are more starts than previously recognised, there must also be more exits. And if there are more exits, the dynamics of the business entry-exit process becomes even more tumultuous than previously recognised." If it is accepted that the number of new firms starting up vastly exceeds the economies need for new firms, as evidenced by a comparison in new firm formations with population growth, then it is very difficult to sustain the belief that most closures are voluntary, or that there is a need for yet more new firms. If the high numbers of new firms starting up is accepted, it is difficult to believe that the volume of new businesses does not makes high failure rates

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inevitable. It also makes voluntary closures on the magnitude required highly improbable.

The competitive process will, of course, require that there are more start-ups than are required to keep up with population growth as some firms become inefficient, or are unable to adapt to changing demand, or are poorly managed and must be replaced. The question then is how much of an oversupply is necessary. It is difficult to answer this question. Schumpeter tells us that an ever present threat of new entry is all that is required, but how many new entrants are needed to create such a threat? It seems reasonable to conclude that the volume of new ventures found in New Zealand during the period of the study is far in excess of what is required, and that there is certainly no need to increase numbers further.

3.6 THE PUBLIC POLICY IMPLICATIONS OF OVERSUPPLY

Throughout the western economies, there is a long standing tradition of instituting and maintaining public policy initiatives designed to stimulate new business formation, and in particular, to encourage the unemployed to start their own businesses in order to correct perceived market imperfections that result in unemployment.

Such employment schemes are common throughout the industrialised world and they are not without their critics. Adams and Wilson (1995) found that U.S. employment programs had little effect on employment or business start-ups and considered that the money spent on such government programs would be better spent on improving the environment in which small businesses operated. Beesley and Hamilton (1984), in a Scottish study, found that seedbed activity was only effective where it is the precursor to new industries, and called for government aid to focus on reducing the death rate of small firms rather than encouraging start-ups. Bendict and Egan (1987) studied British and French start-up firms and found that government start-up assistance programs for unemployed workers stimulated the formation of businesses which were not sufficiently efficient to make a go of it own their own. Gray and Stanworth (1986) found that firms supported by the

U.K. enterprise allowance scheme had a three year survival rate of 53 percent which is lower than businesses overall. Smallbone (1990) confirmed the higher failure rate of businesses started under this scheme. Hudson (1989a) looked at the role of unemployment in starting up a business in the U.K. and concluded, "The unemployed can be seen to be taking a solution to their problem into their own hands, however they appear in many cases ill suited or ill prepared for the role of entrepreneur." Hudson (1989b) looked at U.S. figures from 1951 to 1984 and concluded that the unemployed were more likely to start up a new firm and were also more likely to fail.

Westhead (1990, 103) goes one step further when suggesting, "Public Policy should not solely be concerned with the number of new firms and the rate of new firm formation … public policy should aim to discourage those individuals who are unsuitable for 'entrepreneurship'. " Hart and Harvey (1995) looked at the role of new firms in job creation and pointed out that the displacement effect puts a natural limit on the job formation process. They found new firms will push existing firms out unless they are servicing external markets. Wood (1994) finds that start-up assistance programs only have benefits that are non cancelling where sales come from outside the area, otherwise "there has only been a reshuffling of economic activity and not an overall increase."

What seems certain is that public policy initiatives designed to encourage the formation of new businesses need to be reviewed, as there seems ample evidence that the efficacy of such programs is suspect, and they are probably doing considerable harm by intervening in the market to correct market deficiencies that do not exist, thereby increasing overall business failure. The magnitude of the oversupply of new ventures and the absence of a need for a large numbers of new entrants to generate economic efficiency, brings into question the widespread belief that new ventures should be encouraged and that "more is better". What is the point in the Government of New Zealand and other industrialised nations maintaining initiatives to encourage the unemployed to start their own business when all it does is increase the number of business failures. Such initiatives might be seen as little more than a cruel hoax encouraging the most vulnerable to risk all in order for them to temporarily disappear from the unemployment statistics.

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Public policy initiatives supporting young and growing firms which are aimed at quality rather than quantity are a different proposition. The U.S. Small Business Administration has a long history of supporting start-up ventures and also provides assistance by working through private sector organisations who provide finance. It also supplements private sector finance with loan guarantee schemes to help overcome the funding difficulties of young growing firms. The U.S. Small Business Administration (1997) shows that its SBIC scheme targets businesses that would not be considered small by New Zealand standards. The average size of investment made by the SBIC in 1997 was US$870,000. A similar scheme is Australia's proposed Investment Innovation Fund which will provide financial incentives for fund managers to invest in early stage technology based businesses with a turnover of less than A$4 million. There is some doubt as to the effectiveness of such schemes, as in the 1980's Australia's Management and Investment Company scheme, which was designed to encourage high tech start-ups, lost large amounts of money for investors and taxpayers. Participants only invested in one company that managed to achieve commercial success. For more than 20 years New Zealand, through the Development Finance Corporation (DFC), operated schemes that assisted small firms. These were terminated in 1985 when DFC Venture's poor financial performance became politically unacceptable to a government committed to market economics.

Whether schemes aimed at supporting selected high potential new ventures are in the public interests is debatable. Detractors of the schemes believe they are an unnecessary intervention that interfere with market forces. Supporters of such schemes point to considerable economic benefits arising from the firms they support. What can be said is that this study of start-up businesses in New Zealand neither supports nor denies the validity of such schemes. As the schemes involve a selection process where only firms judged to be worthy are funded, they probably encourage the type of new firm that plays a much needed role in the economy.

3.7 HOW SUPPORTABLE IS OVERSUPPLY AS A CAUSE OF FAILURE

The general perception that the cause of business failure is poor management is illustrated by the old cliché giving the three main causes of business failure as "management, management and management".   There is a significant body of literature to support this contention. The evidence that management inadequacy is the major cause of failure is much more supportable for established firms than it is for new firms. This is recognised by a number of experts in the field including Altman (1993, 15) who recognises the role of high business formations in creating failure rates. He believes the reasons that cause young businesses to fail are different from that apply to mature firms. Altman, like most of those who contribute to the literature on the subject, does not rely on specific studies in support of his opinions, although in his case he is a well recognised authority on the subject. It is, however, more enlightening to look at those who have undertaken actual studies.

Birley (1996) surveyed 486 U.K. bankers and accountants and found that management incompetence was very overrated as a cause of failure, and that "running a new venture is complex and the dangers many." Bruno and Leidecker (1987) looked at 250 high technology firms founded in the 1960's which had failed by the end of 1984 and found that management and incompetent support professionals were the major cause in just under 50 percent of failures. The other major causes were product/market problems, and financial difficulties such as under capitalisation and assuming too much debt. They report significant difficulties in carrying out this type of research, namely difficulties in sampling, the reticence of founders to discuss failure, the inability of founders to understand and articulate causation and the multi-dimensional complexity of the problem. Bruno and Leidecker (1988) review the literature on business failure and conclude that the reasons for failure are changing with under capitalisation and similar causes declining and product/market failure becoming more important. They state, "The sheer number of product/market oriented problems should give any would-be entrepreneur cause for concern."

Fredland and Morris (1976, 8) point out that the causes of failure are largely a matter of definition and state, "No matter what disaster befalls a firm in the marketplace, sufficient management foresight could by definition have avoided it." This point is an important one as management ability is generally judged with the benefit of hindsight and it is easy to blame failure on poor management. It must also be realised that the management of small businesses will not have the skills of a highly paid corporate executive and that a small firm could not pay the market rate for such expertise. Therefore, management skills should be judged against what could reasonably be expected from a competent manager running a typical firm of its type. Kolodny, Lawrence and Gosh (1989) point to the difficulty of even defining what good management is, even when dealing with the largest firms. They looked at the firms that were rated as excellent in *In Search of Excellence* (Peters and Watermans, 1984) and found that 29 of the 67 firms performance had significantly deteriorated from the 1976-80 period to the 1980-85 period. Thus, even managers judged as the best of the best by their peers, are not able to ensure the continued performance of the firms they manage. Good fortune is often mistaken for good management, and it is that being in the right place at the right time has as much to do with management reputation as actual skill.

The importance of luck in starting a business has been shown in some studies. Dochesneau and Gartner (1990, 310) in a small study concluded that, "It appears to be part of the irony of entrepreneurship that successful new ventures often owe their survival to 'luck' - some particular set of circumstances that could be never planned for, or counted on." Venkataraman et al. (1990) found that in contrast to larger established firms whose failure is a protracted downward spiral, that "new small business failure (or success) is only partly within the control of the entrepreneur, and partly a random process beyond the entrepreneur's control."

Dubini (1988), and Stuart and Abetti (1987) point out the difficulty in predicting success of new ventures a priori, and this is certainly borne out by venture capital firms who accept the inevitability of the fact that a high proportion of start-up investments will fail to perform to expectations. The same applies to the new ventures of existing firms. Crawford (1987) looks at failure rates for new product launches and reports on seven studies which find failure rates of between 28

percent and 98 percent. He reports that the profits that come from successful innovation are such that management find these success rates acceptable.

While anecdotal evidence often supports the idea that failure is largely due to poor management, the studies on the subject are more reluctant to place the same degree of blame on management. Certainly, in a competitive market, poor management will reduce a firm's chances of survival, but it is difficult to mount a convincing argument that the elimination of poor management will solve the problem of business failures. Thus, the evidence is not inconsistent with the theory that oversupply is the underlying cause of the level of business failure being experienced.

3.8 COMMENTS ON THE OVERSUPPLY OF NEW VENTURES

This study argues that the major cause of business failure in New Zealand is an oversupply of start-up businesses. The traditional arguments that improved management and planning will lead to a reduction in business failure are misleading at best. Improving the management of businesses is, of course, a laudable endeavour and better management will help the chances of any individual business to survive. It will not, however, increase the total number of businesses that survive. It will merely ensure that a particular business is one of the survivors rather than one of the casualties. The only sure way to reduce the number of business failures is to reduce the number of start-up businesses.

Those who have witnessed first hand the personal tragedy associated with business failure realise that encouraging an oversupply of new ventures is counterproductive. There is little doubt that a certain level of business failure is inevitable, even desirable. It is not possible to determine which business will succeed and which will fail, only the market can decide that. Everyone is entitled to follow their dream, to take their chance at success even if the odds are against them. However, little is gained by encouraging those with little chance of success to risk all in an attempt to try to beat the odds, particularly if the true odds of failure are badly underestimated and the rewards of success overestimated. Most

entrepreneurs have little concept of the true risks they take and programs to ensure those starting new ventures were well aware of the odds and challenges involved would be of greater economic benefit than the encouragement of maximising the number of start up businesses. The optimum economic result will be achieved when the only ventures to enter the arena to do battle in the market place are those with a realistic chance of forcing a less efficient operator out of business, or those with better ways of satisfying consumer preferences.

There is a concept in the minds of most people that businesses are a permanent phenomenon. They start up, and if they overcome the start-up process they will continue in existence for an indefinite period, barring the unexpected. Most management theory is based on this assumption. Planning is for success and growth, and failure is seen as an aberration. The reality is somewhat different. Business ventures have a definite life cycle going from birth to death in relatively short periods of time. The economic process is a dynamic one, not a steady state. It is true that many businesses do have very long lives and grow to a very large size, but these are the exceptions. Some sectors of the economy will tend to favour companies with long lives, particularly those involving heavy capital costs and long product life cycles, but other sectors of the economy will change rapidly and have relatively few firms which last for long periods.

It is also important to recognise that large corporations are usually not a single business, but a collection of ventures. These ventures are born and die while the corporation continues. These diversified corporations are best regarded as holding companies for a diversified portfolio of ventures. They are able to continue in business because they can spread their risk. They change and evolve in accordance with the ventures which succeed and fail. This study clearly shows the failure rates of new ventures started by multi venture enterprises are comparable with those resulting from the efforts of individual entrepreneurs, and existing firms need to recognise the magnitude of the risk when evaluating new business activities.

Chapter 4

4. ECONOMIC IMPLICATIONS

4.1 INTRODUCTION

The previous chapters have given an economy wide view of new ventures which presents a high rate of failure coupled with a volume of new starts that is vastly in excess of that which the economy has the capacity to absorb. It will later be shown that the indications are that the actual financial returns to business founders are inadequate to justify the risk involved, and why this occurs will be explored. Now that the pattern of business starts and failures has been established, it will be useful to pause and consider current economic theory, and use this theory to explain the phenomena which have been observed and to ascertain their relevance in the wider economic context.

Start-up businesses and early stage businesses form a significant part of the economy and their actions impact on most other firms as they compete for their survival. They are, therefore, of significant economic importance and should be of considerable interest to economists and an integral part of economic theory. In this chapter we will look at the place start-up firms and small businesses have in economic theory and the adequacy of the theoretical framework that exists.

4.2 DOES ENTREPRENEURSHIP HAVE A PLACE IN ECONOMICS THEORY

In searching the economic literature for theory on new firm formation, it rapidly became evident that the economics of small firms and start-ups in particular has been largely ignored by economists. There is no well established body of theory which can be used to gain insight into what has been observed so far in this study. Interest in small firms and start-up businesses has been of scant interest to economists until the recent past.

This scant interest can partly be attributed to a lack of theory on even the reasons for the existence of the firm. It was not until Coase (1937) proposed that firms exist and had a certain size because they can reduce transaction costs, that economics had such a theory. Prior to this, it was assumed that price mechanisms were responsible for the structure of organisations within the economy, with neoclassical economic theory stating that all firms in an industry should have the same size. In addition, it took many decades before Coase's work was generally recognised. It is hardly surprising, given that economics had largely ignored the role of the firm for so long, that they paid scant interest in the role of firm size in the economy, let alone in trying to explain how and why new firms came into existence.

You (1995) in surveying the literature on the determinants of firm size concluded there were two distinct and disparate views on the theory of firm size. The first of these is the static view as espoused by Weiss (1979) and Hamilton, Brown and Medoff (1990), which holds that small firms operate at a level of output too small to exhaust economies of scale and that reducing the number of sub-optimal firms will lead to greater efficiency. Acs, Tarpley and Phillips (1998) argue that this static view leads to the conclusion that the current trend towards smaller firms results in a decrease in overall economic welfare, which they conclude is clearly wrong. The alternative theory of firm size, the dynamic view as exemplified by Acs (1984), is that new firms do not exist simply to increase output by being small replicas of large firms, but rather their main function is as agents of change. The static view is now out of favour, as it simply does not correspond to reality. The current focus is on dynamic change and on the role of entrepreneurship in achieving economic progress.

The role of entrepreneurship was largely neglected in modern economics until Schumpeter (1942), described the competitive process as one of "creative destruction". When it was first published, Schumpeter's work was controversial and its influence has only developed over time. It was not until Keynesian economics was on the wane, being replaced by monetarism, that the role of the entrepreneur began to gain any prominence.

Once economists had decided that the optimum result would be achieved not through intervention, but through the operation of free markets, it was inevitable that those economic agents who bring about the change in a market economy would receive more prominence. By the early 1980's, the entrepreneur had moved from the sidelines of collective consciousness to become a central figure in business literature, as well as in the public perception. While, in New Zealand at least, the excesses of the market leading up the 1987 sharemarket crash have removed much of the gloss from their lofty status, entrepreneurship is nevertheless still regarded as the cornerstone of the modern market economy.

With entrepreneurship firmly in a position of prominence, it was inevitable that it would become a more important topic of interest for economists. This has posed major problems as conventional economic theory is not only unable to explain entrepreneurial activity, but is also incapable of accommodating it within the framework of general equilibrium models. Even when one relaxes the assumption of complete markets, as for example, Magil and Matine (1996) do, when describing the theory of incomplete markets, the results are still just as inconsistent with the nature of entrepreneurial activity as the earlier theories. Hahr and Solow (1995) argue that since the early 1980's, rational expectations and the new classical economics have dominated macroeconomic theory, and they have got it completely wrong. This is attributed to the casual transformation of, what was a normative model based on perfect foresight and universal perfect competition, into a model which is now used to interpret real macroeconomic behaviour.

The lack of realism in much of current economic theory makes it difficult to relate the realities of studies of start-up firms to any coherent theory. The observed characteristics of new ventures are simply alien to the assumptions upon which these theories are based. In searching for a reason why this should be so, it is useful to look to the positivist reasoning that has become endemic in modern economics. Friedman (1953, 8) provides a good example of this when he extols a positive science of economics and argues that the only relevant test of an hypothesis is a comparison of its predictions with experience. He maintains that unrealistic assumptions do not invalidate a theory and indeed, argues that

unrealistic assumptions can be better than realistic ones because, "Truly important significant hypothesises will be found to have assumptions that are wildly inaccurate descriptions of reality, and, in general, the more significant the theory, the more unrealistic the assumptions (in this sense)."

Economists traditionally model human behaviour as rational and self-interested. An argument for this approach is that deviating from rational maximisation leads to models without precise implications. There are, of course, economists who oppose these views such as Thaler (1992) who argues for models incorporating elements of human nature that are not strictly based on economic rationality. Thaler asks, "Would you rather be elegant and precisely wrong, or messy and vaguely right?" It has been argued that economic theorists often produce models that are not behaviourally accurate, because they are too far removed from actual data. Furthermore, theorists commonly labour over a complex problem, then assume that agents behave optimally according to the solution. They fail to recognise the distinction between how agents would act if they were optimising and how they actually behave.

The critics of positivist economics point to the training of economists as the source of the problem. Blaug (1998) put the onset of what they describe as the "illness" of modern economics to Arrow and Debru (1954), whose Nobel winning work became a model that economists began to emulate. In doing so, they turned general equilibrium theory away from realistic descriptions of a functioning economy into "a purely formal apparatus about a quasi economy" that is "clearly and even scandalously unrepresentative of any recognisable economic system." Blaug sees the process of macroeconomics which by its very nature is intimately involved with practical problems as having fallen prey to "empty formalism" by the 1980s. He attributes the current demise in economic thought to the dominance that American Universities have gained by producing large numbers of new doctorates in economics, who have been trained to abandon empirical testing of macroeconomic models in favour of "resorting to ever more esoteric techniques in the attempt to produce models that have no ambition other than to replicate actual time series." Blaug asserts that economists who fail to follow the formula required to publish in top academic journals end up in academic "Siberia".

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Blaug's contentions are consistent with a study by Colander and Klamer (1987) who sought to find out how the education of economists affected their views on the importance of the real world. They found that, 68 percent of graduate students from leading U.S. economics departments believed that a thorough knowledge about the economy itself was unimportant for the attainment of success in the economics profession, and only three percent believed it was very important.

This willingness of economists to adopt models that are based on assumptions that are at odds with reality, and then use these models for the management of economies has been widely criticised by economists and non-economists alike. Heilbroner and Milberg (1995, 94) argue that non-economists want economists to provide a description of economic phenomena that makes sense out of our past experiences and which is capable of providing guidance to redress economic problems. They believe that the prevalence of laissez-faire policy amongst neoclassical economists may be taken as an admission that economists simply do not know what to do in redressing economic concerns. It is not proposed to argue this issue in great depth, but rather to say that mainstream economics is not able to explain entrepreneurship and the models it uses bear no resemblance to the reality of entrepreneurial activity and its economic effects.

It is, of course, wrong to assume that all schools of economic thought follow the same principles. Hill (1992) addresses this issue and argues that the pragmatic approach of the institutionalists has the greatest empirical relevance and its strong emphasis on solving practical problems offers the greatest hope for "enhancing economic welfare of all humankind." It is not proposed to argue the case for institutionalism, as there is little in this study that supports or has any relevance to traditional institutionalist ideology, rather it will be argued that a more pragmatic approach to economic problem solving is justified. The philosophy of pragmatism is based on the assumption that truth can only be found in reality and that only knowledge about reality can be used to solve practical problems.

A great many of those who have studied the economics of entrepreneurship have found themselves almost inextricably drawn to the same line of economic thought. This is the concept that the action of firms, particularly small and entrepreneurial

firms, which operate in market driven economies, are shaped by an evolutionary process that lends itself more to biology than it does to conventional economic theory. This field of evolutionary economics is rapidly gaining converts and while still in its infancy, it is now a major area of interest amongst economists. In fact, its popularity has reached the point where Hodgson (1995a) is able to observe, "The number of books being published each year with words such as 'evolutionary' and 'Schumpterian' in their title seems to be increasing at an exponential rate."

The emerging field of evolutionary economics is the only area of current economic thought that provides insight into the process that occurs in starting a business or that demonstrates an adequate degree of representational faithfulness to the observed reality of entrepreneurship. For this reason evolutionary economic theory will be explored in more depth and the results of the current study placed in the context of this developing branch of economics.

4.3 EVOLUTIONARY ECONOMICS

4.3.1 A Brief History

The parallels between the Darwinian evolutionary process and the way in which society evolves were beginning to be drawn in the last century. Hodgson (1995a) quotes Veblen (1899, 188) as stating, "The life of man in society, just as the life of any other species, is a struggle for existence, and therefore a process of selective adaptation. The evolution of social structure has been a process of natural selection of institutions." It was not only the institutionalists who saw these parallels. Keynes (1926) stated, "The parallelism between economic laissez-faire and Darwinianism, already briefly noted, is now seen as Herbert Spencer was foremost to recognise, to be very close indeed. ......the individualist invokes the love of money, acting through the pursuit of profit, as an adjunct to natural selection, to bring about the production of the greatest scale of what is most strongly desired as measured by exchange value." Keynes argued the analogy

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broke down when large firms were considered and where monopolies and combinations interfered with equality in bargaining.

Most commentators credit the beginnings of the concept of evolutionary economics, as it relates to entrepreneurial activity, to Schumpeter (1942) who introduced the concept of "creative destruction". While Schumpeter often referred to evolution, he was not in fact drawing a biological analogy. Schumpeter (1954, 789) clearly rejects the notion, as would be expected from someone with his strong positivist views.

It is probably more accurate to attribute the founding of the recent interest to Nelson and Winter (1982) although others were also influential, and the concept of evolutionary economics has persisted from Velben's day until the present. Examples are Penrose (1953) and Copeland (1958). Hodgson (1995b) attributes the unpopularity of biological analogies which started in the inter-war period to the rise of fascism with its concept of "Social Darwinism". Few social scientists were willing to promote any theory which might be associated with fascist dogma. There is evidence that this association is still feared. Rothschild (1995), for example, felt the need to write a lengthy postscript to his book in order to distinguish bionomics from Social Darwinism which he said caused biology to become "a taboo subject for economic thinkers".

By the mid 1970's, the disillusion felt by a number of economists with the state of economic theory and management allowed a revival of biological analogies with Becker (1976), Hirshliefer (1977), Rapport and Turner (1977) and Tullock (1979) all promoting the concept. It was, however, Nelson and Winter's (1982) work that had the most influence on main stream economists and it reflected the disenchantment with modern general equilibrium theory that was being felt by many economists. Nelson and Winter considered most of the contemporary work carried out by economists defective since it carried with it the basic conceptual structures of orthodox economics. They regard this conceptual structuring as "excess baggage that will seriously encumber theoretical progress in the long run, however much its familiarity and advanced state of development may facilitate such progress in the short run." They reject the notion of equilibrium and the

decision rules used to reflect maximising behaviour. Instead, they regard firms as having regular and predictable behaviour patterns which are persistent and can be inherited by other firms. They view change as resulting from innovation and believe competition amongst innovators and imitators is the dynamic force behind competition, with institutional conditions, some of which are imposed by government policies, determining the nature of the contest.

Nelson and Winter's (1982) model did not incorporate the entry and exit of firms, and it therefore lacked realism, but this was corrected in Winter (1984) which extended the model to incorporate start-ups. Other models of evolutionary economics, which were around at the time, such as Futia (1980), Jovanovic (1982) and Reinganum (1985), were quite rudimentary. Despite this Kirchhoff (1989) attributes them with the introduction of the concept that small firms and new entrants are worthy of the attention of economists. Kirchhoff (1991) considers these new models as being too important to ignore and asserts, "The inherent weaknesses in general equilibrium theory have long been known but treated as trivial by macroeconomics. The realities of entrepreneurship documented in empirical research is overwhelming mainstream economics by identifying these weaknesses as non trivial. General equilibrium theory can not withstand the onslaught forever."

The concept of evolutionary economics was popularised by Rothschild (1992) who adopted the term "bionomics". His book, which was revised in 1995, has now sold several million copies and is in its eighth printing. While his version of evolutionary economics lacks the academic rigour of other works on the subject, it still has a contribution to make in explaining the concepts involved. The study of evolutionary economics has now become main stream with an explosion in the quantity of academic research being generated occurring in the last few years.

4.3.2 Key Concepts in Evolutionary Economics

Mirowski (1989) argues that the origins of nineteenth century neoclassical economics were closely connected with nineteenth century physics, and that economic theory was formulated to be analogous to physical science. The result

was a mechanistic view of how the economy works, with behaviour of economic agents being a predetermined optimum, leading to equilibrium states. Models which were mechanistic were viewed as being capable of emulating the real world, with constant refinement leading towards a model of the economy that would eventually allow economists to guide public policy to the betterment of mankind. This mechanistic, scientific view of the economic world is in complete contrast to the notion of evolutionary economics, which rather than drawing on the physical sciences, draws on the biological sciences as its model. This is a model not of equilibrium states, but of constant change. As Lane and Maxfield (1997) put it, "Your world is under active construction, you are part of the construction crew."

As a starting point in understanding the basic concepts of evolutionary economics it is useful to look at the views of Rothschild (1995), not because his view of evolutionary economics is the best, but because it is the most widely recognised and straightforward to understand. Rothschild views the world of man as being nothing more than a part of the natural order, which was shaped, and still is shaped by evolutionary forces. He views economic evolution as being a logical parallel step in the evolutionary process. Conventional biological evolution, which is a slow process, relies on random mutation and natural selection. He believes a second form of evolution now occurs in parallel to biological evolution, where the information upon which evolution works is not the DNA in chromosomes, but technical information. He believes evolution of society accelerated with the invention of the printing press as information could spread more rapidly. Modern communications and computers have sped this process up resulting in an accelerating rate of progress. His view of the world regards "capitalism as the inevitable natural state of human economic affairs." He believes progress will be most rapid where the process is left unhindered. He considers the failure of communism was an inevitable consequence of interference in the natural order of the things. His view is that laissez-faire capitalism should be left unhindered to evolve and allow "scientific and economic revolutions that will dwarf the experiences of history."

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It can be seen that laissez faire capitalism and evolutionary economics lead to exactly the same conclusions if one accepts that the economic process should be left to act entirely unhindered. However, if there is to be intervention in the economy, which is inevitable even if only through the institutional structures that are put in place, the two approaches to economics can predict markedly different outcomes from such intervention.

Most evolutionary economists have a somewhat less grand view than Rothschild and try to examine the mechanisms with greater academic rigour. The supporters of evolutionary economics come from a variety of different specialities and each add a different perspective to the debate. The institutionalist influences originating from Veblen are still to be found, with modern institutionalists looking at the evolution of social structures and institutions, however their contribution is not central to the current discussion.

Game theory has a central role in modern economic theory and evolutionary game theory is becoming increasingly influential. Evolutionary game theory has developed independently of, but complementary to other facets of evolutionary economics. Similarly, chaos theory is now being used to explain the behaviour of economic systems, and has managed to gain a foothold in the arena of accepted economic theory. Biological and other natural systems are known to exhibit chaotic behaviour and evolutionary economics can accommodate chaos theory, whereas neo-classical economics finds this difficult. Advances in evolutionary biology have led to the introduction of the concept of complex systems, and have shown that it is futile to model such systems using the reductionist techniques of conventional scientific modelling.

It is worth looking at these developments in more depth, in order to gain a better understanding of where evolutionary economics is heading. The following is a brief summary of the key points of these emerging fields of economic thought.

4.3.2.1 Evolutionary Game Theory

Game theory has been an important aspect of economic thought since the concept of Nash equilibria, developed in the 1950s, was applied to many economic problems. In the early 1980s, the attention began to swing away from complex concepts of rationality towards trial and error methods which better described many real world situations. Smith (1982) began a movement away from the concept of the rational decision maker towards models based on an evolutionary process that are more representative of the way people actually make decisions. Weibull (1995) explains by saying, "Evolutionary game theory imagines that the game is played over and over again by biologically or socially conditioned players who are randomly drawn from large populations. More specifically each player is 'pre-programmed' to some behaviour - formally a strategy in the game - and one assumes that some evolutionary selection process operates over time on the population distribution of behaviour." Samuelson (1997, 15) describes these models as being based on the premise that people are not always rational and that their behaviour is driven by rules of thumb, social norms, conventions, analogies with similar situations and other more complex motivations.

More to the point of this work, the assumptions made in evolutionary game theory can satisfactorily accommodate the behaviour and decision making process exhibited by business founders. Traditional game theory with its Nash equilibria bears little resemblance to the observed reality of the decision making process of entrepreneurs.

4.3.2.2 Chaos Theory

Another development that has paralleled and complemented the development of evolutionary economics is chaos theory, or non-linear dynamics. Those interested in evolutionary economics reject the concept that real world systems follow the mechanistic approach adopted in neo-classical economics and the development of theories on these non-linear systems has given support to their ideas. The connection between chaos theory and evolutionary economics has been explored

by Day and Chen (1993), Creedy and Martin (1994) and Leydesdorff and Van Den Besselar (1994). Biological systems are known to be chaotic. If economic systems are governed by similar rules, then they too could be expected to exhibit chaotic tendencies. The extent to which economic data shows signs of chaotic or non linear characteristics is still a matter of considerable debate. While it is true to say that there is considerable evidence that some economic data shows clear signs of chaotic behaviour at times, it is probably also true to say that the evidence for economic systems being chaotic is not as strong as the early disciples of chaos had led us to believe. Dechert (1996), in summarising the major work in chaos theory conclude that non-linear dynamics will have a lasting effect on economics. While little progress has been made in developing techniques that can predict the behaviour of systems that exhibit chaotic tendencies, chaos theory has been influential in shaping the way the world is viewed.

4.3.2.3 Complex Systems - Advances in Evolutionary Thought

Recent advances in the study of biological evolution have lead to an increase in the understanding of how evolutionary processes work. One of the greatest criticisms of natural evolutionary theory is that it was impossible to determine how life originated through an evolutionary process. This was due to the difficulties of developing a satisfactory theory as to how the large number of organic molecules necessary to form the simplest self replicating cell could have assembled in the one place to form the first cell. Kauffman (1995), a leader in the field, presents the latest work on natural evolution which allows simple life to be created by a modest number of initial elements. He explains how biological systems rely on a very complex interaction amongst their elements in order to function and evolve. These systems are not based on elements which all perform single functions. The elements are multi-functional and through complex interactions make the system function. Not only do the individual elements undergo a set of complex interactions, but each individual entity in the system evolves through complex interactions with all other components of the ecosystem. Kauffman explores mathematical ways in which these complex systems can be represented, in order to explain how the evolutionary process works. Kauffman

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believes that evolving systems, including economic systems are complex systems that evolve, not by the selection of individual characteristics, but by a complex system of coevolution where each individual interacts simultaneously with all other elements of its environment. All parts of an ecosystem must evolve together, with the path of the evolution not being determined only by the survival characteristic of the individual, but also by all the other elements of the system that are present.

This notion of evolution of complex systems means that an evolutionary system does not tend towards any ideal situation, and it is not controlled by a process that drives it in any direction. The outcomes of the system depend on the path that was taken. Without looking at the system as a whole, it is impossible to determine how any individual elements will be affected by a change in the system. If the economy is an evolving system similar to a biological system, then it will also be a complex system and as such, and the whole process by which neo-classical economics has developed will be flawed, based as it is on simplifying assumptions being used to enable models for individual components of the system to be developed, with these component models then being assembled into a large mechanistic model of the economy. With a complex system, it is not possible to reassemble the machine from the individual pieces as each piece has a myriad of interactions with the other components of the system. All these minor interactions are critical to understanding the system and once the connections are broken they are lost. The greater the number of components that are assembled into the model, the less representative it will become of the system it seeks to describe.

The concept of the economy as an evolving complex system is now taking centre stage in development of evolutionary economics. Arthur, Durlauf and Lane (1997, 3) believe that the complexity approach to economic systems puts six major obstacles in the way of the traditional mathematics used in economics. These are:

- Disbursed action, i.e. the fact that what happens in the economy is determined by a great many heterogeneous agents acting in parallel.

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- There are no global controllers, rather the actions of the economy are determined by complex interactions between agents within a complex mechanism of institutions and roles.

- That the economy operates simultaneously at many levels.

- The economy is undergoing continual adaptation so that behaviours, actions, strategies and products are constantly changing.

- There is perpetual novelty with new niches and markets being created, and as these fill they create other niches resulting in ongoing perpetual novelty.

- The economy operates far from any optimum or global equilibrium resulting in a continual ongoing need for change.

If the economy is a complex evolving system, and the analogy of biological evolution is the best way of describing how such a system works, then serious doubts are cast on the ability of mathematical models to predict economic outcomes, particularly when the models are constructed like general economic models. Adjusting the parameters used in these models may enable them to be representative of past economic changes, but this is not the same thing being able to predict the future.

4.3.3 Implications

The dissatisfaction with neo-classical economics displayed in many quarters, and the rise of new theories such as chaos theory, evolutionary game theory, and the economy as a complex evolving system, makes it appropriate to look for evidence of how the economy actually works to see if these new theories are supportable. Hayek (1952, 33) believes that economists overuse mathematics and that it is only appropriate for use in the analytical method, which derives the unobservable elements of the system, not in determining the behaviour of the system as a whole. Economics, as a mathematical science, has gone far beyond deriving elements of the system, to the point where reality is seen as less real than the complex mathematical constructions it creates to explain it.

To positivist economists, any incompatibilities between the actual workings of the economy and economic theory are not regarded as being proof of the inadequacies in the theory. This defence should not be accepted unless the theory being defended can be shown to have an acceptable level of predictive ability. It is contended that neo-classical economics, in any of its guises, is at best a poor predictor of future outcomes, and therefore must stand up to testing itself against other theories in terms of representational faithfulness.

If one abandons the positivist approach and adopts a pragmatic view, then it is useful to look at what occurs in the real world and compare it with what theory describes or predicts. As birth and death are at the heart of the natural evolutionary process, a study of the birth and death of start-up businesses should be of interest to evolutionary economics. The opportunity, will therefore, be taken to ascertain how well the reality of New Zealand start-up businesses matches that of an evolutionary process.

4.4 NEW ZEALAND START-UPS - EVOLUTIONARY ECONOMICS AT WORK?

Evolutionary economics looks at the subject from a variety of directions. Economists such as Hayek (1988) deal with cultural evolution, or the evolution of the manner in which society organises itself. Others look at the structure of society, the laws and institutions that govern it, and show how an evolutionary selection process results in changes in these institutions over time. When many economists look at the evolution of the firm, they tend to regard the process of change as resulting from developments within the individual firm which occur over time. Magnusson (1994, 29) explains it thus: "Knowledge diffuses from firms to the market as other firms imitate and learn better routines. Firms are selected on the basis of interaction with the environment, that is their ability to produce profits. But it is routines that are selected for, becoming, in effect, what is replicated and carried from one generation of users to the next." Thus, the analogy between the evolutionary process first described by Darwin and economic evolution is not strong in the minds of many economists that favour evolutionary models. These economists view the process as being more like Lamarckian

evolution. Lamarck's theory, which predated the discovery of genetics, assumed that characteristics that resulted from an individuals interaction with the environment could be inherited by offspring.

Ramsted (1994) goes to great length to point out the difficulties created by the lack of similarity of the mechanism and processes of natural and economic evolution. He states, "The only possible meaningful similarity between biological evolution of the species and the economic evolution of firms is the putative selection of 'fit' firms by means of brute progress - economic competition." Chief amongst these difficulties is the contention that firms do not exhibit a "Malthusian tendency to geometric multiplication." In the absence of this propensity to reproduce, the survival of the fittest analogy becomes weak. If Ramsted had studied the actual birth rates of new firms, he would have been less inclined to dismiss the reproductive capacity of firms. While firms do not reproduce with the speed of bacteria, they do reproduce at a similar rate to natural species which have similar potential life spans.

When looking at New Zealand start-up businesses, we are obviously looking at the life and death struggle of new firms. As in nature, death rates are highest amongst the young and those born with characteristics that do not allow them to compete against their rivals soon die. This study provides little insight into how society and its institutions evolve, or indeed how large, long established firms change over time. It does, however, present evidence of a process bearing remarkable similarity to the biological evolutionary process. The main elements are as follows:

1. New Zealand has a large number of new firms starting up each year, amounting to an average of 14.3 percent of the existing stock on business activities. Figure 11 on page 63 shows a population of firms that, without deaths, doubles every six and a half years. This is a healthy reproduction rate not dissimilar to the reproduction rate of many species found in nature.

2. New Zealand has an environment that cannot sustain the population growth, hence resulting in a competition for survival. As in nature, we have a fight

for survival of the fittest. The data shows it is the young which are more likely to die than the more mature firms, nevertheless, as shown in Figure 7 on page 49, firms that survive beyond infancy (their first five years in this case) still die off in the battle for survival.

3.   There is variation between firms at start-up so that the selection process can act upon this variation.

4.   The process, like natural evolution, seeks to fill every available niche. The oversupply of new ventures is all pervasive, with every industry grouping undergoing its own battle for survival as shown in Table 7 on page 62.

There can be little doubt about the strength of the comparison with an evolutionary process in this instance. The analogy is too striking to be mistaken. It is perhaps surprising that other economists have not recognised the role that high birth rates of new firms play in this process. Perhaps this is because survival studies are seldom conducted by economists and the large oversupply of new firms is seldom recognised. One of the few economists conducting survival studies is Kirchhoff. In Kirchhoff (1990) and (1991) he sees great potential in evolutionary economics, however he has argued for the proposition that firms have low involuntary closure rates, and has given figures for U.S. start-ups that are about 15 percent of the rate found by Dennis (1997).

The study of start-up businesses would seem to provide a fruitful area of research for evolutionary economists, as it provides evidence of a process that is closer to Darwinian evolution than can be found elsewhere. Studying these types of processes at work in the economy, is likely to lead to greater insights into the evolutionary economic process than the blackboard models, which even evolutionary economists are still prone to use as substitutes for reality.

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4.5 Implications

The presence of an oversupply of new ventures, as a key feature of the capitalist system, has significant implications. It could add a complementary way of viewing the process of industrial change. There is a tendency to regard management as a science where, through the application of reason, managers predict the future and adopt appropriate strategies to ensure their firms survive and thrive. On the other hand, it is possible to regard management as the art of experimentation and imitation, where we learn from the experience of ourselves and others, and adapt the lessons we learn into new patterns of behaviour which help us to survive. This idea is, of course, not new. As Hayek (1988, 21) states, "Indeed, perhaps the most important capacity with which the human individual is genetically endowed, beyond innate responses is the ability to acquire skills largely by imitative learning. In view of this, it is important to avoid, right from the start, a notion that stems from what I call 'fatal conceit': the idea that the ability to acquire skills stems from reason. For it is the other way around: our reason is as much the result of evolutionary selection process as our morality."

The process of change in the modern capitalist system may be argued to be a trial and error process like that described in evolutionary game theory. The process of starting a business could be driven by the natural tendency for over optimism, which will be explored in more detail later, coupled with the innate desire to achieve self actualisation. Those founding new ventures will be driven to find a better way to do business based on their experience and intuition. The new businesses they found will operate using a different set of information from that of existing firms. These differences can be regarded as being similar to the mutations upon which natural selection acts in the biological world. Where the oversupply of new firms is large, the variety of business methods used by these new firms may need to be nothing more than random variations of existing methods. Through the mechanism of survival of the fittest, the resulting population of surviving firms will undergo a process of change whereby the goal of increasing economic efficiency will be constantly advanced.

The fact that the new ventures of existing firms have failure rates only slightly lower than stand-alone new ventures would indicate that any superior knowledge possessed by existing firms is largely specific to their current operations. Hall (1982) claims that the longer survival time of subsidiary operations is due to internal capital markets performing more poorly than external ones, i.e. failing ventures get additional capital to keep them going that would not be available if they were externally funded. Birley and Westhead (1993) found that individuals with previous experience at founding a business had no greater success at new ventures than novices. The absence of any advantage accruing to the new ventures of existing firms is consistent with the argument that management behaviour is, as Hayek maintains, largely learned through trial and error and imitation. Experience does not necessarily help as new firms that merely imitate will have no advantage over established firms. To succeed, the new firm would need to be different and finding which differences provide competitive advantage may be a trial and error process. Once a new competitive advantage is discovered, it will be imitated by other firms.

The notion that good management is largely observation and imitation is consistent with management theories, such as Peters and Waterman (1982) who put forward the notion of "recipes for success" and the value of "sticking to ones knitting." Follow up studies of Peters and Waterman's study (for example Business Week (1984)) have shown that many of the excellent companies in *In Search of Excellence* quickly turned into poor performers. This points to the fact that it was not the superior reasoning skills of the management that set them apart, but rather that they had developed a recipe that worked well until the environment in which they operated changed. When the environment changed to the point where a different recipe worked better, other firms better adapted to the new environment would begin to exhibit superior performance.

Management as the art of observation and imitation, may be truer for small firms than it is for large. Jennings and Beaver (1997, 65) believe that in larger organisations competitive advantage is often created deliberately as a result of specific policies, and "in contrast, competitive advantage in smaller firms often arises accidentally as a result of the particular operating circumstances... In the

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small firm efforts are concentrated not on predicting or controlling the operating environment but on adapting as quickly as possible to changing demands of the environment."

The notion that change is hazardous for organisations and that established businesses have only a minor role in industry change is well established in management theory. Hannah and Freeman (1977) proposed a theory of structural inertia which depicted a world where organisations were relatively inflexible and change was both difficult and hazardous. This theory was refined over time, and in Hannah and Freeman (1984) they argue that successful organisations need to be both accountable and reliable, and this relies on highly institutionalised organisational goals and routinised patterns of activity. These characteristics, which give organisations stability and reliable performance, make them highly resistant to change. Organisational change, when it does occur, disrupts both internal and external linkages with stakeholders and is hazardous because it makes performance unreliable. This is confirmed in Amburgey, Kelly and Barnett (1993) who found that organisational change immediately increased the hazard of organisational failure, and that once change occurred, it increased the probability that further change would follow.

There are many other studies that confirm the resistance of organisations to change. Granovetter (1985) found that organisations were resistant to change and that this resistance was embedded in the institutional and technical structures of their environment. Zajac and Shortell (1989) found that organisations generally do not change their strategies in response to major environmental shifts. Carroll (1988, 2) a leader in the field of organisational ecology states: "Most organisational change is the result of processes of organisational selection and replacement rather than internal transformation and adaptation." Kim and McIntosh (1996) look at organisational change and conclude that a strategy of organisational change does not in itself guarantee survival or success, and that when change is too rapid it has a negative impact on firm performance. Amburgey and Rao (1996) in their overview of organisational ecology note the divergence of opinion in the field, with evolutionary economics, management theory and sociology contributing to a divergence of opinion on the nature of

organisational change. While not all theorists agree with the organisational ecologists, nevertheless they form a significant and influential body of opinion, supported by considerable research, which provides powerful evidence that the main contributor to industrial change is made by new firms, and that the dynamics of birth and death are the driving force behind economic progress.

The evolutionary nature of industrial change is demonstrated in the work of Gort and Klepper (1982) who explored the life cycles of 46 major new products such as the phonograph, television and nylon. They found five stages which these products pass through as they evolve. These stages bear a similarity to natural evolution as described by Kauffman (1995, 237). In particular, a new product is similar to a new family in biological evolution. When the new family arises in nature, there is a rapid explosion of new species and great diversity of form. This is followed by rapid extinction as less successful species are unable to compete. Over time, both the number of new species and the rate of change diminish as evolution works to perfect the few winners of the evolutionary race for survival. The same occurs with new products. When they are first invented there is a great proliferation of imitators of the original product and differences between products are large. Over time, a few successful variations begin to dominate and development effort is concentrated on these. Other variations which are unable to obtain the resources to perfect themselves at the same rate become left behind until they become extinct like the betacam VCR or the eight track stereo. Gort and Klepper (1982) has been further developed in Agarwal and Gort (1996) which develops an evolutionary theory of product development. They use their five stages of development which are as follows.

1. An initial period where there are typically only a few sellers.

2. A period of rapid entry where there are a large number of new entries and failures.

3. A transitional period where the number of sellers in the market plateaus. This stage may or may not occur. New entrant numbers are low.

4. A period of consolidation where the number of sellers in the market declines. This is a period of intense competition and there are high entries and exits.

5. Maturity, a period where there is no consistency in the pattern of entry and exit.

How well Agarwal and Gort's description of the process applies to the development of markets for products other than the ones studied cannot be determined. However, it does provide a useful framework for looking at the process which is consistent with other widely accepted life cycle theories.

It is important not to fall into the trap of assuming that the process described is one that leads to a single inevitable outcome, or indeed that the outcome is necessarily in any way optimal. The study of natural evolution tells us the system that develops is only one of an infinite number of possible outcomes, and once the process begins to optimise after a period of initial experimentation, the path tends to become locked in. Innovations that would have dominated the market if they had of been produced in the early stages cannot compete in the more mature market dominated by more advanced, but none the less inferior product variations. A good example is the computer industry. IBM, dominant in main frame computers entered the PC market. When designing its PC, IBM chose to use MSDOS as its operating system and a central processing unit from Intel. At the time it was widely acknowledged that MSDOS was an inferior operating system and that the Intel chip was clearly inferior to its rival from Motorola, which was being used by Apple Computer Inc. IBM, by selecting these products, allowed Microsoft and Intel to dominate the market. Once the market became locked into its current pattern, it was not possible for new entrants with superior technology to gain a foothold. There is little doubt that, with the benefit of hindsight, it would be possible to go back and redesign many dominant technologies in ways that would be undeniably superior.

The second important point to remember is that evolution of a firm or a product does not occur in isolation. In nature, it is the whole ecosystem that evolves as a

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large complex interlinked system. In the economic system, it is the whole economy that evolves as a single complex system.

4.6 CONCLUDING COMMENTS

In searching for a home within economic theory for the results of this research on New Zealand start-up businesses, the only place where a comfortable fit could be found was within the framework of evolutionary economics. This is a rapidly growing field where development is occurring through a convergence of ideas from different fields, all reaching the same conclusion. It is still too early to ascertain if evolutionary economics will become part of the mainstream of economic thought, however it appears that this work adds another piece of evidence in its favour.

Chapter 5

5. DO THE REWARDS JUSTIFY THE RISKS?

5.1 INTRODUCTION

The previous chapters have laid the groundwork which provides a picture of the environment in which new ventures carry out their fight for survival. This, and the following chapters, will explore the reasons why so many new ventures are formed. This chapter looks at whether or not the rewards are adequate to compensate for the risks involved in starting a business.

An examination of new ventures, or in fact any investment, from the financial point of view is primarily concerned with two things, risk and reward. The relationship between risk and reward is analysed to see if it justifies making the investment. It was seen in Chapter 2 that start-up businesses have high failure rates. It is the risk that the new venture will fail completely and that the founder's total investment will be lost that predominates for new ventures. When dealing with start-up ventures, there is almost no data upon which an assessment of either risk or reward can adequately be based, and conventional techniques are often inadequate for the task. This chapter attempts to analyse this issue, not in terms of the individual investment, but in terms of the market as a whole, in order to estimate the relationship between risk and reward that appears to prevail for start-up businesses on an economy wide basis. It also examines if the rewards are adequate for the risk taken.

5.2 HOW RISK VARIES WITH AGE

It is widely held that the risk of failure diminishes as the age of a business increases. This relationship is demonstrated in the current study as illustrated in Figure 12.

Such a relationship would imply that there must be some added compensation for those starting up a business in order to induce entrepreneurs to accept the higher risk of failure, when they could invest in an existing business which is well established and therefore less risky. Logically, it must be commensurately less expensive to start your own business than to buy a comparable established one. The net present value (NPV) of the income stream from each dollar invested in a successful new business must be higher than the NPV of the income stream from each dollar used to purchase an established business when the same discount rate is used.
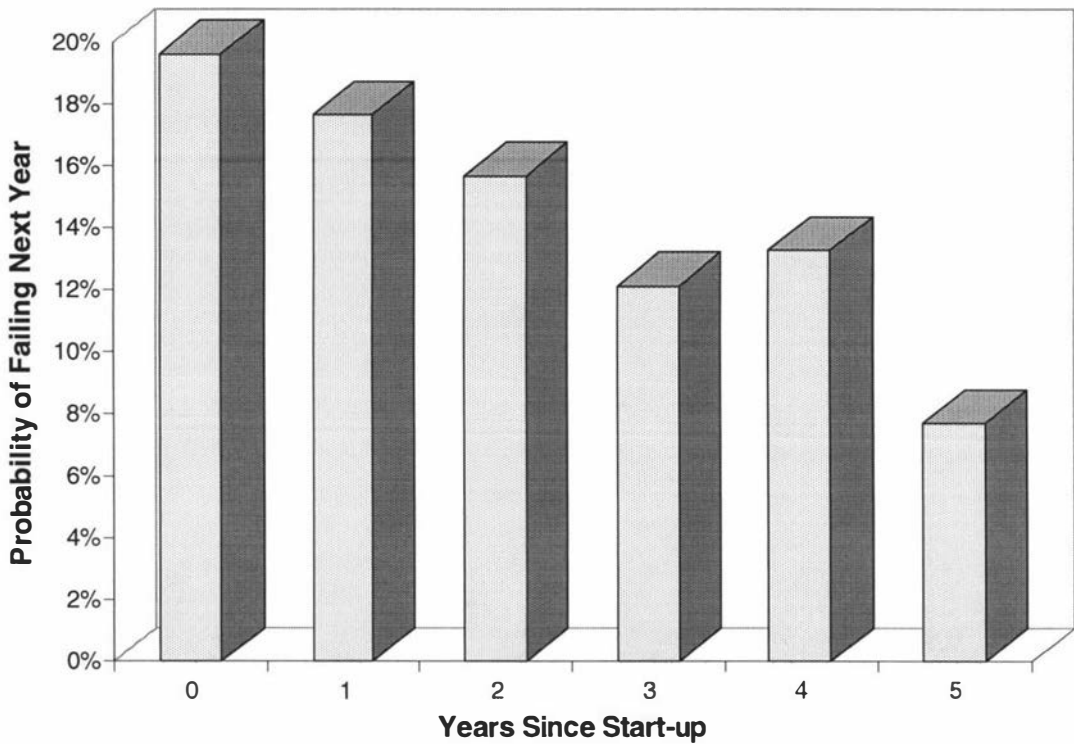
Figure 12   Annual Failure Rate as a Function of Age
Shows the probability that a business of a given age will fail within the next twelve months. The data presented is for all New Zealand businesses started up in the period between 1988 and 1993, and incorporates all failures that occur in these businesses up until 1994.

5.3 TESTING THE ADEQUACY OF THE RISK REWARD RELATIONSHIP

To illustrate the required relationship between risk and return, we can take the decision to invest in a hypothetical new business, and compare it with the alternative of investing in a business after it has been trading for five years.   In

other words, we can assume that there is a choice between starting up a business and buying the same business (or an identical equivalent) once it has been in operation for five years and has proven to be successful. After five years, the business should have reached a point where the probability of failing in the next year is constant over time and if any elevated risk of failure remains, this should be detectable during the due diligence process associated with purchase. To persuade the investor to start up a business, the expected return from starting the business return must be at least as good as the expected return from buying the established equivalent business, otherwise the hypothetical rational investor would buy an equivalent established business. These expectations of return will have the expected failure rates built into them, and indeed this would be the only determinant of the difference in the two firms value.

In doing this comparison of starting a business with purchasing its established equivalent, the start up decision is reduced to a simple investment decision. This would be similar to what a venture capital investor would do in deciding which of two investments should be added to a portfolio.

In this analysis, certain simplifying assumptions will be made. It will be assumed that we are looking at the average New Zealand business during the period of the study. It will be assumed that there is a similar business for sale to which it can be compared, and the higher total price that the equivalent established business would fetch, because it is a mature business, is not a factor in the decision.

It will also be assumed that all profits are to be reinvested in the business, which is quite common for a start-up business. It is known, from the data presented in Section 2.4.1 that there is, on average, a 57.5 percent probability the business will fail in its first five years. It will be assumed that if the business fails the total investment will be lost, a realistic assumption as anyone who has experience of start-up businesses will know, particularly given how common it is for more money to be put into failing businesses in a vain attempt at recovery.

It is possible to calculate the increase in value required to make the start-up decision have an equal NPV to its established equivalent. Using the constant

growth method of valuation, we calculate the value of the business in five years

time as: $\quad P_5 = \dfrac{D_6}{(r-g)}$

In reality it is possible to use any method of determining the value of the business in year five without affecting the conclusions. The required rate of return for the higher risk start-up business should be higher than for the lower risk five year old business, but the need to use two different discount rates will be avoided by calling the year five price P_5.

The value of the start up business after adjusting for the probability of failure must

be: $\quad P_0 = 0.575 \times 0 + 0.425 \dfrac{P_5}{(1+r)^5}$

$\quad\quad$ or $\quad P_0 = 0.425 \dfrac{P_5}{(1+r)^5}$

Hence, where all profits are reinvested in the business, P_5 must equal P_0 x $2.35(1+r)^5$. It must be $2.35(1+r)^5$ times as expensive to purchase a five year old business as to start-up the equivalent business, in order for the entrepreneur to break even. According to those with a good knowledge of prices obtained for New Zealand unlisted companies, 25 percent is the typical required rate of return for a small established business. A required rate of return of 25 percent, necessitates a seven fold increase in value over the five year period.

Secondly, it is possible to take the other extreme and assume a zero growth business where all the profit is paid out as dividends. In this case, the constant growth model for year five will be used and it will be assumed that the investor is risk neutral, i.e. that the required rate of return for the new business is the same as for the less risky established business. This is a conservative assumption that will tend to underestimate the increase in value required. It will also be assumed that if the business fails, no dividends will be received, and if successful the dividend expected from the five year old equivalent business will be received each year from start-up. There is evidence to support the propostition that failing firms will not pay dividends as Laitinen (1992) in a Finnish study found that non failed firms

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show typical zero return on investment in their first year, whereas the return on investment on failed firms was typically negative throughout its lifetime. Using the two assumptions above, the value of the business at start-up will be the same as it will be in five years time under the zero growth scenario.

$$P_0 = 0.575 \times 0 + 0.425 \times \left(\frac{D_1}{(1+r)^1} + \frac{D_2}{(1+r)^2} + \frac{D_3}{(1+r)^3} + \frac{D_4}{(1+r)^4} + \frac{D_5}{(1+r)^5} + \frac{\frac{D_6}{r-g}}{(1+r)^5} \right)$$

Since the dividends do not grow we get:

$$P_0 = 0.425 \times \left(\frac{D_1}{(1+r)^1} + \frac{D_1}{(1+r)^2} + \frac{D_1}{(1+r)^3} + \frac{D_1}{(1+r)^4} + \frac{D_1}{(1+r)^5} + \frac{\frac{D_1}{r}}{(1+r)^5} \right)$$

$$P_0 = 0.425 \times \left(\frac{D_1}{(1+r)^1} + \frac{D_1}{(1+r)^2} + \frac{D_1}{(1+r)^3} + \frac{D_1}{(1+r)^4} + \frac{D_1}{(1+r)^5} + \frac{D_1}{(1+r)^6} + \frac{D_1}{(1+r)^7} .... \right)$$

$$P_0 = 0.425 \times \left(\frac{D_1}{r} \right)$$

as $D_1 = D_6$ and $g = 0$ $\left(\frac{D_1}{r} \right) = \left(\frac{D_6}{r-g} \right)$

$$P_0 = 0.425 \times P_5$$

Hence, the established business needs to sell at a minimum of 2.35 times as much as the cost of starting an equivalent business under the assumption of zero growth in dividends, if the founder is to be adequately rewarded for accepting the risk of starting it. In section 2.4.5 it was seen that most surviving businesses showed little or no growth in employee numbers during their first five years of operation, hence the zero growth scenario is a better fit for the majority of start-up businesses than the high growth scenario.

In reality, there would be variation within the population of start-up firms and the figures that have been produced are designed to illustrate the size of return required from investing in the start-up firm by a rational investor. Changing any of the parameters will change the number generated. See Table 10 for the ranges of values that would result from variation in failure rates and returns required from an investment in a five year old business. This is not to suggest that these alternatives figures are correct for the New Zealand new ventures as a whole, it is intended to illustrate that even with significantly lower risk of failure and lower rates of return, a significant increase in value is still required.

Table 10   Sensitivity of Required Value Increase

This table shows how the required increase in value, over the first five years of a firm's life, varies with changes in the required rate of return and the expected survival rate for firms. Two types of firm are compared, those that experience zero profit growth and pay all profits out as dividends, and those which reinvest all profits in the firm to maximise growth.

Return on Investment	Survival Rate	Required Increase in Value Zero Growth Firm	Required Increase in Value of High Growth Firm
25%	42.5%	2.35	7.18
20%	42.5%	2.35	5.85
17.5%	42.5%	2.35	5.26
25%	50%	2.00	6.10
20%	50%	2.00	4.98
17.5%	50%	2.00	4.48
25%	60.0%	1.67	5.10
20%	60.0%	1.67	4.16
17.5%	60.0%	1.67	3.74

5.4 THE FEASIBILITY OF HIGH INCREASES IN VALUE FOR NEW VENTURES

The analysis just given, begs the question of what could cause the value to increase by between 2.35 and 7.0 times during the five-year start-up phase? The zero growth scenario requires a new business to achieve a very high return on equity, i.e. 235 percent of the return required by the market for a five year old equivalent business. While this may be achievable for an individual business, it is clearly impossible when regarding start-ups as a class. There is no reason to assume that such high rates of return are possible in a competitive market.

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A scenario of high growth is more likely to achieve the desired result where a firm with a competitive advantage can obtain both high returns and high growth, as this provides a plausible way of achieving the required increase in value. The business grows rapidly and is able to finance this growth using increased levels of debt or lower cost equity from new investors. The problem with this scenario is that the surviving businesses in New Zealand showed little growth, with only 5.2 percent of surviving new businesses showing growth rates above 25 percent per annum, which is the level of return that could sustain this explanation. Clearly, the average growth of 2.7 percent over the first five years for surviving businesses shown previously, would point to minimal increases in the value of the capital invested in the firm value, if one is willing to accept the relationship between growth in employee numbers and growth in the market value of the firm.

When other economic variables are examined, none of them offer a rational explanation of how start-up businesses can increase in value in the absence of factors that would be detectable in high growth. Newness is a liability rather than an asset. The new business must establish its markets, perfect its operating methods and learn by its mistakes. It takes time for the new business to become as efficient as the existing business. Innovation can lead to lower costs and higher margins, but in a competitive economy such advantages are mostly short lived. Funding costs are generally higher for new firms adding to the other disadvantages. The evidence points strongly to the conclusion that when New Zealand start-up businesses are considered on an economy wide basis, they do not generate wealth maximisation for their investors. It would seem reasonable to assume that the situation is not dissimilar in other western countries at the present time, and that the same has applied in the more distant past, and will likely continue to apply in the future.

What is the evidence available on returns obtained on new ventures? Biggadike (1979) examined the success of the new ventures of 200 large U.S. corporations and found that, on average, these new ventures lose money for the first four years and are not profitable for eight years. Such new ventures are probably not characteristic of all new ventures, as large corporations are more likely to be involved in the development of new technologies which have long investment

horizons. Weiss (1981) followed up on Biggadike's study by repeating the methodology using independent ventures and found that they required 3.5 years on average to achieve profitability. Even when ventures survived, a wide range in profitability was found amongst the surviving firms.

This is not to say that the activities of entrepreneurs starting up in business are not rational, or indeed that it involves a contradiction of economic theory. Investment choices are made on the basis of expectations and if entrepreneurs underestimate the risks and overestimate the returns, they will achieve unexpectedly low returns. In addition, wealth maximisation may not be the prime motivator for starting up a business. It may be incorrect to assume that starting a business is primarily a financial decision. For example, Birley and Westhead (1994) in a U.K. study found that the ability to control one's time and personal freedom were among a number of factors considered more important than financial return by those starting a business. This issue will be addressed later.

5.5 OTHER EVIDENCE ON PROFITABILITY OF START-UPS

While it may be argued that it is unlikely that start-ups will achieve the level of profitability that will give new venture founders the returns required to justify the risk, it is obviously better to look for evidence as to whether or not this occurs. The most obvious source of suitable data is the venture capital industry. In many parts of the world, this industry has been a substantial source of funding for new ventures for decades, and hence its experience will provide valuable information.

Information on venture capital returns will not reveal the profitability of new ventures as a whole. Gibson and Blake (1992), Keeley and Roure (1990) and Freid and Hirsch (1988) estimate that of those seeking venture capital funding, less than two percent actually receive it. Venture capitalists use their expertise to select the best new ventures from those who apply and fund only this select few. It is reasonable to assume that the ventures that they select are in all respects sound. They will have good management, and products or services for which there is good reason to believe they will be able to find profitable markets. They

will also have the potential, if successful, to produce high returns for investors. While some, such as Amit, Glosen and Muller (1990), claim venture capitalists do not fund the very best of the new ventures, no one would argue that their investments are not representative of good investment opportunities.

Fried and Hisrich (1994) put venture capitalist's hurdle rates at between 30 and 70 percent, showing that they expect high returns to compensate for the risk. The more important question is what returns do they achieve? It is generally accepted that venture funds typically experience markedly lower returns from start-up ventures than from more established businesses. For this reason many, such as the Greenstone fund, New Zealand's only significant venture capital fund, refuse to invest in start-ups. This is borne out by the limited data which is available. Phildrew (1996) give statistics from the British Venture Capital Association's first survey of performance statistics. They show an overall internal rate of return (IRR) of 4.0 percent on investments in start-ups made by its 84 member organisations, with the upper quartile of organisations achieving 7.6 percent. The IRRs were on a cash in cash out basis for the period since the formation of each fund. Assets in the portfolio are included in the calculation at their current valuation. The survey covered funds that had been founded between 1980 and 1990. British Venture Capital Association (1998) provide similar figures but do not split out start-ups from other early stage investments. They find that early stage investments give an IRR of 6.5 percent over the previous 10 years, and give comparative figures of 13.9 percent for U.K. equities and 11.5 percent for U.K. bonds. The European Venture Capital Association (1997) produced similar figures for all new venture capital funds founded by members between 1980 and 1992. They show a pooled IRR of 5.7 percent and a median return of 4.5 percent for investments in start-ups. The upper quartile achieved a pooled IRR of 27.2 percent. The investments in the start-ups surveyed totalled 1.5 billion ECU.

Similar figures for U.S. based venture capital investments could not be found which broke out start-up investments from other stage investments. U.S. figures also use annual accounting returns rather than a cash in, cash out basis. As the ventures in the portfolios are valued as a percentage of the P/Es of listed shares, the returns on the portfolio do very well when the share market is rising and long

bull runs, like the one which occurred throughout most of the nineties, obscure the underlying performance of the assets in the portfolio. Even so, it is generally recognised that the returns on U.S. start-up ventures are poor, resulting in risk capital funds being concentrated in the leveraged buy-out sector of the market.

Venture capital firms diversify their risk by investing in a portfolio of ventures. Individuals starting up a business normally lack the ability to diversify. Huntsman and Hoban (1980) point out the highly skewed nature of venture capitalists returns. They present data on a 110 venture portfolio showing an overall return of 18.9 percent. Once the top 10 precent of firms are excluded, the return becomes minus 0.28 percent. This result is consistent with the distribution of returns that can be implied from the growth figures for new New Zealand firms shown in Section 2.4.5. Thus, it can be seen that a small proportion of new venture investments will indeed achieve the types of returns required. The vast majority, even when they are profitable, do not achieve the type of returns that are required to justify the risk involved, particularly when the risk is undiversified.

If the venture capital industry, after picking the cream of investment opportunities, are unable to achieve acceptable returns from start-up ventures, there is little reason to assume that individuals are achieving the returns that are needed to compensate for the high risks that they actually take. There is evidence that even where businesses continue to trade, their owners earn less than if they were employed elsewhere and that not only is a lower return made on their investment, but they also earn less than a market salary. U.S. Small Business Administration (1997, 86) states that while the self employed are older and better educated, they earn less than their counterparts in paid employment and about 10 percent of all business owners earn less than the minimum wage. Adams (1994) puts the risks and returns of starting a businesses in the form of an advertisement for a lottery and concluded that it would be unlikely to sell a single ticket, yet he notes vast numbers of people accept the same odds in starting a business.

5.6 WHERE TO FROM HERE?

The oversupply of new businesses, combined with the apparent poor returns made by those who succeed in overcoming the risks of start-up, show the returns achieved from starting a new venture are, when viewed in aggregate, inadequate to compensate for the risks involved. This points to a need for potential new venture founders to give greater consideration to accurately quantifying the risks and returns before they start up a new business. The systematic study of the volume of start-ups, the failure rates and the financial returns being achieved would be of considerable economic value as start-up firms are a large sector of the economy. The most likely avenue for reducing an oversupply of new ventures is for those in the process of starting a new venture to have ready access to comprehensive and accurate data on the risks they take and the meagreness of the rewards that normally result. It is unlikely that such statistics will be collected, either in New Zealand or elsewhere, as there is a recognition of the burden placed on small businesses through the collection of such data. Lee (1998) reports that the top priority of the New Zealand Government's Commerce Committee is to "limit the involvement of smaller businesses in providing statistical returns." It would however, be possible to use the information provided to taxation authorities to generate such data, although the will to allow this to happen is presently absent.

Chapter 6

6. EXPECTATIONS OF BUSINESS FOUNDERS

6.1 INTRODUCTION

The evidence so far points to high risks and modest returns for those investing in start-up businesses, and this raises the question of why individuals are willing to face the risk of ruin given such unfavourable odds. The rational investor would seemingly look at the relationship between risk and reward and place their money elsewhere. However, it must be realised that investment decisions are made on the basis of expectations of risk and return. It is only by analysing those expectations of risk and return that one can determine if an investment decision is "rational". If entrepreneurs are underestimating the risks and overestimating the returns, in their eyes, they may be embarking on a wealth maximising activity where the expected returns fully justify the risks which they perceive are involved. The importance of non-financial rewards also needs to be considered as there are considerable non-financial benefits which can result from ownership of a successful business. The purpose of this part of the study was to determine if the behaviour of individuals starting up a business was "rational" from the economic point of view. In other words does the investment decision make sense when viewed through the eyes of the entrepreneur, based on their expectations as to risk and rewards.

6.2 LITERATURE ON WHAT MOTIVATES NEW VENTURE FOUNDERS

The theory of human motivation is a complex subject and it is not proposed to explore this in detail as, for the purposes of this study, it is only necessary to establish the generally accepted motives for founding a new firm in order to test their importance in relation to the financial motivation.

The motivations leading to starting up a business have been explored in a number of studies. McGrath, MacMillan and Scheinberg (1992) find that entrepreneurs

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have characteristics that are significantly different from the public at large, in that they are highly individualistic people who are attracted by power, are comfortable in dealing with uncertainty and tend to have drives that are characterised as masculine. Brockhaus (1980) studied the risk taking propensity of entrepreneurs and found that they could not be statistically differentiated from newly promoted managers. The fact that entrepreneurs are motivated differently to the general population is hardly surprising.

The dominant theory for explaining motivation in the working environment is expectancy theory. Vroom (1964), and Campbell and Pritchard (1976) explain expectancy theory is based on the assumption that individuals are rational, understand the consequences of their actions and make choices from among the available alternatives, based on a combination of the value they place on the outcomes and the probability the outcomes can be achieved.

Expectancy theory dictates that the things of value that accrue from starting up a business should be looked at in order to explain the decision to do so. The most suitable list of values, or in other words, motivating factors, was found in Birley and Westhead (1994) who surveyed the literature on the subject, as part of their U.K. study of the motivations for starting a business. They identified seven motivators which are as follows:

- Need for approval.

- Need for independence.

- Need for personal development.

- Welfare considerations.

- Perceived instrumentality of wealth.

- Tax reductions and indirect benefits.

- Following a role model.

The first five were basically the same as Scheinberg and MacMillan (1988) found in their 11 nation study. The last two have some support, for example Dubini (1988) and Friberg (1976). The applicability of the seven factors to New Zealand

is borne out by Shane, Kolvereid and Westhead (1991) who studied the motivators in the U.K., New Zealand and Norway. Brockhaus and Dixon (1986) did a similar study which confirmed these results. The latest New Zealand based study of the motivators for starting up a business was done by Lawrence and Hamilton (1997) who focused on unemployment as a motivator but also looked at independence, wealth creation and making the most of a commercial opportunity. Making the most of a commercial opportunity has not been considered as a category of motivator in most other studies as it is not in itself a motivator. It is a means to achieve the motivating goal. Lawrence and Hamilton's study compared the results from Hamilton (1987) which studied motivators for businesses founded in 1970/71, 1975/76 and 1980/81. Lawrence and Hamilton's figures for 1985/86 and 1990/91 showed a strong correlation between the unemployment rate and the numbers influenced by unemployment into starting a business. They show that motivations change over time, a fact consistent with other studies. For example Scheinberg and MacMillan (1988) also report that motivating factors are not fixed over time and vary from country to country.

The seven motivators defined in Birley and Westhead (1994) were chosen for this study as they are simple, comprehensive and the most generally accepted. The last two, tax and the influence of a role model could well have been ignored as they were unlikely to be key motivators in New Zealand at the present time, however, for completeness they were included.

A point worth noting is that almost all of the studies done to date have involved asking business founders about their motivations some time after the business was founded. For example, Lawrence and Hamilton's (1997) study is based on a 1995 questionnaire which asked those who founded a business 10 years earlier about their motivations for starting a business. This has two effects, firstly it introduces a survivor bias into the sample, which after ten years will be quite severe based on the data from this study. Secondly, it produces answers on what people now think their motives were ten years earlier, and it is well known that the past is often viewed through rose tinted glasses. This same problem, to a greater or lesser extent, pervades most of the research on the issue. The current study seeks to

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eliminate these problems by surveying those still in the process of starting their business.

6.3 RESEARCH METHOD

6.3.1 Objectives

The survey had two main objectives. Firstly, to establish the degree of risk founders believed they were taking by starting a business, and how that risk related to other start-up businesses. In other words, how realistic was their estimation of risk. The second objective was to establish the rewards that they expected to achieve from founding a business. Both financial and non-financial rewards are important in starting a business, hence non-financial rewards needed to be considered. It is hard to quantify non-financial rewards due to their intangible nature. For this reason, it was decided to merely compare the strengths of their non-financial motivations with the financial motivation, in order to get a measure of the non-financial benefits, which could help to explain the reasons why individuals might embark on activities that do not strictly make sense from an economic perspective. As this type of study has not been undertaken before, it was not possible to know in advance whether or not new business founders estimations of risk and financial reward would make the decision logical on economic grounds alone. As the results will show, it was not in fact necessary to incorporate the other motivators in order to explain the start-up decision.

Other questions were included as space allowed in order to help build up a better overall picture of the start-up decision, although they were not important in the context of the main theme of the overall study.

6.3.2 Questionnaire Distribution

Locating and gaining the cooperation of a representative sample of business founders is a major obstacle in this type of research. It was regarded as important that business founders were surveyed while actually in the process of starting up a business, as those whose ventures fail are likely to be reluctant to participate and

their perceptions will have been irrevocably changed by the trauma of failure. It is equally probable that those whose businesses are still trading will have had the memories of their earlier perceptions of risk and reward influenced by subsequent events.

Ideally, the study should have been done on a sample randomly selected from the public at large, who were then questioned to ascertain if they were in the process of starting a business, as was done in the study by Dennis (1997). This is a major exercise as Dennis found five percent of the adult population were involved in the process of starting a business. Assuming half of these actually go on to start a business, and 50 percent respond, a sample of around 40,000 individuals would be needed to gain 500 valid responses. Instead, it was decided to ask organisations in regular contact with people starting up businesses to distribute the questionnaires to their clients. Nationwide, sixty organisations were deemed suitable and all were approached. Of these, 25 organisations agreed to help and 19 went on to distribute the questionnaires. These organisations, who all provide advice or finance to new businesses, are listed in Appendix 9 on page 193. Organisations who were directly involved in the Enterprise Development Scheme, which encourages the long term unemployed to start their own businesses, were not approached as their clients are not a representative group and would bias the sample. Their clients would be amongst the clients of the Business Development Boards surveyed, and hence would be sampled on a more representative basis by that means.

The participating organisations were asked to request all of their clients who had started a business in the last three months, or intended to do so in the next six months, to fill in a questionnaire. If the clients agreed, they were given a survey and a post paid reply envelope. Participating organisations were asked to account for the percentage of qualifying clients who accepted questionnaires, and by recording the number given out and comparing it with the number actually returned, the response rate could be calculated.

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6.3.3 Design and Testing

An initial difficulty in carrying out the survey was a reluctance by the organisations assisting in the research to place the burden of filling out yet another form, on new business founders, who have little time to spare when involved with a start-up venture. This necessitated a questionnaire that was simple and quick to answer, and limited the scope of the questions and the depth to which issues could be explored.

The survey was developed with input from a small number of recent business founders and the questionnaire was tested in a trial survey of 25 respondents. Follow up interviews were used to ascertain the usefulness and accuracy of the responses, and to determine problems associated with providing the information required. This identified problems associated with providing year by year financial projections that could be used in estimating returns, but demonstrated the validity of the alternative approach which was adopted with some minor modifications in the final questionnaire. The questionnaire is attached as Appendix 10, page 194.

A sample size of 548 was achieved over a five month period from January to June 1997. This represented about six percent of the New Zealand businesses started up during the period. The sample size was deemed adequate as it gave a worst case standard error of $\leq \sqrt{\dfrac{1}{4 \times 548}} = 0.02$ for estimated proportions. The response rate, defined as the percentage of those asked to participate in the survey who actually returned the questionnaire, was 48.8 percent.

6.3.4 Sample Demographics

As the sample was not random, it is useful to compare the demographics of the sample against the population as a whole, in order to ascertain if the characteristics of the sample indicate the possibility of bias in the sample. The measures which could be tested were organisational type, number of employees and geographical location. The comparison used was the 1988 and 1989 data

from the earlier part of the study. While it would have been preferable to compare them with more recent data or even figures for 1997, these were not available. The comparisons are found in Appendix 11 on page 199. These show the sample had demographic differences from the population as a whole, but these were not sufficient to cause concern. The characteristics of the sample were not sufficiently different from the population as a whole to raise doubts as to the validity of the results. The sample did have significantly fewer businesses with less than one full time employee than the population as a whole, but if this category was excluded the match on size to the overall population was good. Often very small firms are deliberately excluded from this type of study, so their under weighting is acceptable. The sample was under weighted on partnerships and overweighted on companies, and there were differences in geographical distribution, but once again these are not large enough to suggest that the conclusions to be drawn from the sample will be heavily biased.

While it may be reasonable to say that demographics do not produce concern about undue bias, it must be conceded that a bias could be present. The sample was not drawn using a method which would produce a random sample, and the use of a χ^2= goodness of fit test showed that there was a $p<.025$ that the sample was randomly selected as to geographical location, organisational type or number of employees.

The other main demographic characteristics of the sample, for which comparison figures are not available are presented in Table 11 and Figure 14. The incidence of those who have started a business previously was 27.1 percent overall as some respondents fell into both categories, and this was in accordance with expectations. This is consistent with what Birley and Westhead (1993) presented in their summary of previous studies on new ventures in the U.S. and U.K., which showed rates of between 11.5 and 36 percent for founders with previous experience starting a business.

Table 11   Demographic Characteristics of Sample

A summary of some of the demographic characteristics of the sample used in the study of the expectations of rewards and perceptions of risk of those in the process of starting a business.

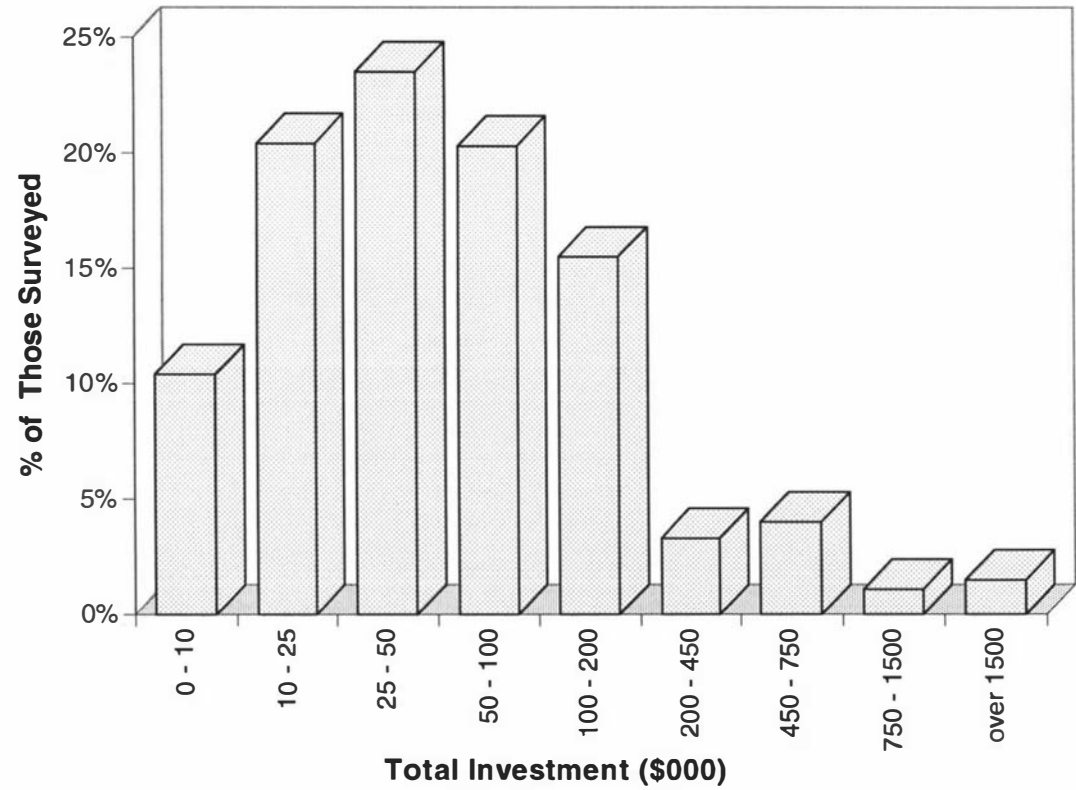|		% of Sample
Gender	- Male	56.2
	- Female	43.8
Age	- Under 25	4.2
	- 25 - 34	24.6
	- 35 - 44	44.0
	- 45 - 54	24.8
	- 55 and over	2.4
Start-Up Time	- Last three months	42.3
	- Next six months	57.7
Previously started a business	- Which is no longer trading	8.9
	- Which is still trading	22.1
Those who are the only investor		63.0
Those who intend to work full time in the business		87.5

Figure 13 Size of Distribution of New Investments

The size distributions of businesses that were being founded by survey respondents. Size is measured in terms of the total investment dollars to be made in the business from all sources of finance.

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6.3.5 Description of Survey

The survey questionnaire can be found in Appendix 10 on page 194. The main objectives of the survey were as follows:

- To quantify the risk of failure that new ventures believe they face in starting a new venture. The risks associated with individual new ventures vary, and people tend to have a higher confidence in their own abilities than they do in the abilities of others. Therefore, data on what the respondents believed failure rates in general were was also collected. These objectives were met by questions 6 and 7.

- The second objective was to ascertain the returns expected from the investment. As explained earlier, testing of survey questions showed that this could best be achieved by breaking financial returns down into two components, cash flow from the investment and capital appreciation as determined by a notional sale at the end of the fifth year. This was achieved in questions 4 and 5. The other components of return, i.e. non-financial return was determined in questions $12c$ to $12k$.

- Earlier, a case was put forward that growth in employee numbers could be used as a proxy for growth in value of a firm. Like failure rates, employee growth expectations can be compared with actual data. To obtain this comparison, the growth in employee numbers expected by new venture founders was sought in questions 2 and 3.

- Questions 1, 8, 9, and 13 were designed to provide demographics of the sample. As the sample was not selected by a purely random process, these demographics provide support or otherwise of the potential bias in the sample.

- As new venture founders opinions and expectations are not formed in a vacuum, the opportunity was take in question 11 to find out how important key sources of advice were in the decision making process.

- Question 10 was used to get some feel for how new venture founders financially evaluate investments.

- Questions 12*a*, 12*b*, 12*k* and 12*l* were designed to gauge attitudes to the risk associated with starting a business.

The questionnaire was designed to provide data on expectations of risks and rewards, and to provide a basis for comparison with the actual data which was available. It was not designed to provide detailed answers as to why the results occurred, hence the data was not designed for complex analysis of interrelationships between the variables. While it would have been theoretically possible to explore the new venture decision in much more detail, this was not practical for two reasons. Firstly, there was difficulty in obtaining agreement from organisations to distribute the questionnaire, and they could only be persuaded to do so on the grounds that it was simple and quick to complete. New business founders are very busy people and participating organisations did not wish to unduly impose upon them. Secondly, the expectations of risk and reward were unknown. It is hard to devise questions to test the reasons for things which are yet to be discovered.

6.4 SURVEY RESULTS

6.4.1 Founders Perception of Risk

Section 2.4.1 established the failure rates of start-ups. This survey attempted to test whether or not business founders estimations of failure rates were consistent with these statistics. The five-year success rate was chosen for comparison purposes, as this is the most generally accepted end to the start-up period. The definition of failure used was simple discontinuance, that is a business was defined as successful if it was still trading after five years. The advantages of using this definition are it is simple, easily understood and most importantly, actual figures are available for comparison.

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To find a respondent's estimate of failure rates, they were asked to give the probability that the business they were founding would still be trading five years after start-up. They may, of course, have a very different view of what failure rates are for other start-up businesses. To determine their perceptions of the risk that others take, they were asked to make the same estimate for businesses of a similar type to their own. The results are presented in Table 12. In calculating the averages, the mid points of the ranges were used.

Table 12   Founders Estimations of Success Rates
New venture founders were asked to estimate the probability that the venture they were founding would still be trading five years after start-up. They were asked to make the same estimate for businesses similar to their own. The significance of the difference was calculated using the Wilcoxon signed rank test which gave z=-15.99 which showed the difference was significant at p=.000.

Probability business still trading after 5 years	% of Respondents	
	Own Venture	All Similar Ventures
0%-10%	0.0	0.6
11%-20%	0.0	1.8
21%-30%	0.7	6.0
31%-40%	1.3	10.6
41%-50%	3.5	20.6
51%-60%	13.3	31.0
61%-70%	15.9	18.6
71%-80%	20.3	8.0
81%-90%	21.5	2.2
91%-100%	23.5	0.6
Average	**75.7**	**52.3**

The five years survival rate for N.Z. stand-alone businesses started up in 1988 and 1989 was 42.5 percent. If we assume failure rates are constant over time, entrepreneurs were somewhat optimistic about the failure rate of start-up businesses in general, but were highly optimistic about their own chances, giving themselves a significantly higher chance of success than the overall population of start-ups. The degree of optimism is most easily demonstrated by looking at the degree of superior survivability that respondents ascribed to their own businesses, in comparison to other similar start-ups. This is presented in Table 13, which

gives the difference between the survival rating they gave their own venture and that which they gave to similar businesses.

Table 13   Perceived Personal Survival Advantage

The difference between the estimate which a new business founder made for the probability of success for their own business venture and that which they gave to all similar start-ups. The Wilcoxon signed rank test showed the difference was significant with $p < .001$.

Survival Advantage	% of Respondents
-10%	0.7%
0%	17.9%
10%	9.7%
20%	24.6%
30%	22.1%
40%	13.1%
50%	7.7%
60%	2.0%
70%	1.5%
80%	0.7%
Average	23.3%

Only 18.6 percent rated their chances of failure as equal or less than other similar businesses, indicating that those starting up a business have a greater faith in their own ability to found a successful business than they have in the ability of others. The fact that 71.7 percent of those in the survey gave themselves at least a 20 percent higher chance of success than other similar businesses is perhaps not surprising, as a high degree of optimism would be seen by many as an essential characteristic for the would be entrepreneur. The group within the sample that showed the lowest belief in their own superior survivability were those who had previously started up a business that had failed. On average, they gave themselves a 15 percent advantage, and 35 percent of the sample rated their chances as equal to others. The difference in the perceived survival advantage given by this group and the rest of the sample was found to be significant ($p < .01$) using the Wilcoxon signed rank test.

Those who rank their own chances of failure as low could be characterised as optimistic and this should show through on their answers to other questions.

Table 14 shows the variables that have the highest correlation with respondents estimates of the survival probability of their own business. It shows that survival optimism is associated with optimism on returns, growth in employee numbers and estimates of the survival rates of similar businesses. It is also positively correlated to investment size.

Table 14   Relationship Between Survival Estimate and Other Factors
This is a listing of variables that were strongly correlated with business founders estimations of the survival chances of their own venture.

	Spearman Correlation with Survival Rate Estimate for Own Venture	
Investment size	0.20	p<.01
Survival rate of similar ventures	0.52	p<.01
Drawings ($/$ invested per annum)	0.28	p<.01
Value of each $ invested in 5 years	0.53	p<.01
Employees in year 1	0.04	p=.35
Employees in year 5	0.15	p<.01
IRR if business goes to plan	0.15	p<.01
IRR adjusted for failure rate	0.50	p<.01

6.4.2 Expectations of Return on Investment

The second important aspect of investor expectations is return. The questionnaire divided return into two aspects. Firstly, the after tax amount that would be drawn from the business over and above the normal salary of working proprietors was considered. Secondly, the increase in the capital value of the business was estimated. These estimates were made on the basis that their business performed "according to plan". As can be seen from Table 15, the respondents, on average, expected to draw an after tax dividend of $0.16 for each dollar invested for each of the first five years. In addition, they expected a sevenfold increase in the value of their investment over this period.

Table 15   Dividends and Increase in Capital Value

New venture founders were asked to give the returns they expected from their business if things went according to plan. This was divided into two components. Firstly the amount they would draw from the business over the first five years over and above normal salary payments. Secondly the increase that would occur in the value of their investment in the business, assuming it was sold five years after start-up.

Dividends paid in first five years for each $1.00 invested at start-up		Price that each $1.00 of equity will be worth after five years	
Dividends	% of Sample	Value	% of Sample
$0.00	21.7	$0 - $1.00	2.4
$0.01 - $ 0.20	10.9	$1.01 - $2.00	12.2
$0.21 - $0.40	5.1	$2.01 - $3.00	6.6
$0.41 - $0.60	14.6	$3.00 - $4.50	18.4
$0.61 - $0.90	17.5	$4.52 - $6.50	27.0
$0.91 - $ 1.30	15.3	$6.51- $9.00	10.8
$1.31 - $1.80	3.1	$9.01 - $12.00	6.8
$1.81 - $2.50	3.1	$12.01 - $15.00	4.0
$2.51 - $3.50	3.6	$15.01 - $20.00	1.5
over $3.50	4.9	over $20.00	10.4
Average	$0.80	Average	$6.99

If it is assumed that a notional sale occurs at the end of five years, then this terminal value, together with the drawings can be used to determine the investors return. Thus, the data given by respondents yields an IRR even though they would not necessarily have viewed it in such terms.

In calculating the IRRs, the mid points of the ranges were used, except for the highest response category, where the lower limit of the open ended range was used. It was assumed that dividends were paid out in equal instalments at the end of each of the first five years. Capital gains are tax free in New Zealand, hence the returns are on an after tax basis. In Table 16, figures are given for the IRR expected to be achieved if the business goes to plan. The table also includes the IRR after it is adjusted using the respondents expectation of failure for their business. For example, if they believed they had a 25 percent probability of failure then future cash flows would be reduced to 75 percent of their given values.

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Table 16   Expectations of Return on Capital Invested

The estimates made by new venture founders as to the dividends and capital gains they would achieve from their businesses if everything went according to plan were used to calculate the IRR they expected to achieve over the first five years from their new business.

IRR (%)	% of Respondents	
	Estimated IRR if business goes according to plan	IRR after correction for estimated failure rate
0 or less	1.1	2.6
0.1 - 10.0	2.7	7.8
10.1 - 20.0	5.3	7.7
20.1 - 30.0	6.6	12.0
30.1 - 40.0	11.3	19.9
40.1 - 50.0	23.9	16.6
50.1 - 60.0	14.6	13.1
60.1 - 70.0	11.9	10.0
70.1 - 80.0	6.7	5.3
80.1 - 90.0	13.0	4.2
90.1 - 100.0	1.8	0.1
100.1 - 150.0	1.1	0.7
Average IRR	51.3	41.0

It is clear from these results that the participants in the survey have high expectations of returns, and these are in line with those expected by professional venture capitalists. Fried and Hisrich (1994, 31) give hurdle rates for venture capital firms ranging from 30 to 70 percent. Schilit (1993, 304) quotes a minimum rate of return of 38 percent. Venture capital investments are not directly comparable with start-ups as a whole, so these rates are only used as a reference point to show that most of those starting up businesses have expectations of returns that appear adequate for the degree of risk their founders perceive as being present.

Not all respondents had expectations that were adequate for the risk involved. Fourteen percent gave expected IRRs, corrected for failure rate of 15 percent or less.   These were predominantly businesses with very small investment with founders who are strongly motivated by the personal employment potential of their businesses. Thus, the results show that most of those starting up businesses

were making decisions that appear "rational" based on financial expectations, without the need to include other motivational factors.

It is not possible to compare the financial returns anticipated with actual results for start-up businesses as there is no data available to compile such statistics. The only potential source is the New Zealand Inland Revenue Department and they are legislatively barred from providing such data. The main component in the IRRs is the increase in capital value of the business with the median response being an expectation that each dollar invested would be worth in the range of $4.51 to $6.50 after five years. This high growth in value should be reflected in a growth in employee numbers, and historical comparison figures are available from the earlier study. In Table 17, the expected growth figures are compared with the earlier study. A Chi Square goodness of fit test was used on the actual and expected counts in each growth category and the difference was found to be significant with $p < 0.001$.

Table 17   Growth in Employee Numbers

The annual average compound growth in employee numbers expected over the first five years in business by those in the process of founding a new venture, is compared with what was actually achieved in New Zealand by all businesses which started up in 1988 and 1989 and survived their first five years in business.

Annual Growth - First Five Years	Current Survey (%)	Actual for 1988/89 start-ups that survived their first Five years (%)
less than 0%	1.8	25.3
0%	18.4	38.1
0.1% - 10.0%	1.7	15.0
10.1% - 20.0%	46.4	11.9
20.1% - 30.0%	18.8	5.7
30.1% - 50.0%	9.1	3.1
50.1% - 100.0%	3.8	0.9
Average Annual Growth	15.5	2.7

Clearly, the expectations of growth in employee numbers are far higher than the historical figures achieved by surviving businesses. This is a strong indicator that those businesses which actually survive will not achieve the expected growth, and hence the financial returns anticipated. Those surveyed expected, on average, to

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have twice as many employees in five years as they had at start-up, whereas the historic figures give an increase of 14 percent. That is not to say that none of the start-ups will achieve their expected growth, as the historic figures show that 9.7 percent of surviving start-ups (4.1 percent of total start-ups) achieve a growth of 20 percent or more per annum in their first five years.

6.4.3 Non-financial Rewards

As discussed earlier, the decision to start up a business is not just a financial one. The results of the relative importance of the seven major non-financial motivational categories defined by Birley and Westhead (1994) are compared with financial motivation in Table 18. All the motivators were addressed using a single question, apart from welfare considerations which were divided out into the need to create employment and the desire to enhance family and community welfare.

When these responses are ranked on a 1 to 5 Likert scale of 1 for "disagree strongly" to 5 for "agree strongly" as shown in Figure 14, it becomes readily apparent that financial return is only one of a number of motivational factors that drive the decision to start up a business.

The responses to the strengths of different motivators are highly sensitive to the exact question asked. Maslow and Storey (1992) demonstrated this when looking at employment as a motivator in starting a business. Even had the results not been sensitive to the exact question asked, the results are not capable of distinguishing between the top four motivators which score between 4.2 and 4.4 in Figure 14. Tax reduction, approval of others, and role models do not play a major role in motivating the start-up decision as 3 is a neutral response, with anything lower indicating that the average respondent disagrees that the factor had a motivating influence.

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Table 18 Relative Importance of Key Motivational Factors

Those in the process of founding a new business were asked to answer the questions related to the major motivators for starting a business. The motivators tested were those found in Birley and Westhead (1994). The motivator and the question used to test it are found in the left hand column.

| Motivator and Question Asked	% of Responses				
	agree strongly	*agree somewhat*	*neutral*	*disagree somewhat*	*disagree strongly*
Need for Independence A major motivation behind my starting up a business is to gain more personal control and freedom of choice.	50.4	33.4	12.2	4.0	0
Approval of Others A major motivation behind my starting up a business is to win approval from others.	2.0	12.4	27.2	20.8	37.6
Personal Development A major motivation behind my starting up a business is to allow myself to develop as a person.	25.7	41.4	19.0	11.9	2.0
Employment A major motivation behind my starting up a business is to provide employment for me or my family.	54.6	35.0	4.4	4.0	2.0
Family and Community Welfare A major motivation behind my starting up a business is to allow me to improve the welfare of my family and contribute to the community.	48.0	37.4	10.4	0.2	4.0
Tax Reduction A major motivation behind my starting up a business is to help reduce the tax on my income.	0.0	11.8	5.5	28.1	54.6
Instrumentality of Wealth A major motivation behind my starting up a business is to increase my wealth.	45.8	39.6	8.4	2.2	4.0
Following a Role Model My decision to start up a business has been influenced by a person that I consider my role model.	10.2	19.2	24.8	14.4	31.4
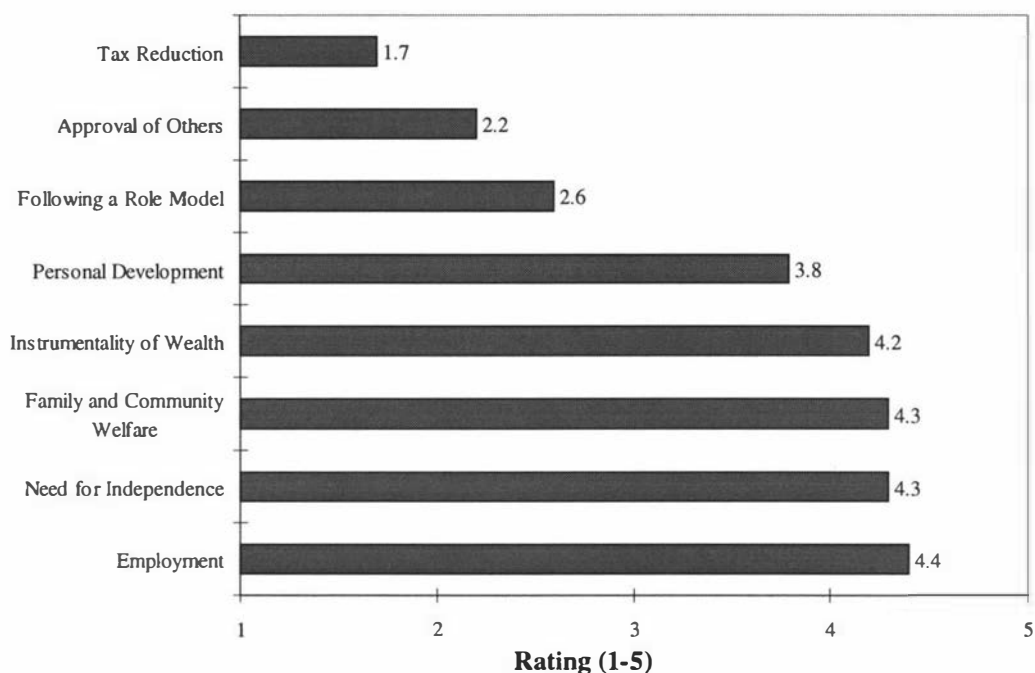
Figure 14 Rating of Average Motivational Factors

The relative importance of the various factors which motivate individuals to start a business. The factors are rated on a 1 to 5 Likert scale of 1 for "disagree strongly" to 5 for "agree strongly" with questions asking the importance of each motivator.

The Wilcoxon signed rank test was used to ascertain if the differences between the motivators were statistically significant. As there are 28 combinations of motivators tested, the p-value required for acceptable type I error is $p<.05/28 = p<.0018$. The Wilcoxon test showed that instrumentality of wealth, family and community welfare, the need for independence, and employment were not statistically different. This was particularly so where instrumentality of wealth, was tested against family and community welfare and gave a result of $p=.325$.

The two questions relating to welfare considerations, namely welfare of family and community, and providing employment are strongly correlated with a Spearman correlation coefficient of 0.62. Other motivations are also correlated with the desire to increase wealth having a correlation coefficient 0.36 with the influence of a role model, and 0.28 with the personal control. The influence of a role model was uncorrelated with personal development (0.03) and providing employment (0.02).

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6.4.4 Attitudes on Risk and Return

The questions in Table 19 were designed to obtain more information on attitudes to risk and return. As can be seen from the responses, only 42 percent were supportive of the proposition that financial returns should override other considerations, and only 11 percent agreed strongly. This is consistent with the importance of non-financial considerations in the decision to start up a business. Most people who start up a business, whether they realise it or not, are risking everything, or almost everything they have, however only 18 percent showed at least some agreement that they were willing to risk everything.

There is considerable evidence that starting up a business is significantly more risky than purchasing an existing one. Some studies have shown that failure rates are elevated in the period following a change of ownership. This is explained by Holmes and Schmitz (1995) and others as being due to the fact that failing businesses are often sold rather than closed down, and these failing businesses, which naturally have a higher than normal failure rate, are what causes the overall increase in failure rate following a sale. There are sound reasons for assuming that buying an existing business, if it has been profitably trading, is far less risky than starting a new firm, yet only 39 percent support this proposition.

Those starting up a business tend to consider individuals who start-up a business which subsequently fails, as being solely to blame. Thus the risks of starting up a business are regarded as being largely avoidable. It could well be argued that a major component of the risk involved is unavoidable, and hence failure of a recently founded firm is most often a consequence of the inevitable risks associated with starting a business, rather than a matter of blame.

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Table 19   Attitudes to Risk

This table gives a summary of the responses given by those in the process of starting a business to questions designed to test their attitudes to risk.

	% of Responses				
	agree strongly	*agree somewhat*	*neutral*	*disagree somewhat*	*disagree strongly*
I am willing to risk losing everything in a business venture providing the potential profits are high.	4.2	14.0	25.2	21.0	35.6
I think that starting a new business is no more risky than purchasing an existing business.	6.6	37.4	16.6	19.3	20.1
People who start up a business which fails usually have only themselves to blame.	16.6	33.2	18.6	21.2	10.4
The ability to get a good financial return should override all other considerations when starting up a business.	10.4	31.6	23.0	28.8	6.2

6.4.5 Gender Differences

It is often considered that there are important differences between male and female entrepreneurs, although the importance of this may be diminishing according to Birley (1989), who predicted that women business owners will become more and more similar to their male colleagues over time.

Table 20 shows businesses started by women are on average smaller in terms of both capital invested and employees. Women are also younger and are less likely to have started a business in the past. It is not surprising that women are less likely to have start-up experience as there is a trend towards more women starting up businesses and a lower participation rate in the past would be reflected in this figure, as would the younger average age of the women.

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Table 20 Gender Differences in Means for Key Characteristics

This table presents a comparison of the average characteristics of male and female business founders as shown by key variables in the study. The statistical significance of the gender differences has been tested using the Kruskal Wallis test.

Characteristic	Women	Men	Kruskal Wallis
Size of initial investment	$73,300	$158,700	p<.01
IRR if things go to plan	53.1%	50.1%	p<.01
IRR corrected for failure rate	42.9%	38.7%	p<.01
Success rate - own venture	75.2	76.2	p<.01
Success rate - similar ventures	51.4	53.1	p=.19
Employees at start-up	2.3	3.0	p<.01
Employees after five years	4.2	5.2	p<.01
Previously started a business which is no longer trading	6.8%	10.6%	p<.01
Previously started a business which is still trading	18.9%	24.6%	p<.05
Those who are the only investor	55.2%	70.1%	p<.05
Those who intend to work full time in the business	87%	88%	p=.21
Age (years)	33.1	37.1	p<.01

Shane, Kolvereid and Westhead (1991) found differences in the motivations for women starting in business, finding that they were less likely to be concerned with status but had a stronger need to achieve recognition for their achievements. In Kolvereid, Shane and Westhead (1993) they studied the perceptions of female new firm founders, finding little difference in any factor, except that women saw a greater political uncertainty than men. They attribute this to subjective differences. Both studies included New Zealand in their samples. Thus, while differences between genders are to be anticipated, the differences are not expected to be great. The results of the survey are presented in Table 21. They show women are more motivated by a need for independence, the desire to increase their wealth and personal development, but less likely to be influenced by a role model, or the desire for approval of others, or by the desire to reduce taxation.

Table 21   Gender Motivational Differences

The responses to questions on the motivations which influenced the start-up decison as contained in Table 18 were analysed according to gender. The table presents the mean differences after these responses are ranked on a 1 to 5 Likert scale of 1 for "disagree strongly" to 5 for "agree strongly". The statistical significance of the gender differences has been tested using the Kruskal Wallis test.

Motivator	Women	Men	Kruskal Wallis
Employment	4.4	4.3	p=.18
Need for Independence	4.7	4.0	p<.01
Family and Community Welfare	4.2	4.3	p=.048
Instrumentality of Wealth	4.4	4.0	p<.01
Personal Development	3.9	3.5	p<.01
Following a Role Model	2.4	2.8	p<.01
Approval of Others	2.0	2.3	p<.01
Tax Reduction	1.6	1.9	p<.01

The only result that appears surprising is that women are more motivated by wealth than men. Their expectations of financial return, shown in Table 20, are also higher, although motivation and expectation are not the same thing. Further analysis revealed that the higher expected return was linked to the smaller size of investment. Investors who had a low initial investment tended to have higher expectations as to what their business would be worth in five years time. This is presumably because for a small business, the value is tied to the human capital associated with the owner, as much as it is to financial capital, hence expectations of high increases in value are not necessarily unrealistic for very small businesses.

Women also demonstrated a greater acceptance of risk, a stronger belief that they control their own success and place a higher importance on financial return. This is shown in Table 22.

It can be seen that there are differences between male and female business founders, but overall they are not large, and do not indicate that the decisions involved in starting a business are greatly different for women than they are for men. No doubt similar differences might well be detected if the population had been divided out by other characteristics, for example ethnicity or educational background.

Table 22   Gender Attitudes to Risk

This table presents a comparison of the average attitudes to risk and returns of men and women. The average results are presented where the responses are rated on a 5 point Likert scale of 1 for "disagree strongly" to 5 for "agree strongly". Significance was tested using the Kruskal Wallis test.

Attitude	1 to 5 Likert scale		Kruskal Wallis
	Women	Men	
I am willing to risk losing everything in a business venture providing the potential profits are high.	2.4	2.3	p<.01
I think that starting a new business is no more risky than purchasing an existing business.	3.3	2.8	p<.01
People who start up a business which fails usually have only themselves to blame.	3.6	3.1	p<.01
The ability to get a good financial return should override all other considerations when starting up a business.	3.3	3.0	p<.01

6.4.6 Differences Between Organisational Types

Business characteristics can be expected to vary with organisation. An analysis of the key characteristics of the sample is broken out by organisational type in Table 23.

Business founders age, gender and estimations of survival rate show no significant relationship to business type. The expected relationship between size, and related figures such as employee numbers, part time worker owners and organisation type is found, i.e. sole traders are smaller than partnerships and companies are the largest.   Those starting up companies have the lowest expectation of failure, but have less faith in others ability to succeed. They also expect the highest returns, even though they expect lower growth in employee numbers than is found for other types of organisation. As expected, outside sources of finance are less common for sole traders, but even where a company is used only just over half of the businesses will be partly funded by someone other than the owner. Those forming a partnership are more likely to have had a

previous business fail and less likely to have had one that succeeded. The reason for this relationship is not apparent.

Table 23 Differences in Key Characteristics for Organisational Types

This table presents a comparison of the mean characteristics the different types of organisation as shown by key variables in the study. The statistical significance of the differences has been tested using the Kruskal Wallis test.

Characteristic	Company	Partnership	Sole Trader	Stat. Sig.
Size of initial investment	$231,600	$38,300	$11,800	p<.01
IRR if things go to plan	56.5%	50.7%	44.3%	p<.01
IRR corrected for failure rate	47.0%	39.2%	33.6%	p<.01
Success rate - own venture	76.9	72.5	74.3	p=.06
Success rate - similar ventures	48.1	54.5	57.0	p<.01
Employees at start-up	4.2	2.1	0.9	p<.01
Employees after 5 years	6.6	4.3	2.4	p<.01
Previously started a business which is no longer trading	5.8%	17.4%	8.7%	p<.01
Previously started a business which is still trading	23.1%	7.3%	28.5%	p<.01
Those who are the only investor	46.1%	67.3%	84.1%	p<.01
Those who intend to work full time in the business	97%	85%	76%	p<.01
Age (years)	35	35	36	p=.16
Gender (% males)	57	52	58	p=.23

The effect of organisation type on the importance of motivators is presented in Table 24. This shows that motivations are in most cases similar. The most important differences is that sole traders are much less likely to consider wealth creation highly important, which is consistent with their expectations as to returns. Company founders are less likely to be motivated by personal development or and the approval of others. They are also less motivated by tax benefits which is consistent with the absence of any personal tax benefits when a company is used as the vehicle. There are minor benefits possible for sole traders and partnerships, particularly if they use their home as the business premises.

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Table 24   Organisation Type and Motivational Influences

The responses to questions on the motivations which influenced the start up decison as contained in Table 18 were analysed according to gender. The table presents the mean differences after these responses are ranked on a 1 to 5 Likert scale of 1 for "disagree strongly" to 5 for "agree strongly". The statistical significance of the differences has been tested using the Kruskal Wallis test.

Motivator	Company	Partnership	Sole Trader	Stat. Sig.
Employment	4.2	4.4	4.6	p<.01
Need for Independence	4.2	4.2	4.4	p=.06
Family and Community welfare	4.2	4.3	4.4	p=.79
Instrumentality of Wealth	4.3	4.5	3.9	p<.01
Personal Development	3.4	4.1	4.1	p<.01
Following a Role Model	2.7	2.2	2.6	p<.01
Approval of Others	2.0	2.6	2.3	p<.01
Tax Reduction	1.6	1.7	1.9	p<.01

How attitude to risk varies with the type of organisation is analysed in Table 25. Sole traders are more likely to consider starting a new business entails more risk than buying an existing one and are less likely to blame the owner when a business fails. Partnership founders are more likely to consider financial return should overriding other factors when starting a business, which is perhaps related to the fact that more of them have failed with previous new ventures.

Table 25   Effect of Organisation Type on Attitudes to Risk

This table presents a comparison of the mean attitudes to risk and returns. The average results are presented where the responses are rated on a 5 point Likert scale of 1 for "disagree strongly" to 5 for "agree strongly". Significance was tested using the Kruskal Wallis test.

Attitude	Company	Partner-ship	Sole Trader	Stat. Sig.
I am willing to risk losing everything in a business venture providing the potential profits are high.	2.3	2.3	2.3	p=.91
I think that starting a new business is no more risky than purchasing an existing business.	2.8	2.6	3.2	p<.01
People who start up a business which fails usually have only themselves to blame.	3.3	3.5	3.0	p<.05
The ability to get a good financial return should override all other considerations when starting up a business.	3.0	3.7	3.0	p<.01

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6.4.7 Effect of Founder Age

The age of the business founder had an effect on a number of the variables. Correlations of the variables revealed the relationships shown in Table 26. The results do show significant differences in both the motivational and attitudinal factors, however, as most correlations are negative it appears that this may be due to a response bias whereby older respondents give less positive responses. Thus, it would be dangerous to draw any conclusions from the results, although older business founders do appear to be more concerned about employment and independence than their younger counterparts.

Table 26   Effect of Founder Age on Motivational and Attitudinal Factors

This table presents the effect that the age of the founder of a new business has on attitudinal and motivational factors that infuence the decision to start a business. Statistical significance is tested using the Spearman correlation test . ** Correlation is significant at 0.01 level , * Correlation is significant at 0.05 level, # Correlation is not significant at 0.05 level

Motivational Factors	Spearman Correlation with Age
Employment	-0.09 *
Need for Independence	0.01 #
Family and Community Welfare	-0.27 **
Instrumentality of Wealth	-0.33 **
Personal Development	-0.32 **
Following a Role Model	-0.29 **
Approval of Others	-0.15 **
Tax Reduction	0.08 #

Attitudinal Factors	Spearman Correlation with Age
I am willing to risk losing everything in a business venture providing the potential profits are high.	0.15 **
I think that starting a new business is no more risky than purchasing an existing business.	0.18 **
People who start up a business which fails usually have only themself to blame.	0.08 #
The ability to get a good financial return should override all other considerations when starting up a business.	0.11 *

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The variables, other than motivational and attitudinal characteristics, failed to show statistically significant age differences. Age is obviously significant in the decision whether or not to start a business. For example, very few people in the 55 plus age group start a business, however, once the decision to found a business has been made, the expectations as to outcomes appear independent of age.

6.4.8 How the Investment was Evaluated

New venture founders are obviously making their decision following some sort of evaluation process and this may have a bearing on their estimations of the adequacy of the returns they are expecting. For this reason, questions were included asking which of the common techniques of investment analysis were employed in the decision. The results are presented in Table 27.

Table 27   Methods of Investment Evaluation Used
This table presents the methods used by new venture founders in evaluating the decision whether or not to proceed with starting a new business.

	% of respondents		
	Will/Have Used This Method	Will Not/Have Not Used This Method	Unfamiliar With This Method
Net Profit After Tax	93.6	5.7	0.7
Accounting Rate of Return	27.7	11.8	60.5
Payback Period	23.8	31.9	44.3
Net Present Value	15.9	14.9	69.2
Internal Rate of Return	13.7	15.5	70.8
Gut Feeling	91.5	6.5	2.0

Quite clearly, the majority of those starting a business are using a standard set of accounts in conjunction with "gut feeling" or personal intuition in order to make the decision. The other methods were used by a number of those surveyed, however, these results should be treated with caution as the pilot testing of the questionnaire revealed that those who claimed to be using these techniques tended to have an incomplete understanding of the methods and were likely to interpret them using their plain English meaning. When claiming to use a particular method, respondents were often in fact, not following the prescribed technique.

For example, those using the payback method were tending to say, "Well I thought about how long it would take to get my money out of the company." The results, should, therefore be treated with extreme caution, and the level of sophisticated analysis is probably far lower than the results would indicate.

6.4.9 Sources of Advice

If new venture founders have unrealistic expectations as to the risk and return of their businesses, then consideration as to whether these expectations are developed in isolation, or if they are being influenced by third parties in their decisions is required. For this reason those surveyed were asked about the sources of advice that they relied upon. The results, which can be found in Table 28, show that advice is an important influence on the decision making process with 85 percent rating advice from others as moderately or very important. Financial advisers, such as accountants and bankers are clearly an important source of such advice.

Table 28   Sources of Start-Up Advice
This table presents the importance of advice from third parties to business founders in making the decision to start a business.

	% of Responses			
	Very important	Moderately important	Of little importance	Of No Importance
Advice from third parties	45.3	39.3	11.9	3.5
Advice from a qualified financial adviser	51.2	31.3	11.8	5.7
Advice from friends, acquaintances and business associates	35.1	38.4	22.7	3.8

As expected, the categories of advice are correlated with more than one source of advice being common, as shown in Table 29.

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Table 29   Correlations Between Sources of Advice
This table presents the Spearman correlations between the importance of various sources of advice used by business founders. ** indicates significant at 0.01 level.

	Third parties	Financial adviser	Friends and Associates
Third parties	1.00	-	-
Financial adviser	0.442 **	1.00	-
Friends and Associates	0.261**	0.129 **	1.00

An analysis of the data indicates that advice has little or no effect on the estimations of failure or returns, as importance of advice was only very weakly correlated with both expected returns and estimations of failure for their own or others' ventures. Cross correlations between results on sources of advice and other variables failed to reveal any other significant relationships. This does not necessarily mean that advice is having no impact, as where advice is both accurate and well heeded, the prospective entrepreneurs may be deterred from starting a business and, in these cases, the survey is incapable of ascertaining the relationship between expectations and advice given.

6.4.10 Multivariate Analysis

The decision to start up a business is likely to involve a complex relationship between the various motivators, and multivariate analysis may be capable of determining if there is particular groupings amongst the survey participants. Two techniques were used for this analysis, namely factor analysis and cluster analysis.

6.4.10.1 Factor Analysis

Factor analysis is a multivariate statistical technique whose primary purpose is data reduction and summarisation. To determine if there was an underlying pattern for the motivators, factor analysis using a varimax rotation was run on the responses to eight questions on motivational factors described in Table 18.   The details of this analysis can be found in Appendix 12 on page 200. This produced

three components which when analysed for their characteristics gave the following profiles.

- Component 1. Less strongly motivated by increasing wealth, the need for independence, family and community welfare, and employment than other survey participants. Those strong in this component are more likely to be women, expect a high increase in the value of their investment, and are less likely to be willing to risk everything. Their businesses are smaller in terms of the size of investment, but not in terms of employee numbers. They are likely to consider advice is important for the start-up decision.

- Component 2. Less strongly motivated by reduction of tax and role models than other survey participants. Those strong in this component are more likely to be men and to be slightly younger. They have higher than average estimations of risk for both their own and other ventures. They are more likely to have previously started a business which has failed and are more willing to risk everything providing the rewards are high. They are less likely to be working full time in the business.

- Component 3. Less strongly motivated by personal development and approval of others. Those strong in this component are more likely to be men and operate as a sole trader while working full time in the business. They have a higher than average expectation of success, both for themselves and other businesses. They are more likely to have previously started a successful business and less likely to have started one that has failed. They will tend to believe that success is controlled by the entrepreneur rather than resulting from external factors and are less likely to consider advice is important when starting a business.

Each respondents factor scores for the three components were analysed against the key survey variables to see if they yielded statistically significant as determined by the Kruskal Wallis test. The associated p-values are reported in Table 36 on page 201. While the characteristics of the components given above are shown to be statistically significant, the differences in mean are small, so considerable caution should be used in drawing conclusions from these results. The fact that the

strongest differences between components result from the absence of influence from a motivator, rather than the presence of strong motivations, makes it difficult to draw conclusions from the results in the context of the current study.

6.4.10.2 Cluster Analysis

The second type of multivariate analysis that can be used to ascertain relationships between motivators is cluster analysis. Cluster analysis was carried out on the motivational factors in order to identify meaningful sub groups in the sample. The data was first analysed using Ward's Method, a hierarchical technique. Once the number of clusters had been selected by Ward's Method, the clusters were refined using K-Means cluster analysis.

Ward's Method showed that either two or five distinct clusters were present in the data. Two clusters were well separated, but clustering was weaker when five clusters were used, and hence it was at first considered that only two meaningful clusters were present. When survey participants were assigned to K-Means clusters, the variation in non-motivational characteristics between the groups was analysed. It was found that the differences, while statistically significant, were not large enough to be meaningful. However, when the process was repeated using five clusters clearly discernible, statistically significant, differences in the non-motivational characteristics were apparent.

The details of the characteristics of the clusters identified are shown in Table 37 and Table 38 on page 202. The clusters are characterised below.

- Cluster 1. This is a small cluster representing 4.7 percent of the sample. It has some striking features in that 89 percent of its members have previously started a business, but none have ever started an unsuccessful one. They expect a very high return and their estimation of success is about average for the sample as a whole, but they have little faith in the abilities of others, rating their chances of success at only 31 percent. Surprisingly their businesses, which are all companies, require very little capital with an average investment of only $19,000. While they are

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motivated by wealth, they are more strongly motivated by personal development and the need for independence. They are the oldest of the clusters with an average age of 49. Only 61.5 percent of them will work full time in the business. This cluster has a higher than average number of women i.e. 46 percent.

- Cluster 2. This cluster is the youngest, with an average age of 31, and the average investment size is the largest, averaging $230,000. A noticeable difference from the other clusters is that 43.5 percent of its members have experienced a previous business failure. They are very strongly motivated by personal development, the need for independence, and role models. Approval of others is also scored highly when compared with other clusters.

- Cluster 3. This is the largest cluster comprising 41 percent of the sample. This group also contains the highest proportion of women. It scores high on most of the motivators, but is lowest on the need for personal development and approval of others. They are the only group that rate tax reduction as a significant motivator, perhaps an indication that many of them will have home based businesses and use income splitting with family members to reduce overall tax. This is supported by the high importance they place on family and community welfare. The majority of this cluster will work full time in the business.

- Cluster 4. This is another small group, comprising 6.2 percent of the sample. It is the group that consistently scored low on motivators, and was the only group to shun wealth as a motivational influence. They had the lowest expectation of success of any cluster and rated the chances of success for others as very low. The average investment size was quite high at $218,000 and they had the highest expectation of growth in employee numbers.

- Cluster 5. This is the second largest cluster, representing 36.6 percent of the sample. They have the lowest expectation in growth in employee numbers, but apart from that, they seem a very average group in most

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respects. They are distinguished by rating "approval of others" as high and the "influence of a role" model as very low.

6.4.10.3 Comments on Multivariate Results

Cluster analysis and factor analysis set out to achieve the same objective, that is to determine if there was a discernible pattern to the motivational characteristics of the survey respondents. In this instance the cluster analysis proved to be more effective at locating groups with different motivational characteristics that could be distinguished by their other characteristics as well. There were similarities between the components generated by factor analysis and the clusters formed by cluster analysis. Component 1 was found to be strongly represented in Clusters 1 and 4, and Component 2 in Clusters 1, 4 and 5. Component 3 was present in Clusters 3 and 5, but this component was strongly negative for Clusters 1 and 2. Factor analysis components, did to some extent, explain the relationships between the motivators, but was of little practical use in this case.

The results of the cluster analysis show that a relationship exists between what motivates an entrepreneur, the characteristics of the entrepreneur and the business they found. The survey was not designed to produce a comprehensive analysis of the motivations for founding a business, but rather to determine their presence and strength relative to the financial motives. It, therefore, did not generate data with sufficient detail to fully discern the complex relationships between motivators, or the relationship between an individual's motivations and the characteristics of the businesses. It did, however, demonstrate the potential and effectiveness of cluster analysis in this type of research.

It is important to note that this thesis is not intended to be a detailed exploration of the motivations for starting a business. It is merely designed to confirm that the decision to start a business is much more than the decision to make a financial investment. It has not, however, proven necessary to use non-financial motivators to explain why these businesses started up. The start-up decisions have been shown to be rational from the economic perspective without the need for any contribution from non-financial motivators.

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6.5 CONCLUSIONS ON SURVEY RESULTS

The survey results show that, when viewed through the eyes of the business founder, the decision to start a business is a rational one based on the expectation of considerable financial rewards coupled with many added advantages, such as independence, personal development and personal employment. While realising there are risks involved, entrepreneurs tend to underrate them and have faith in their personal ability to overcome the odds. They prefer to lay the blame for failure on the individuals involved, rather than regarding it as an unavoidable consequence of the risks that are inevitably taken. Given this scenario, the decision to start a business can be seen as a logical and rational outcome of an individual's desire to get the best out of life.

Reality may be somewhat different. This study shows that the average business founder believes their chance of failure is about half of the actual rate and estimates rewards that are very considerably higher than are obtained by business in general. There is little reason to expect that businesses starting-up will have any cost, or other advantage over established firms. In an efficient competitive market, the size of return expected by those starting up businesses should not be available to the established players, let alone to newcomers in general. Some new ventures will, of course, be able to obtain high returns, i.e. the successful innovators with a new product or service, or those with more efficient ways of meeting customer demands. However, on average, the successful start-ups would not be expected to significantly out-perform firms as a whole. Indeed, there is evidence that a considerable proportion of small firms make returns that are marginal, and at best provide employment for their owners, often at a rate of remuneration that is lower than they could achieve elsewhere. In addition, new firms often go through a considerable period of loss making before achieving viability.

Williams (1987) in his study of Australian start-up firms shows that it takes eight years for a firm's profitability to reach a stable level, and for surviving firms it was not until the fifth year that profitability reached levels approaching their longer term values. See Figure 15 for details.
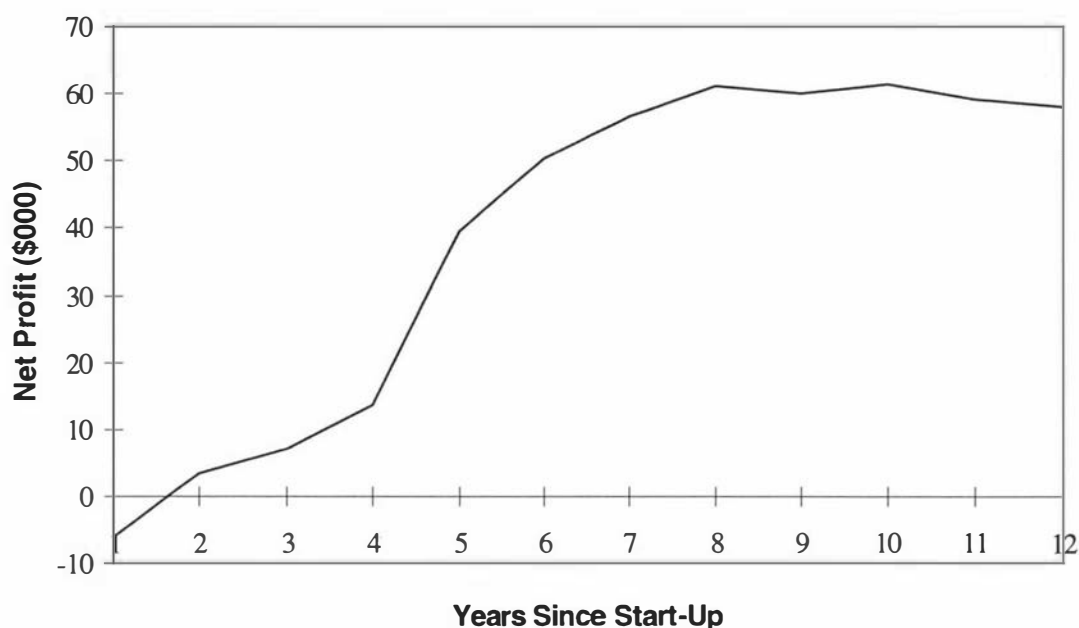
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Figure 15 Start-Up Profitability - Australian Study
This graph show the levels of profitability found by Williams (1987, 241) in his study of start-up businesses in Australia. The net profit after tax is given for businesses of various ages.

Biggadike (1979) looked at the new ventures of large U.S. corporations and concluded that, on average, they lost money for their first four years. He found they did not achieve profitability for eight years and took 10 to 12 years to reach the same return on assets as mature businesses. Weiss (1981) conducted a follow up study on businesses founded by individuals and found that had a better performance, requiring an average of 3.5 years to reach profitability. He found that the median return on investment in the second year was minus 40 percent. The evidence points strongly to the conclusion that start-up businesses, even those that easily survive, are on average less profitable than mature businesses.

We can conclude that the investment activities of entrepreneurs starting up new ventures are driven by unrealistic expectations of the returns available, and an overconfidence in their ability to beat the odds. De Meza and Southey (1996) argue that high failure rates are due to the "winners curse", and that it is inevitable that new entrants will be dominated by those who are over optimistic. The use of the concept of the winners curse (attributable to Thaler (1992)) is apt. Almost everyone who wants to start-up a business can be a "winner" by actually starting one. Given the lack of information available upon which to assess the likely

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outcome, and the inexperience of most of those attempting such an evaluation, it is inevitable that there will be a wide distribution of expectations and the portion of this distribution representing unrealistic optimism could largely explain the high number of start-ups. It cannot be said that the average New Zealander has unrealistic expectations as to the risks and returns of starting a business as those with realistic expectations who decided not to start a business are not part of the sample used in the survey. What can be said is that there are large numbers of people who have sufficient faith in their ability to achieve very high returns at modest risk by starting a business, that a large oversupply of new ventures is inevitable, and this will inevitably result in a continuation of the high rates of failure.

Chapter 7

7. CONCLUSIONS AND IMPLICATIONS

The picture that has emerged from this investigation of start-up businesses in New Zealand is different from the commonly held view of the nature and role of new firms in the economy. It is a picture which is not consistent with the notions upon which most public policy is based. Public policy and indeed, the general perception of start-up businesses is based on the notion that there is an under supply of new firms, and that entrepreneurs should be encouraged to found new ventures in order to enhance economic progress. This view is based, at least in part, on the widely held belief that the failure rates of new ventures are seriously overstated and that failure is primarily due to bad management. It leads to the conclusion that major reductions in failure rates can be achieved if only new ventures were properly managed. In almost all developed nations, there are government programs based on these aims, and a vast army of accountants, consultants and other experts earn their living encouraging the proliferation of new ventures.

The reality appears to be considerably different from the common perception. There are far more new business starts than the economy can possibly absorb. Even if each firm was perfectly managed, the failure rate would remain largely unchanged as the large oversupply of new ventures drives the failure process. The commonly held belief that most business closures are voluntary is difficult to sustain once the sheer volume of new starts is comprehended. The high rate of new firm formation is a pervasive phenomena. Every segment of the economy that is open to new firms is a target for hopeful new entrants. Every geographical area is equally effected. New business founders seem highly efficient at seeking out new opportunities wherever they might be, with growing industry sectors attracting proportionately more new entrants, and sunset industries still having to face a healthy supply of new competitors.

When looking for the reason why there are so many starts-up businesses, it is only necessary to look to the nature of individuals. Jensen and Meckling (1994) believe that most of the differences that exist in our views on how the world works is based on differences in how we view human nature. They believe that there is a common message that comes from the growing body of social science research on the way in which human nature determines organisational dynamics. They state, "individuals are resourceful, evaluative maximisers. They respond creatively to opportunities the environment presents, they work to loosen constraints that prevent them from achieving what they wish. They care about not only money, but about almost everything - respect, honour, power, love and the welfare of others." How these characteristics manifest themselves will depend on the needs of the individual. The most prominent psychological model on human behaviour is Maslow (1943), who devised a hierarchy of needs model whereby individuals satisfy lower order needs such as safety and food before they are motivated to satisfy higher order needs. The need which he described as the highest order is what he called self actualisation, or the desire to realise ones potential and become what we are capable of becoming. While Maslow's model has it detractors, it serves as a useful framework for viewing the motivation to start a business.

In Western culture the majority of people are raised to believe that they have a potential to succeed, and that if they do not, it is because of a failing within themselves. The drive for success is strong. From childhood onwards, people have dreams about what they will achieve. The sum total of individual dreams is vastly in excess of what the economy and society can provide. Many individuals, for a large variety of reasons, find their dreams of success are thwarted. Some find their lower order needs unsatisfied. Unable to find satisfactory employment, they seek to create it by starting a business. For others, it is higher order needs such as achievement and independence remain unfulfilled. They feel stifled within an organisation where they fail in the competition to climb the ladder of success. For others, even the success achieved within a large organisation is not enough, they seek to achieve self actualisation. In our society, for a great number of people, only one avenue to success remains open; starting a business. The

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pressure to succeed, whether it is generated within the individual themselves, or from the conditioning of society, is strong. This creates a vast pool of individuals strongly motivated to set up in business for themselves. Reynolds (1994) states that one in two U.S. adults have attempted to start up a business at some time in their life. In Reynolds (1995), he found that three percent of the adult U.S. population are involved in the process of starting up a new business at any one time, and Dennis (1997) put the figure at five percent. The New Zealand figure is probably similar to that for the U.S.

Driven by the desire for personal improvement, a large number of individuals are at any one time investigating, planning or in the process of starting a business. For many, the process will not go beyond the planning stage. A significant factor in whether or not to proceed with a new venture will be perceptions as to the risks and rewards. Variation in opinion will occur within any population, hence people will have very different perceptions as to risk and reward. Those with a pessimistic view of the probable outcome will abandon the idea of starting a business. However, there is a innate tendency amongst the general population to overestimate the chance of successful outcomes. Taylor and Brown (1988, 198) find that, "....considerable research evidence suggests that overly positive self evaluations, exaggerated perceptions of control or mastery, and unrealistic optimism are characteristics of normal human thought." Hoorens (1996) finds that this optimism is highest when events seem to be under a person's control, and running one's own business is certainly an activity where there is a large degree of personal control. The combination of normal variability amongst the population and the general tendency to optimism, will mean that a substantial portion of those starting up a business will be over optimistic about the chances of the business surviving and the returns that will be achieved.

If one assumes that the expected returns from starting a business are negative, or at least less than the return on a portfolio of listed shares, and the population is homogeneous as to expectations on risk and return, there will be no one willing to invest in the vast majority of new ventures. However, as there is inevitably some variation in expectations within the population, those with an optimistic view of outcomes may still be willing to invest when, on average, the overall consensus of

those hoping to start a business is that expected returns are negative. DeMeza and Southey (1996) in their model of business start-ups show that if it is assumed that entrepreneurs are risk lovers, then mean expected returns must be negative. Even where entrepreneurs are risk averse, deMeza and Southey show that it is optimists who become entrepreneurs as the selection process ensures that those with realistic expectations are unable or unwilling to fund the new venture.

The results of the study of New Zealand start-ups presented earlier clearly show a high degree of optimism as to both risks and returns. Clearly new entrants are dominated by optimists as deMeza and Southey (1996) predict. We can assume that the desire to own one's own business is a widespread characteristic amongst the general population. This is knownbecause at any one time, around three percent of the adult population have gone past the stage of thinking about the idea, to become actively involved in the start-up process. It is also known that the number of new ventures that actually start up is far higher than can possibly survive, and that the number of would-be entrepreneurs is far higher still, as not all will actually proceed with starting a business. The dynamics of what actually happens will be driven by the economy's demand for new businesses and the supply of new ventures provided by entrepreneurs, and it is certain that supply vastly exceeds demand. It is assumed that there are a range of opportunities available in the market place at any one time, and these will vary in quality from having a high profit potential to those with very low profit potential. The profit potential will also depend on the way in which the opportunity is exploited, the number of new ventures that compete for it, and the competitiveness of the existing firms and other new entrants.

Some of the opportunities that present themselves will have the potential to generate adequate returns for the risks involved, and those with a completely realistic view of risk and returns will be able to exploit them. On the other hand, there will be many opportunities where a realistic assessment would conclude that the potential returns are inadequate to compensate for the risk. If the degree of optimism amongst the population of would be entrepreneurs is generally high, then many of these opportunities will also be exploited. At the other extreme, there would be opportunities to compete in markets where even the most

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optimistic opportunity seekers would not exploit. The evidence that has been presented suggests that the oversupply of new ventures is economy wide, in other words, new venture founders will seek entry into every sector of the economy open to them. The tendency towards optimism ensures that it is not necessary for profitable opportunities to exist in order for a segment of the market to come under attack from a newcomer.

In order for most new ventures to survive, they must be able to overcome the liability of newness and drive another company somewhere in the economy from the market place. This is because the total market is limited in size and grows at a far slower rate than the number of new ventures that seek to exploit it. The liabilities of newness are substantial. It is far more costly to win a new market than to preserve an existing one. It takes time to build up sales, whereas overhead expenses are incurred from day one. Mistakes are made by new businesses and it takes time to learn from these mistakes. The new firm, therefore, needs significant advantages over the existing firm in order to compete. The existing firms against which newcomers compete have already survived a previous selection process, and it would be foolish to assume that they are easy targets for competitive attack by newcomers. Even firms that have failed to adapt to environmental changes can be formidable adversaries for newcomers.

It seems inevitable that most new firms soon discover the over optimism that drove their start-up decision, but once they are in the battle for survival their investment becomes a sunk cost, which is inevitably, partially or totally, lost if the firm ceases trading. Once started, they will continue to trade even when receiving less than they would earlier have considered an adequate return on investment. In order for them to continue trading, it is merely necessary for the business to be more attractive financially and personally than closure. The gamblers ruin model is the best analogy of the process that occurs. The gamblers ruin model as described by Borch (1968), Wilcox (1971, 1976) and Santomeno and Vinso (1977) assumes that business is a game where firms continue in business until they lose their initial investment. This corresponds well with the experience of what happens with start-up businesses. They continue in business until their losses are such that they run out of money. The founders, endowed with their innate

optimism, continue to believe that success is just around the corner and, undeterred by evidence to the contrary, often pour good money after bad in the vain hope that their luck will change.

In most financial markets, there are considerable periods of time when investors expectations as to returns are grossly inaccurate, however investors' expectations of returns are generally in line with actual market returns in the long run. This does not appear to be the case for start-up businesses, where the market appears to be grossly inefficient at allocating capital, and has probably always been so. The founders of new ventures, if taken as a class, would recieve higher returns for lower risk by investing in listed shares or bonds than they would receive on average from founding a new venture.

While it may not be in the financial interest of new venture founders as a class to invest in start-up businesses, it may be in society's interests that they do so. New ventures play an important role in economic development. They displace old firms who have ceased to adequately serve changing customer needs and are unable or unwilling to change. They introduce new ideas and new technologies. They offer new choices to consumers, thereby changing patterns of consumption. There can be little doubt that new ventures are needed, so the question that needs answering is how many new ventures provide the optimum results. It seems clear that new venture founders would benefit from fewer new ventures as this would lead to improved overall investment returns. When considered from the view point of economic efficiency it could also be argued that fewer firms and less crowding out would lead to less duplication of overhead structures and lower costs due to greater economies of scale. However, when viewed in terms of the economic progress of the economy, the answer is less certain. Short term gains in efficiency generated by fewer new firms may lead to a slowdown in the evolution of the economy which could lead to lower efficiency in the long term. It is, however, possible to argue that excessive competition harms the economy as a whole, for example Sun (1998) claims, "Market competition is like the quantity of money, both too much and too little are likely to harm the economy."

If one regards the economy as an evolving complex system, then new births will play an important role in the economic process of testing and selecting new products and services as well as new ways of doing business, particularly if one accepts the structural inertia theory favoured by organisational ecologists. If Hayek (1988) is correct and it is a "fatal conceit" to consider that skills are acquired by using our power of reason, then the progress that derives from new venture formation may be due in a large part to a trial and error process. Such a process would be fully compatible with the processes described by the evolutionary economists, and may be more of a Darwinian process than has formerly been recognised. We may need large numbers of new start-ups in order to provide the optimum amount of variation upon which the selection process can act. In the chaotic world of an evolving economy, a small change that is missed from the process may lead to major variations in long term economic patterns. Imagine how different today's restaurant trade would be if the franchise had not been devised and MacDonalds had not perfected this system which enabled large restaurant chains to gain a competitive edge in the fast food trade.

One can look at the problem by taking the two extremes. On the one hand it is possible to argue that the aim should be for a system where the number of new starts is substantially reduced, so that well managed new firms ensure that firms that have become inefficient or fail to change to meet changing consumer demand are forced out of business. This would allow better returns for those starting business and substantially reduce the risk of failure. On the other hand, we could argue that we need the maximum number of new firms possible in order to maximise the rate of economic change, and to give the greatest degree of variation upon which the selection process can operate. Under this scenario, the poor returns achieved from new ventures would be a necessary sacrifice for the common good and any attempt to deter new venture formation by better informing potential business founders of the risks and returns would be counterproductive to society as a whole.

It seems unlikely that simply maximising the number of new firms will lead to the optimum pace of economic advancement. Firstly, most new ventures are based on known and tested formulas of business organisation and do not have any great

degree of innovation as to products and services. They are simply "me too" businesses. Secondly, the competitive pressure of large numbers of new firms may make it more difficult for new ventures to survive thus eliminating those ventures who, while being highly innovative, are extremely vulnerable during their early lives but could grow to be highly competitive and successful once they have developed a recipe for success. In addition, it should not be assumed that maximising the rate of change automatically means the resulting change is beneficial. There is no natural law that guarantees change will be for the better.

A healthy supply of new firms is essential for a flourishing economy. Many of the firms that now dominate certain sectors of the economy did not exist twenty years ago, particularly in areas of the economy which are rapidly changing such as information technology. The Schumpeter (1942, 85) view of competition holds that new entrants are unnecessary to create the benefits of competition, as the mere threat of such competition will suffice. However, it is well recognised that new firms are key providers of innovation and hence, a healthy supply of innovative new firms is an essential element of a healthy economy. The real question is what level of new firm formation provides the optimum outcome. There is no easy answer to this question, especially as the quality of the new firms is probably just as important, if not more important, than the quantity.

It would be valid to argue that the only way to determine the optimum level of new firm formation would be to allow the market to decide, however market forces can only be relied upon to deliver optimum outcomes when they function correctly. Determining how well the market is functioning is problematic, as it is difficult to analyse new venture formation as if it were a market process. Even though an investment is being made, there is no buyer and seller for that investment as such. The entrepreneur's money is being spend on the goods, services and human capital needed to start the business, rather than in purchasing a financial security. The business founder, by purchasing goods and services and bundling them together into a package, creates a future income stream that we call a business. There is a market for buying and selling businesses as a going concern, but no market exists that effectively prices unexploited opportunities for would-be entrepreneurs.

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The process of exploiting business opportunities would theoretically work best where entrepreneurs were able to accurately establish the risks and rewards of each new venture opportunity, and invest in only those where the risks justified the rewards. If this were to occur, then new ventures would all have some potential competitive advantage over existing firms whether it be a more efficient way of doing business or a better way of satisfying customer tastes or demands. Those new ventures that succeeded would take customers off existing firms and those who failed to maintain a profitable customer base would fail, leaving room for new firms. This situation does not occur because there is insufficient information upon which business founders can establish the true risks and rewards, and even if they could, their natural tendency to optimism would affect their judgement.

Governments regularly make public policy decisions affecting start-up businesses in the belief that stimulating more new ventures will lead to economic benefits. Some of these interventions are clearly counterproductive, such as New Zealand initiatives to encourage the long term unemployed to start their own business. If the long term unemployed had the skills, experience and initiative needed start a successful business, they would not be unemployed for long.

Not all programs are as demonstrably counterproductive. Many that target encouraging innovative, new and young firms possibly assist in encouraging the types of new businesses that their economies need. It is possible to argue against such schemes on the basis that the state should not intervene as market forces would provide a better outcome, and certainly governments have consistently demonstrated their inability to pick winners. Schemes which facilitate private sector involvement, or back firms that have been selected by success in the market place as future winners by, may be beneficial, and no evidence has been produced in this study to suggest they are counterproductive.

There is a different type of intervention which may make much more sense than interventions to encourage more businesses or particular businesses to start up. That is, intervention to discourage the wrong type of new ventures from being founded. It is not suggested that any restrictions or disincentives should be put in

place. Everyone has the right to follow their dream, no matter how little sense it makes to others. It is impossible to accurately judge which firms will succeed as only testing in the market can prove the viability of most ventures. Instead, it is proposed that the new venture decision making process could be improved by better information being available on the risks and returns of new ventures.

Our economies are dominated by market forces. These markets are generally efficient and information is the cornerstone of this efficiency. In most nations new firms make up a significant sector of the economy, and small firms employ around 50 percent of the work-force and generate about 30 percent of GDP. Thus, the equity invested in small unlisted firms is of similar importance to an economy as that invested in listed firms. Investors in listed firms have a vast amount of information upon which to make investment decisions. Investors in start-up businesses have almost none. If reliable and comprehensive information was available on a regular basis on the failure rates of new businesses and the returns achieved by survivors, expectations would become more realistic and the oversupply of new ventures would reduce. Many would-be entrepreneurs would be spared the life shattering experience of losing their entire savings in a battle against the odds, and those who chose to try would do so with their eyes open. The chances of this happening, however, are remote as the current trend is for less information to be collected on small business, not more.

If the research presented in this dissertation does nothing else, it will at least provide another contribution to the small amount of data on the success rates of start-ups. It is, of course, hoped that it will also provide a new way of looking at the whole question of new ventures' role in the economy.

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Appendix 1   Summary of Survival Studies on Start-up Businesses

This table summarises the studies on failure rates of start-up businesses that were identified in the literature. It inevitably overlooks some studies and not all data is published.

Author of Study	Time-frame	Business Population Studied	Failure Rates Found	Failure Definition
D&B cited in Cochran (1981)	Up to1978	U.S.	53.2% of failures 5 years or less in age, 27.4% of failures 6 to 10 yeas old, 19.4% survivors more than 10 years old.	Discontinuance with loss to creditors.
D&B cited in Massel (1987)	Up to 1974	U.S.	30.5% of failures 3 years or less in age, 57.4% less than 5 years of age, 80.1% less than 10 years old.	Discontinuance with loss to creditors.
Churchill cited in Cochran (1981)	1946-1954	U.S. Retailers	50% failed within 2 years, 66% within 4 years, 80% within 10 years.	Discontinuance for any reason, or sale.
Hutchinson, Hutchinson and Newcomer (1937)	1843-1936	Poughkeepsie, New York	29.8% failed within 1 year, 43.4% 2 years, 53.1% 3 years, 59.5 4 years, 64.5%, 5 years, 78.6% 10 years.	Discontinuance for any reason, or sale.
McGarry (1934) cited in Dickinson (1981)	1919-1927	Retail firms in Buffalo U.S.	Between 27% and 60% of retailers failed in the first year.	Discontinuance for any reason, or sale.
Boer cited in Hutchinson, Hutchinson and Newcomer (1937)	1925-1934	Retail firms in Pittsburg, U.S.	28.6% failed in the first year.	Discontinuance for any reason, or sale.

Appendix 1 cont.

Author of Study	Time-frame	Business Population Studied	Failure Rates Found	Failure Definition
Kirchhoff cited in Alley (1993)	1992	U.S.	18% in the first 8 years.	Discontinuance corrected for change of ownership & voluntary terminations.
Altman (1993)	1980	U.S.	25.8% of failed businesses less that 3 years old, 53.68% less that 5 years old, 81.7% less than 10 years old.	Closure with loss to creditors.
	1990	U.S.	31.4% of failed businesses less that 3 years old, 49.8% less that 5 years old, 74.1% less than 10 years old.	
Churchill, cited in Birley (1986)	1955	U.S.	30% of firms fail in the first year.	Discontinuance for any reason.
Hoad & Roscoe, cited in Birley (1986)	1964	U.S.	43% of firms fail in the first 3 years.	Discontinuance for any reason.
Siropolis Roscoe, cited in Birley (1986)	1977	U.S.	50% of firms fail within 18 months.	Discontinuance for any reason.

Appendix 1 cont.

Author of Study	Time-frame	Business Population Studied	Failure Rates Found	Failure Definition
Dawit (1983)	1978-1982	U.S.	Of those who fail 10% fail in the first 2 years, 44% within 3 years, 54.5% within 5 years and 81.5% within 10 years.	Discontinuance with loss to creditors.
Hollander (1967) cited in Dickinson (1981)	Unknown	U.S.	Failures by age. 1 yr 33% 2 yrs 51%, 3 yrs 58%, 4 yrs 63%, 5 yrs 67%, 6 yrs 71%, 7 yrs 74%, 8 yrs 77%, 9 yrs 79%, 10 yrs 80%.	Discontinuance for any reason.
Hoad and Rosko (1964) cited in Dickinson (1981)	Unknown	95 Manufacturing firms in Michigan.	35% failed within 3 years.	Discontinuance.
Kinnard and Malinowski (1960) cited in Dickinson (1981)	1953-1958	278 Manufacturing firms in Connecticut.	44% failed within 4 years.	Discontinuance.
Edelstein (1975) cited in Dickinson (1981)	Unknown	U.S.	33% fail within 5 years.	Discontinuance for any reason.
Duncan and Handler (1994)	1985 start-ups	U.S.	30.3% fail within 8.75 years.	Discontinuance.

Author of Study	Time-frame	Business Population Studied	Failure Rates Found	Failure Definition
Ganguly (1985)	1973-1982	U.K.	18.1% fail within 1 year, 2 yrs 29.9%, 3 yrs 38.9%, 4 yrs 45.8%, 5 yrs 52.2%, 6 yrs 55.3%, 7 yrs 58.3%, 9 yrs 57.0%.	VAT deregistration.
Birch (1978)	1970-1985	U.S.	50% fail within 5 years, 62% fail in 10 years and 69% fail within 15 years.	Discontinuance for any reason, or sale.
Phillips and Kirchhoff (1989)	1976-1978	U.S.	60.1% of business with under 500 employees fail in their first 6 years.	Discontinuance for any reason, or sale.
Star and Massel (1981)	1974	Illinois Retailers	66.8% fail within 5 years.	Discontinuance for any reason.
Etcheson (1962) cited in Star and Massel (1981)	1952 to 1957	U.S. Retailers	Of businesses that failed 16.8% did in first year, 38.1% by the end of 2nd, 48.8% 3rd, 56.1% 4th, 64.2% 5th and 70.0% by end of 6th.	Discontinuance for any reason.
Dunne, Robertson and Sameulson (1989)	1967-77	U.S. Manufacturers	45% had failed by the end of Year 5.	Discontinuance for any reason.

Appendix 1 cont.

Author of Study	Time-frame	Business Population Studied	Failure Rates Found	Failure Definition
Tauzell (1982) cited in Watson and Everett (1996)	1977-1980	U.S.	35% had failed by the end of Year 4.	Discontinuance for any reason.
Stanworth (1995)	1984-1994	U.K. franchises	52% had failed by their 10th year.	Discontinuance for any reason.
Smallbone (1990)	1990	U.K.	37.5% failed within 2.5 years.	Discontinuance for any reason.
Watson and Everett (1996)	1961-1990	Australian shopping centre tenants	39.1% failed in first 5 years.	Discontinuance for any reason.
Williams (1987)	1973-1985	Australia	31.6% failed in 1st year, 46.9% by end of 2nd year, 57.1% by year 3, 60.9% yr 4, 65.6% yr 5, 87.3% by year 10.	Ceasing trade

Appendix 2   Survival Rate Statistics

Survival Rates of New Stand-alone Ventures (Singles)

The percentage of new ventures which survive at the end of each year since start-up are presented for each of the three classifications of business type. The data is derived from the Statistics New Zealand business demography database using data for the period 1987 to 1994. The data presented is for enterprises that consisted of a single activity unit, that is stand-alone new ventures.

Sole Traders

	1 year	2 years	3 years	4 years	5 years	6 years
Born 1988	81.30	68.22	56.90	50.96	43.28	38.92
Born 1989	77.17	63.71	55.39	47.81	41.99	
Born 1990	79.70	65.96	54.30	47.20		
Born 1991	79.49	63.28	54.71			
Born 1992	78.81	64.27				
Born 1993	82.14					
Average	79.77	65.09	55.33	48.66	42.63	38.92

Partnerships

	1 year	2 years	3 years	4 years	5 years	6 years
Born 1988	80.16	66.95	55.00	47.56	40.77	36.06
Born 1989	70.71	57.68	49.65	42.36	37.30	
Born 1990	79.72	65.08	53.74	47.10		
Born 1991	74.38	59.57	51.74			
Born 1992	80.67	66.67				
Born 1993	81.42					
Average	77.84	63.19	52.53	45.67	39.04	36.06

Companies

	1 year	2 years	3 years	4 years	5 years	6 years
Born 1988	84.01	71.19	59.47	53.22	45.27	40.73
Born 1989	77.74	64.45	56.47	48.11	43.31	
Born 1990	81.99	70.49	58.65	52.63		
Born 1991	81.74	66.44	58.59			
Born 1992	83.20	71.46				
Born 1993	86.96					
Average	82.61	68.81	58.30	51.32	44.29	40.73

All Business Types Combined

	1 year	2 years	3 years	4 years	5 years	6 years
Born 1988	82.13	69.24	57.46	51.27	43.65	39.24
Born 1989	75.81	62.43	54.40	46.56	41.38	
Born 1990	80.59	67.53	55.86	49.27		
Born 1991	79.07	63.53	55.43			
Born 1992	80.66	68.12				
Born 1993	83.90					
Average	80.36	66.17	55.79	49.03	42.52	39.24

Survival Rates of Ventures Started by Existing Enterprises (Multies)

The percentage of new ventures which survive at the end of each year since start-up are presented for each of the three classifications of business type. The data is derived from the Statistics New Zealand business demography database using data for the period 1987 to 1994. The data presented is for new activity units started up by enterprises that already operate at least one activity unit.

Sole Traders

	1 year	2 years	3 years	4 years	5 years	6 years
Born 1988	88.64	79.55	68.18	50.00	40.91	40.91
Born 1989	81.75	61.31	57.66	49.64	45.26	
Born 1990	64.95	54.64	46.39	41.24		
Born 1991	64.58	49.58	44.17			
Born 1992	70.00	60.00				
Born 1993	86.41					
Average	76.05	61.02	54.10	46.96	43.08	40.91

Partnerships

	1 year	2 years	3 years	4 years	5 years	6 years
Born 1988	83.53	70.59	68.24	64.71	56.47	55.29
Born 1989	81.78	64.78	59.51	49.39	47.37	
Born 1990	78.49	68.60	56.40	54.07		
Born 1991	65.38	52.47	49.73			
Born 1992	67.47	65.06				
Born 1993	82.04					
Average	76.45	64.30	58.47	56.06	51.92	55.29

Companies

	1 year	2 years	3 years	4 years	5 years	6 years
Born 1988	76.38	64.33	56.06	50.34	46.14	44.28
Born 1989	80.42	66.74	57.51	49.81	46.84	
Born 1990	82.01	70.63	63.77	58.73		
Born 1991	86.49	73.31	66.09			
Born 1992	87.68	80.50				
Born 1993	90.68					
Average	83.94	71.10	60.85	52.96	46.49	44.28

All Business Types Combined

	1 year	2 years	3 years	4 years	5 years	6 years
Born 1988	82.30	71.15	63.33	56.54	49.71	46.54
Born 1989	83.05	69.77	60.09	52.35	49.22	
Born 1990	81.59	69.63	62.24	58.08		
Born 1991	85.99	74.64	69.27			
Born 1992	87.32	79.89				
Born 1993	90.32					
Average	85.10	73.02	63.73	55.66	49.46	46.54

Appendix 3   Survival Rate of all Businesses Present in 1987

This is a list of percentage of businesses of all ages present in 1987 which survived over the next seven years

Sole Traders (Singles)	1 year	2 years	3 years	4 years	5 years	6 years	7 years
1 Agric. Hunting Forestry & Fishing	85.5	75.4	65.4	54.2	47.5	42.4	37.1
2 Mining & Quarrying	81.8	72.7	61.8	58.2	50.9	49.1	40.0
3 Manufacturing	85.9	76.2	69.4	61.2	57.0	53.1	50.0
5 Construction	87.6	77.4	69.9	61.3	56.5	51.9	48.1
61 Wholesale Trade	80.9	69.0	60.2	51.7	47.9	41.3	38.1
62 Retail Trade	80.7	70.8	68.0	58.0	54.4	49.7	46.1
63 Restaurants & Hotels	75.7	68.5	69.8	62.7	61.9	60.8	59.0
7 Transport	86.1	77.6	64.9	52.7	46.8	41.4	35.0
8 Business & Financial Services	84.7	74.2	66.8	58.9	53.9	46.7	43.9
9 Community Social & Personal Serv	88.6	82.3	79.2	72.5	69.6	65.6	62.8
Total	85.7	76.5	70.1	61.4	57.0	52.2	48.5

Partnerships (Singles)	1 year	2 years	3 years	4 years	5 years	6 years	7 years
1 Agric. Hunting Forestry & Fishing	85.9	76.7	68.7	58.7	52.0	46.6	41.7
2 Mining & Quarrying	86.6	73.1	59.7	49.3	43.3	38.8	37.3
3 Manufacturing	86.3	78.9	73.1	65.9	62.3	59.4	56.1
4 Electricity Gas & Water	75.0	25.0	25.0	25.0	25.0	0.0	25.0
5 Construction	85.5	76.7	69.3	61.6	57.1	52.7	49.0
61 Wholesale Trade	82.5	72.9	63.9	56.2	52.0	47.1	43.5
62 Retail Trade	82.6	75.8	74.0	66.8	63.7	59.1	56.2
63 Restaurants & Hotels	81.3	77.2	78.3	75.0	75.1	73.2	71.3
7 Transport	87.1	80.5	66.9	57.5	51.9	47.0	41.3
8 Business & Financial Services	84.7	77.5	70.5	64.7	61.0	55.1	53.0
9 Community Social & Personal Serv	86.7	81.8	77.3	71.5	68.4	64.6	61.8
Total	84.5	77.6	72.7	65.9	62.4	58.2	55.1

Companies (Singles)	1 year	2 years	3 years	4 years	5 years	6 years	7 years
1 Agric. Hunting Forestry & Fishing	90.5	83.2	74.9	66.4	61.9	56.2	51.7
2 Mining & Quarrying	89.9	82.4	75.5	70.3	65.0	60.5	57.8
3 Manufacturing	91.6	83.8	78.4	72.4	68.7	65.1	63.0
4 Electricity Gas & Water	100.0	50.0	50.0	50.0	50.0	50.0	40.0
5 Construction	92.3	84.2	76.2	69.0	64.7	59.8	56.9
61 Wholesale Trade	89.8	80.0	73.0	65.8	61.5	56.0	53.4
62 Retail Trade	88.9	81.8	79.9	73.5	70.8	67.2	64.9
63 Restaurants & Hotels	83.1	78.4	78.6	73.0	72.4	70.9	68.8
7 Transport	91.1	83.5	76.0	69.1	64.9	59.2	55.6
8 Business & Financial Services	89.4	78.4	68.1	60.0	54.3	48.0	44.3
9 Community Social & Personal Serv	91.2	84.7	80.1	73.7	70.4	66.6	63.5
Total	90.1	82.0	76.3	69.5	65.8	61.3	58.6

All Business Types Combined (Singles)	1 year	2 years	3 years	4 years	5 years	6 years	7 years
1 Agric. Hunting Forestry & Fishing	86.6	77.3	68.2	57.8	51.6	46.3	41.2
2 Mining & Quarrying	88.3	79.7	71.3	65.4	59.8	55.6	52.3
3 Manufacturing	89.5	81.3	75.5	68.8	65.1	61.5	59.0
4 Electricity Gas & Water	87.6	77.3	69.9	61.3	56.5	51.8	48.1
5 Construction	89.2	80.5	72.7	65.2	60.8	56.0	52.8
61 Wholesale Trade	84.8	75.0	69.9	61.3	57.4	52.3	49.2
62 Retail Trade	86.1	79.0	77.4	70.7	68.0	64.2	61.8
63 Restaurants & Hotels	83.7	77.7	73.0	65.5	63.1	59.8	56.1
7 Transport	87.0	78.1	69.3	61.4	56.5	50.2	46.6
8 Business & Financial Services	88.4	80.1	73.6	66.4	62.3	57.1	54.0
9 Community Social & Personal Serv	89.0	83.3	78.8	72.6	69.4	65.6	62.7
Total	87.3	79.1	73.3	65.8	61.9	57.4	54.2

Sole Traders (Multies)	1 year	2 years	3 years	4 years	5 years	6 years	7 years
1 Agric. Hunting Forestry & Fishing	90.0	70.0	70.0	70.0	70.0	50.0	50.0
2 Mining & Quarrying	NA	NA	NA	NA	NA	NA	NA
3 Manufacturing	78.1	62.5	53.1	56.3	46.9	37.5	37.5
4 Electricity Gas & Water	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5 Construction	73.3	46.7	40.0	40.0	40.0	40.0	33.3
61 Wholesale Trade	61.5	46.2	38.5	23.1	23.1	7.7	7.7
62 Retail Trade	84.2	65.5	62.6	56.7	56.2	48.3	43.8
63 Restaurants & Hotels	68.4	60.5	63.2	50.0	47.4	42.1	36.8
7 Transport	60.0	45.0	45.0	40.0	40.0	35.0	30.0
8 Business & Financial Services	83.9	69.4	62.1	58.9	57.3	52.4	47.6
9 Community Social & Personal Serv	83.7	72.9	68.0	66.5	65.5	63.1	62.1
Total	81.5	66.7	62.3	58.4	57.0	51.4	48.2

Partnerships (Multies)	1 year	2 years	3 years	4 years	5 years	6 years	7 years
1 Agric. Hunting Forestry & Fishing	95.2	90.5	76.2	81.0	76.2	76.2	76.2
2 Mining & Quarrying	NA	NA	NA	NA	NA	NA	NA
3 Manufacturing	85.5	75.0	68.4	60.5	56.6	52.6	47.4
4 Electricity Gas & Water	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5 Construction	81.0	66.7	57.1	57.1	52.4	38.1	38.1
61 Wholesale Trade	78.3	69.6	60.9	47.8	47.8	34.8	34.8
62 Retail Trade	81.4	73.1	71.3	65.1	61.2	57.4	53.5
63 Restaurants & Hotels	87.3	78.4	76.5	72.5	69.6	67.6	63.7
7 Transport	92.9	89.3	78.6	78.6	78.6	53.6	53.6
8 Business & Financial Services	88.4	80.7	76.4	73.1	71.9	67.2	67.0
9 Community Social & Personal Serv	91.2	88.3	85.7	82.9	79.2	76.4	76.4
Total	87.2	80.2	76.6	72.5	69.9	65.5	64.1

Companies (Multies)	1 year	2 years	3 years	4 years	5 years	6 years	7 years
1 Agric. Hunting Forestry & Fishing	85.7	71.4	66.4	61.3	55.9	53.8	52.9
2 Mining & Quarrying	93.0	82.2	77.7	73.9	73.9	70.7	68.8
3 Manufacturing	88.8	76.4	70.8	65.9	61.1	57.8	55.5
4 Electricity Gas & Water	92.3	100.0	92.3	84.6	84.6	84.6	76.9
5 Construction	87.5	76.3	68.5	62.6	58.5	49.1	46.3
61 Wholesale Trade	90.2	75.8	68.3	64.8	60.7	57.7	56.1
62 Retail Trade	89.1	79.3	74.1	67.7	61.8	57.0	53.4
63 Restaurants & Hotels	92.9	83.8	79.8	75.4	71.9	67.4	65.9
7 Transport	86.5	75.6	70.1	66.4	62.0	57.2	54.6
8 Business & Financial Services	93.6	85.8	81.0	76.1	69.3	65.1	60.3
9 Community Social & Personal Serv	91.3	80.1	76.0	71.1	68.1	63.3	63.6
Total	89.9	78.8	73.1	68.1	63.1	59.0	56.2

All Business Types Combined (Multies)	1 year	2 years	3 years	4 years	5 years	6 years	7 years
1 Agric. Hunting Forestry & Fishing	86.6	72.9	67.3	63.2	58.0	55.4	54.6
2 Mining & Quarrying	93.0	82.2	77.7	73.9	73.9	70.7	68.8
3 Manufacturing	88.6	76.3	70.5	65.7	60.9	57.5	55.2
4 Electricity Gas & Water	82.1	71.4	64.3	60.7	60.7	60.7	53.6
5 Construction	86.7	75.3	67.4	61.6	57.6	47.8	45.1
61 Wholesale Trade	89.9	75.3	68.0	64.3	60.5	57.2	55.4
62 Retail Trade	88.5	78.8	73.9	67.4	61.6	56.9	53.3
63 Restaurants & Hotels	91.3	82.0	78.4	74.1	70.8	66.5	64.7
7 Transport	86.4	75.4	69.7	66.1	61.9	56.8	54.1
8 Business & Financial Services	92.3	84.3	79.5	75.1	69.6	65.3	61.5
9 Community Social & Personal Serv	91.3	82.4	78.7	74.3	71.2	66.8	67.1
Total	89.5	78.6	73.0	68.2	63.4	59.2	56.6

Appendix 4 Five Year Survival Rates by Three Digit SIC Categories

The percentage of firms which survived their first five years in business are presented below. The figures are spit out into multi and single business activity units for each of the two years for which five-year data was available. The overall figure for both years and both business types combined is also presented, as are the number of firms in each category. The data is assorted according to increasing overall survival. Where cells are left blank it indicates that no firms exist for the category. The data is derived from the Statistics New Zealand business demography database using relevant data for the period 1987 to 1994.

| | Started in 1988 | | Started in 1989 | | Overall | Firms in |
	Singles (%)	Multies (%)	Singles (%)	Multies (%)	Average (%)	Category
521 Project Mgmt for Other Construct.	16.7		0.0		11.1	9
822 Superannuation & Mutual Funds	13.3		16.7		14.3	21
113 Hunting Trapping & Nox. Animal Cont	16.7		25.0		19.0	42
910 Public Admin & Defence	0.0		33.3		25.0	8
220 Crude Petroleum & Nat Gas Production	21.4		33.3		26.1	23
210 Coal Mining	45.5		0.0	0.0	27.8	18
230 Metal Ore Mining	22.4	100.0	40.6	0.0	29.1	86
121 Forestry	26.8	33.3	37.3	50.0	31.2	215
622 Food Beverages & Tobacco Products	35.6	36.8	30.8	45.5	32.8	1800
354 Misc. Products of Petroleum & Coal	25.0		40.0		33.3	9
420 Water Works & Supply	0.0	0.0	100.0	0.0	33.3	3
511 Project Mgmt Construction of Bldgs	38.1		25.0		33.3	33
932 Research & Scientific Institutes	100.0		28.6		33.3	9
812 Other Financing	47.1	5.9	45.8	6.3	34.3	108
813 Investment	33.6	50.0	35.7	21.4	34.6	1253
612 Food Beverages & Tobacco Products	36.8	26.3	33.3	36.4	34.8	420
720 Communication	35.2	59.0	32.5	0.0	35.6	547
131 Ocean & Coastal Fishing	38.1	50.0	34.3	0.0	36.2	309
625 Household Appliances & Furniture	36.2	44.2	34.6	41.8	36.7	937
371 Iron & Steel Basic Industries	33.3		42.9		36.8	19
943 Racing & Associated Services	37.6	100.0	37.1	0.0	37.1	151
831 Real Estate	37.0	60.7	31.2	56.3	37.5	1393
631 Restaurants Cafes etc	43.5	63.0	34.9	41.7	37.8	2083
629 Retail Trade nec	37.8	45.5	37.0	39.8	37.9	1461
713 Air Transport	31.7	62.5	38.8	53.8	38.5	130
323 Leathergoods Furdressing & Dyeing	47.8	50.0	34.8	0.0	39.2	51
623 Textiles Clothing & Footwear	37.6	43.2	33.6	55.0	39.6	881
632 Motels Hotels etc	45.5	37.5	36.9	60.0	39.9	586
341 Paper & Paper Products	30.4	100.0	33.3	50.0	40.0	50
942 Libraries Museums & Other Culture	0.0	100.0	60.0		40.0	10
920 Sanitary & Cleaning Services	42.4	25.0	38.8	45.5	40.2	632
322 Apparel	40.0	57.1	43.0	26.1	40.4	307
621 Animals & Unprocessed Primary Prods	44.2	85.7	36.8	42.9	41.0	271
311 Food	44.0	41.2	37.5	48.4	41.2	374

	Started in 1988		Started in 1989		Overall	Firms in
	Singles	Multies	Singles	Multies	Average	Category
613 Textiles Clothing & Footwear	43.1	42.9	41.8	14.3	41.2	165
619 Wholesale Trade nec	41.9	48.6	39.0	56.6	41.3	1087
381 Fabricated Metal Products	43.5	23.5	37.6	58.6	41.5	564
510 Construction of Buildings	42.1	27.3	40.7	36.4	41.5	2605
355 Rubber Products	25.0	100.0	50.0	0.0	41.7	24
821 Insurance	31.3	61.0	47.1	24.4	41.7	115
331 Wood & Wood Products	47.2	100.0	31.2	47.8	42.0	350
332 Furniture & Fixtures	43.5	50.0	41.0	28.6	42.0	326
628 Transport Vehicles & Fuels	43.5	48.7	40.8	46.0	42.3	1339
531 Ancillary Construction Services	43.0	50.0	43.0	0.0	42.7	468
112 Agricultural Services	41.1	33.3	47.2	14.3	43.0	841
624 Paint Paper & Hardware	41.7	54.5	44.6	37.9	43.1	216
814 Services to Finance & Investment	40.5	40.0	46.7	41.9	43.3	277
627 Pharmaceuticals Cosmetics etc	38.7	100.0	46.7	0.0	43.4	159
530 Ancillary Construction Services	43.6	33.3	44.0	31.6	43.6	3157
626 Paper Products	41.5	55.6	44.3	41.2	43.7	222
321 Textiles	42.4	40.0	45.7	50.0	44.0	193
945 Amusement & Recreational Services	46.6	46.2	41.6	37.5	44.1	390
832 Business Services	43.9	41.7	44.8	44.9	44.3	5639
711 Land Transport	45.5	27.8	45.2	43.5	44.3	2039
132 Fishing In Inland Waters	45.5	50.0	38.5	100.0	44.4	63
614 Building Materials Supplies etc	43.2	35.3	45.9	53.1	44.7	358
834 Publishing	45.1	33.3	44.8	45.5	44.7	152
520 Construction Other Than Buildings	47.0	57.1	42.6	72.7	45.2	599
382 Machinery(excl Electrical)	46.6	38.5	44.8	39.1	45.4	779
611 Unprocessed Primary Products	46.2	16.7	43.8	57.9	45.5	154
952 Dry Cleaning & Laundry	56.7	45.5	39.7	50.0	45.6	103
361 Pottery China & Earthenware	44.0	0.0	47.1	100.0	45.7	46
944 Sporting & Recreation Clubs & People	44.4		50.0		45.8	24
951 Repair Services nec	50.6	50.0	41.4	51.6	46.0	955
324 Footwear	70.0	40.0	37.5	0.0	46.2	26
390 Other Manufacturing Industries	46.4	50.0	46.3	44.4	46.3	203
351 Industrial Chemicals	66.7	33.3	38.9	60.0	46.9	32
615 Household Appliances & Furniture	52.9	50.0	37.1	50.0	47.1	104
618 Metals Machinery & Equipment	42.4	48.1	50.6	49.6	47.3	1022
369 Other Non-metallic Mineral Prods.	59.3	44.4	33.3	100.0	47.5	61
290 Other Mining & Quarrying	33.3	0.0	52.6	75.0	47.7	44
356 Plastic Products nec	46.5	33.3	46.7	100.0	48.2	83
384 Transport Equipment	49.0	33.3	47.4	54.5	48.5	264
959 Miscellaneous Personal Services	54.7	65.2	43.8	54.2	48.6	766

Cont....

|	Started in 1988		Started in 1989		Overall	Firms in
	Singles	Multies	Singles	Multies	Average	Category
312 Food	59.3	100.0	43.6	28.6	48.6	74
352 Other Chemical Products	60.0	22.2	42.9	66.7	49.0	51
833 Machinery & Equipment Rental	48.2	42.1	50.5	59.1	49.8	223
291 Mining Consultants	57.1		41.7		50.0	26
953 Domestics Services	50.0		50.0		50.0	8
410 Electricity Gas & Steam		0.0		100.0	50.0	2
719 Services Allied to Transport	48.1	51.7	51.6	51.3	50.3	449
617 Pharmaceuticals Chemicals etc	47.3	75.0	46.2	57.1	50.6	170
383 Electrical Machinery etc	54.4	47.1	49.2	33.3	50.6	164
362 Glass & Glass Products	58.8	0.0	65.2	44.4	50.8	65
313 Beverage	33.3	42.9	69.2	57.1	52.8	36
342 Printing Publishing & Allied Ind	55.2	42.9	53.6	33.3	52.8	324
823 Services to Super & Insurance	47.5	90.0	55.0	61.1	53.4	268
122 Logging & Other Timber Felling	58.1		49.1		53.9	152
931 Education Services	53.8		54.7	66.7	54.6	251
616 Pulp Paper & Paper Products	54.3	75.0	43.6	62.5	54.7	106
133 Fishing Consultants	50.0		60.0		55.6	9
123 Forestry & Logging Mgmt & Consulting	46.7		62.5	100.0	56.0	25
941 Motion Picture & Other Entertaining	55.2	0.0	58.8	42.9	56.4	544
712 Water Transport	52.2	71.4	52.6	61.5	56.5	62
934 Welfare Services	66.7	100.0	49.4	66.7	56.8	132
372 Non-ferrous Basic Metal Industries	50.0	100.0	40.0	100.0	57.1	21
933 Medical Dental & Veterinary Serv	57.4	68.2	58.7	61.5	58.5	1032
385 Professional Scientific etc Equip	83.3	0.0	63.6	0.0	60.0	20
811 Banking	50.0	72.7		60.0	63.2	38
Total	43.3	46.6	41.2	46.8	42.7	44517

Appendix 5   The Effect of Size on Five Year Survival Rate

Data is presented on the percentage of start-up businesses which survive their first five years in business. It is split out into multi and single activity units, according to whether the business is located in a rural or urban area, and by the size of the business in terms of employee numbers at start-up. The data is derived from the Statistics New Zealand business demography database using relevant data for the period 1987 to 1994.

| | Number of Employees at Start-up | | | | | | | |
	0	0.5	1	2-3	4-5	6-10	11-25	25+
Single All Areas	24.91	38.19	43.54	47.18	49.08	46.07	45.25	42.57
Single Urban Area	26.19	39.04	43.43	47.49	49.48	45.61	44.52	40.44
Single Non Urban	22.80	36.74	43.74	46.76	48.57	46.72	46.42	45.83
Multi All Areas	30.73	35.94	41.65	49.44	51.98	55.60	54.24	60.20
Multi Urban Area	29.16	36.36	39.00	47.28	48.34	53.66	54.38	58.62
Multi Non Urban	32.44	35.48	44.90	52.42	58.19	58.93	53.98	64.71
Overall	25.51	38.11	43.47	47.35	49.48	47.77	47.63	49.50

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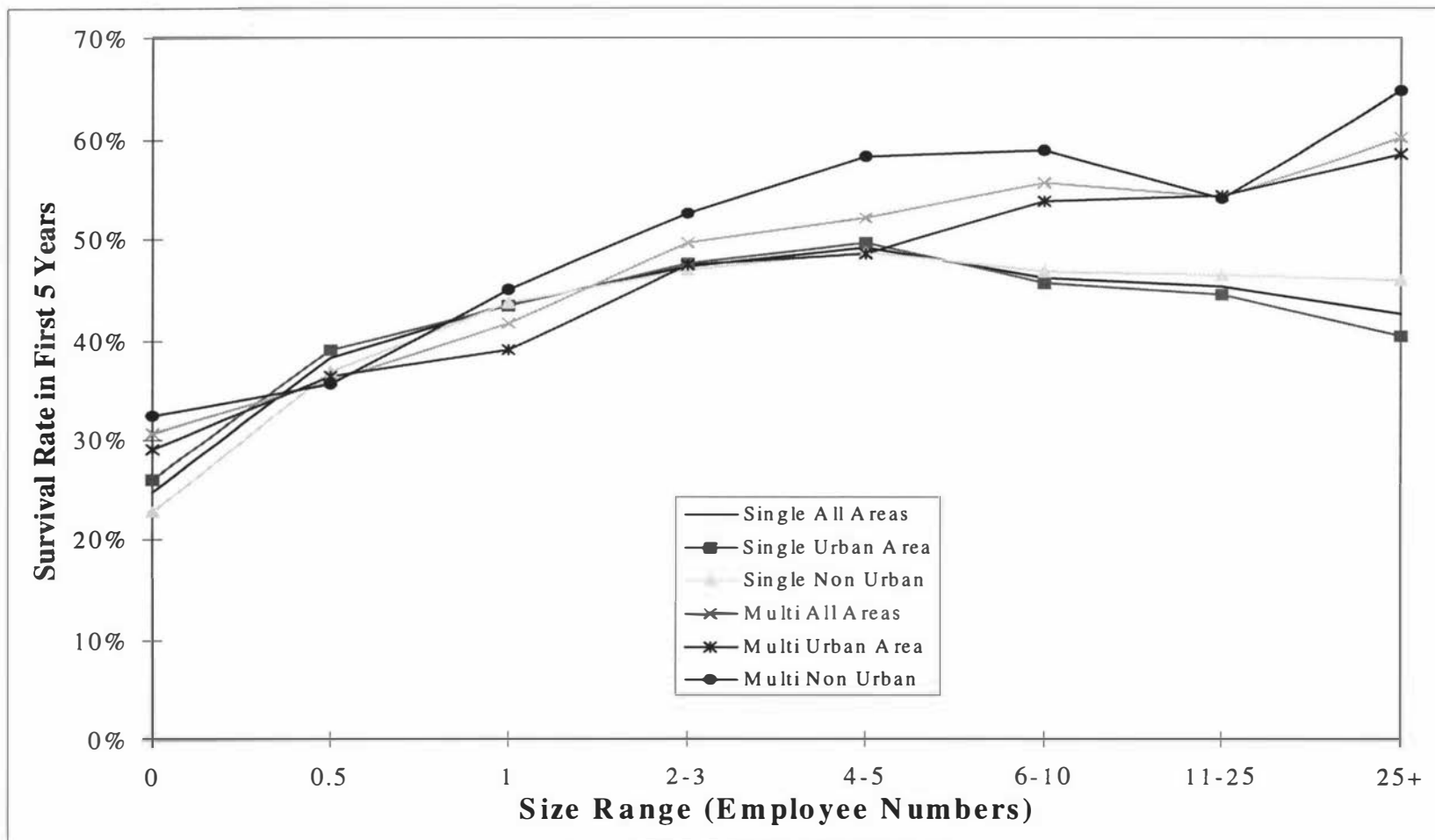
Figure 16   The Effect of Size on Five Year Survival Rate

The percentage of start-up businesses which survive their first five years in business is graphed. It is split out into multi and single activity units, according to whether the business is located in a rural or urban area, and by the size of the business in terms of employee numbers at start-up. The data is derived from the Statistics New Zealand business demography database using relevant data for the period 1987 to 1994.

Appendix 6   Annual Growth Rates of Singles Still Trading After Five Years

This table presents the growth rate achieved by new ventures in their first five years of existence. The data presented is the percentage of stand-alone new ventures in each growth category. The data is split out according to employee numbers which is used as a measure of firm size. The data is derived from the Statistics New Zealand business demography database using relevant data for the period 1987 to 1994.

Annual Growth Rates	Less than 1 Employee	1 Employee	2 to 3 Employees	4 to 5 Employees	6 to 10 Employees	11 to 25 Employees	More than 25 Employees	Overall
Less than -50%	3.30	1.58	1.22	1.93	1.98	2.17	6.98	1.63
-49.9% to -25%	0.00	0.00	0.46	3.00	6.25	7.49	7.75	1.12
-24.9% to -15%	0.00	0.00	4.81	11.66	11.04	10.39	13.95	4.12
-14.9% to -7.5%	0.00	5.92	17.80	14.99	15.21	14.25	13.95	12.17
-7.4% to -0.1%	0.00	0.00	8.70	20.12	20.42	23.91	20.93	7.48
0%	39.19	59.84	30.91	11.79	6.67	3.14	0.78	37.48
0.1% to 2.5%	0.00	0.00	0.00	3.46	5.52	7.00	9.30	0.93
2.6% to 5.0%	0.00	0.00	5.43	7.33	7.81	7.97	7.75	3.64
5.1% to 7.5%	0.00	0.00	6.81	6.40	5.73	4.59	6.20	3.88
7.6% to 10%	0.00	10.18	4.91	3.20	3.85	4.59	2.33	6.36
10.1% to 15%	27.48	10.06	9.57	8.19	7.92	6.28	1.55	10.13
15.1% to 20%	0.00	0.00	2.46	3.06	3.02	2.66	6.20	1.59
20.1% to 25%	12.76	5.99	3.19	2.20	1.98	1.45	1.55	4.39
25.1% to 35%	7.06	2.28	2.18	1.93	1.46	2.17	0.78	2.34
35.1% to 50%	5.56	2.70	1.17	0.53	1.04	1.21	0.00	1.84
50.1% to 65%	3.15	0.83	0.25	0.13	0.10	0.24	0.00	0.56
65.1% to 80%	0.60	0.28	0.10	0.07	0.00	0.24	0.00	0.18
80.1% to 100%	0.60	0.19	0.00	0.00	0.00	0.24	0.00	0.10
100.1% to 150%	0.30	0.14	0.02	0.00	0.00	0.00	0.00	0.07
Greater than 150%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	100	100	100	100	100	100	100	100

Appendix 6 Cont...   Annual Growth Rates of Multies still Trading After Five years

This table presents the growth rate achieved by new ventures in their first five years of existence. The data presented is the percentage of new ventures started by existing enterprises in each growth category. The data is split out according to employee numbers which is used as a measure of firm size. The data is derived from the Statistics New Zealand business demography database using relevant data for the period 1987 to 1994.

Annual Growth Rates	Less than 1 Employee	1 Employee	2 to 3 Employees	4 to 5 Employees	6 to 10 Employees	11 to 25 Employees	More than 25 Employees	Overall
Less than -50%	3.67	1.28	1.16	1.38	1.79	1.67	1.61	1.39
-49.9% to -25%	0.00	0.00	0.39	2.75	5.08	6.00	9.68	1.28
-24.9% to -15%	0.00	0.00	4.94	10.06	12.56	11.00	13.71	4.91
-14.9% to -7.5%	0.00	5.99	16.65	14.09	14.80	12.67	16.13	12.31
-7.4% to -0.1%	0.00	0.00	8.27	21.82	21.38	23.00	25.81	9.04
0%	43.00	57.23	30.03	11.86	6.88	3.00	0.81	32.95
0.1% to 2.5%	0.00	0.00	0.00	3.50	5.83	7.33	7.26	1.28
2.6% to 5.0%	0.00	0.00	5.68	9.53	7.17	8.67	5.65	4.50
5.1% to 7.5%	0.00	0.00	6.93	6.04	5.38	6.67	7.26	4.41
7.6% to 10%	0.00	10.16	5.80	3.50	4.33	5.00	4.84	6.42
10.1% to 15%	26.33	10.63	9.57	7.94	6.88	6.67	4.03	9.90
15.1% to 20%	0.00	0.00	2.71	2.97	2.24	2.67	2.42	1.80
20.1% to 25%	11.67	6.25	3.72	2.01	2.09	1.33	0.00	4.27
25.1% to 35%	5.33	2.72	2.20	1.38	1.94	2.33	0.81	2.33
35.1% to 50%	4.00	3.83	1.31	0.64	1.05	1.33	0.00	2.02
50.1% to 65%	3.00	1.06	0.48	0.21	0.30	0.33	0.00	0.68
65.1% to 80%	1.33	0.43	0.15	0.21	0.15	0.33	0.00	0.29
80.1% to 100%	1.33	0.21	0.00	0.00	0.15	0.00	0.00	0.12
100.1% to 150%	0.33	0.21	0.03	0.11	0.00	0.00	0.00	0.10
Greater than 150%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	100	100	100	100	100	100	100	100

Appendix 6 Cont... Five Year Growth Rates - Further Breakdown of Figures

This table presents the growth rate achieved by new ventures in their first five years of existence. The data presented is the percentage of firms in each growth category. The data is derived from the Statistics New Zealand business demography database using relevant data for the period 1987 to 1994.

	1988 Start-ups		1989 Start-ups		Overall	Total Firms
	Singles	Multies	Singles	Multies		Surviving
Less than -50%	1.9	2.7	1.3	3.1	1.5	367
-49.9% to -25%	1.1	2.8	1.1	2.7	1.2	278
-24.9% to -15%	3.6	7.5	4.7	4.8	4.4	1,040
-14.9% to -7.5%	12.1	12.4	12.3	14.0	12.2	2,897
-7.4% to -0.1%	6.5	14.1	8.6	13.8	8.0	1,900
0%	40.3	17.3	34.4	17.5	35.9	8,524
0.1% to 2.5%	0.7	2.1	1.2	2.8	1.0	249
2.6% to 5.0%	2.9	5.2	4.4	6.6	3.9	932
5.1% to 7.5%	3.4	4.6	4.4	5.0	4.1	962
7.6% to 10%	6.4	8.1	6.3	6.9	6.4	1,513
10.1% to 15%	10.2	8.1	10.1	9.3	10.0	2,383
15.1% to 20%	1.5	2.5	1.7	2.2	1.7	394
20.1% to 25%	4.5	4.5	4.3	5.0	4.3	1,031
25.1% to 35%	2.4	2.5	2.3	3.0	2.3	555
35.1% to 50%	1.7	2.7	2.0	1.9	1.9	451
50.1% to 65%	0.5	1.3	0.6	0.9	0.6	143
65.1% to 80%	0.1	0.9	0.2	0.1	0.2	51
80.1% to 100%	0.1	0.1	0.1	0.1	0.1	26
100.1% to 150%	0.1	0.4	0.1	0.2	0.1	19
Greater than 150%	0.0	0.0	0.0	0.0	0.0	0
Total	100.0	100.0	100.0	100.0	100.0	23,715

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Appendix 7   Five Year Survival Rates by Geographical Locality

This table presents a geographical breakdown of the percentage of new ventures that survive their first five years of existence. The data is derived from the Statistics New Zealand business demography database using relevant data for the period 1987 to 1994.

Region	1988 & 1989 Births Surviving Five Years			
	Singles	Multies	Combined	Overall Births
Provincial and Rural Areas				
Northland Region	39.3	51.6	40.2	1,256
Auckland Region	42.2	60.0	42.9	836
Waikato Region	42.2	43.6	42.3	3,470
Bay of Plenty Region	42.2	52.9	43.2	2,398
Gisborne Region	45.1	46.4	45.2	334
Hawkes Bay Region	41.2	43.7	41.4	1,241
Taranaki Region	43.4	42.3	43.3	910
Manawatu-Wanganui Region	41.7	43.4	41.8	2,056
Wellington Rural	42.5	49.4	43.1	826
West Coast Region	34.9	46.9	35.9	370
Canterbury Rural	44.0	47.9	44.4	1,023
Otago Rural	40.6	54.5	42.4	776
Southland Region	46.0	59.8	47.5	786
Tasman Region	43.9	44.8	43.9	371
Nelson Region	42.0	50.0	42.7	480
Marlborough Region	44.5	65.5	46.2	355
Extra Country Island & Shipping	50.0	100.0	55.6	9
Total Provincial and Rural	42.1	52.3	42.7	17,497
Main Metropolitan Areas				
Northern Auckland Zone	42.5	48.4	42.9	3,402
Western Auckland Zone	44.7	57.9	45.5	2,094
Central Auckland Zone	41.5	40.7	41.4	8,183
Southern Auckland Zone	40.9	48.7	41.5	3,378
Upper Hutt Zone	45.2	36.4	44.7	367
Lower Hutt Zone	39.1	44.0	39.7	1,204
Porirua Zone	40.1	55.2	41.2	371
Wellington Zone	42.2	43.2	42.3	2,879
Christchurch	43.7	47.3	44.1	4,160
Dunedin	48.1	49.0	48.2	980
Total Metropolitan Areas	42.4	48.3	42.6	27,018
New Zealand Total	42.3	49.5	42.7	44,515

Appendix 8   Firm Births and Deaths in the United Kingdom 1973-1982

This table presents data from Ganguly (1985, 143) which shows births and deaths of firms in the United Kingdom for the period 1973 to 1982. Births and deaths were detected by registration and deregistration for VAT. The numbers have been expressed as a percentage of firms in existence at the beginning of the year.

Year	Firms	Registrations		Deregistrations	
		Number	% of Firms	Number	% of Firms
1973	981,200	265,915	27.1	88,959	9.1
1974	1,158,156	147,878	12.8	103,337	8.9
1975	1,202,697	161,224	13.4	138,504	11.5
1976	1,225,417	168,847	13.8	145,863	11.9
1977	1,248,401	157,094	12.6	158,101	12.7
1978	1,247,394	149,393	12.0	155,462	12.5
1979	1,241,325	171,292	13.8	124,677	10.0
1980	1,287940	157,096	12.2	139,969	10.9
1981	1,305,067	149,229	11.4	112,332	8.6
1982	1,341,964	138,715	10.3	104,813	7.8
Overall			11.0		9.1
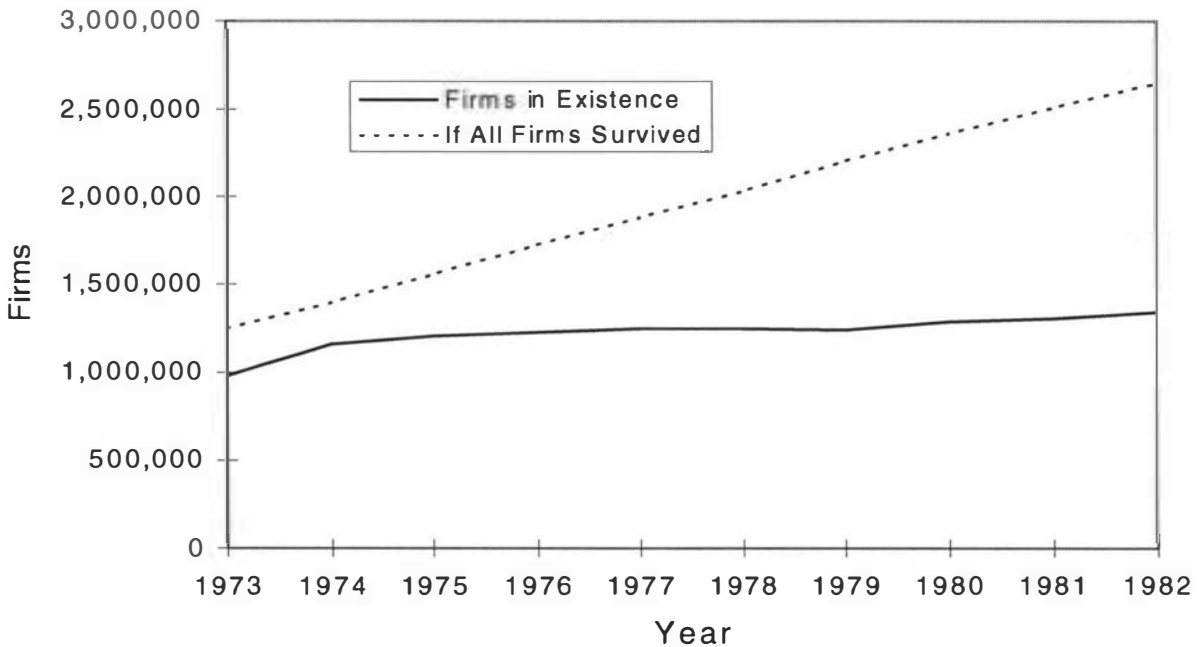
Figure 17   Oversupply of New Firms in United Kingdom - 1973 to 1982

This graph presents the total number of firms that would have been in existence if all firms born in the U.K. in the period 1973 to 1982 had survived, and compares them with the actual number of firms that did exist. The data is derived from Ganguly (1985, 143).

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Appendix 9   Organisations Distributing Survey of Start-Up Businesses

Organisation	**Location**
Auckland Business Development Board	Auckland
Bay of Plenty Business Development Board	Tauranga
Business Grow Canterbury	Christchurch
Canterbury Business Development Board	Christchurch
East Coast Business Development Board	Gisborne
Enterprise North Shore	North Shore
Hawkes Bay Business Development Board	Napier
Just Dollars	Christchurch
Nelson Bays Business Development Board	Nelson
Otago Business Development Board	Dunedin
Palmerston North Business Development Board	Palmerston North
Poutama Trust	Wellington
Southland Business Development Board	Invercargill
Tai Tokerau Business Development Board	Whangarei
Thames/Coromandel Business Development Board	Paeroa
Wairarapa Business Development Board	Masterton
Wanganui Small Business Centre	Wanganui
Wellington Business Development Board	Lower Hutt
West Coast Business Development Board	Greymouth

Survey of People Starting Up in Business

1)   Yes   No

    I have started up a business in the last three months   ☐   ☐

    I intend to start up a business within the next six months   ☐   ☐

    I started up a business in the past which is still trading   ☐   ☐

    I started up a business in the past which is no longer trading   ☐   ☐

    I will be the only investor in my current business venture   ☐   ☐

    I intend to work full time in the business   ☐   ☐

2)   At the time your business becomes fully operational, how many people do you expect to be employed by the business? Convert part time staff into the equivalent number of full time staff.

    less than 1 ☐   1 ☐   2-3 ☐   4-5 ☐   6-10 ☐   11-25 ☐   25+ ☐

3)   Assuming everything goes according to plan, how many people do you expect to be employed by your business five years after it is started up?

    less than 1 ☐   1 ☐   2-3 ☐   4-5 ☐   6-10 ☐   11-25 ☐   25+ ☐

4)   Assuming your business venture goes according to your current plan, how much do you expect **each dollar** invested at start up to be worth after the business has been operating for five years? To estimate this, compare the money that you will personally put into the business during its start up phase, with the money you would expect to receive if you sold your share of the business after five years. Do not include any money you expect to draw from the business during this period.

    $0-$1.00 ☐ $1.01-$2.00 ☐ $2.01-$3.00 ☐ $3.01-$4.50 ☐ $4.51-$6.50 ☐

    $6.51-$9.00 ☐ $9.01-$12.00 ☐ $12.01-$15.00 ☐ $15.01-$20.00 ☐ $20.00+ ☐

5) If your business venture goes according to your current plan, how much money, after tax, do you expect to be able to draw out of the business during its first five years of operation for each dollar invested during the start up phase of the business? Exclude normal salaries and wages paid to working proprietors. For example, assume you invest $100,000 at start up, and expected to be able to draw $10,000 per year in dividends. Each year you would get $0.10 in dividends for each dollar invested, hence your answer would be $0.10 x 5 = $0.50.

$0.00 ☐ $0.01-$0.20 ☐ $0.21-$0.40 ☐ $0.41-$0.60 ☐ $0.61-$0.90 ☐

$0.91-$1.30 ☐ $1.31-$1.80 ☐ $1.81-$2.50 ☐ $2.51-$3.50 ☐ $3.50+ ☐

6) What do you estimate the probability is, that your business venture, or proposed business venture, will be successful? For this question, success is defined as a business which is still trading, five years after its start-up date.

0% - 10% ☐   11% - 20% ☐   21% - 30% ☐   31% - 40% ☐   41%-50% ☐

51% - 60% ☐   61% - 70% ☐   71% - 80% ☐   81% - 90% ☐   91%-100% ☐

7) Consider all start-up businesses of a type similar to your own. What percentage of these do you believe will still be trading five years after they start-up?

0% - 10% ☐   11% - 20% ☐   21% - 30% ☐   31% - 40% ☐   41%-50% ☐

51% - 60% ☐   61% - 70% ☐   71% - 80% ☐   81% - 90% ☐   91%-100% ☐

8) What is the total amount of money that will be invested in your business during its starting up phase? Include money from all investors, and from financiers such as banks.

$0-$10,000 ☐ $10,001-$25,000 ☐ $25,001- $50,000 ☐

$50,001-$100,000 ☐ $100,001-$200,000 ☐ $250,000-$450,000 ☐

$450,000-$750,000 ☐ $750,000-$1,500,000 ☐ $1,500,000 + ☐

9) Which of the following legal forms will your business have once it is started up?

Company ☐   Partnership ☐   Sole Proprietorship ☐

10) Which of the following methods have you used, or do you intend to use, in evaluating whether or not your planned business is a viable investment? Tick only one box for each method. Unless you have some understanding of the method, or intend to use it, tick the "I am not familiar with this method" box.

	I intend to use this method	I do not intend to use this method	I am not familiar with this method
Net profit after tax	☐	☐	☐
Accounting rate of return	☐	☐	☐
Payback period	☐	☐	☐
Net present value (NPV)	☐	☐	☐
Internal rate of return (IRR)	☐	☐	☐
Gut feeling	☐	☐	☐

Other - Please specify _____

11) Tick the box that best answers the question.

	Very Important	Moderately Important	Of Little Importance	Of No Importance
How important to you was, or will be, the advice of others in deciding to start up your business?	☐	☐	☐	☐
How important to you was, or will be, the advice of a qualified financial advisor in deciding to start up your business?	☐	☐	☐	☐
How important to you was, or will be, the advice of friends, acquaintances and business associates in deciding to start up your business?	☐	☐	☐	☐

12) For each of the following statements, tick the box that most accurately represents you position.

a) I am willing to risk losing everything in a business venture providing the potential profits are high.

agree strongly	*agree somewhat*	*neutral*	*disagree somewhat*	*disagree strongly*
☐	☐	☐	☐	☐

b)   I think that starting a new business is no more risky than purchasing an existing business.

agree strongly	agree somewhat	neutral	disagree somewhat	disagree strongly
☐	☐	☐	☐	☐

c)   A major motivation behind my starting up a business is to gain more personal control and freedom of choice.

agree strongly	agree somewhat	neutral	disagree somewhat	disagree strongly
☐	☐	☐	☐	☐

d)   A major motivation behind my starting up a business is to win approval from others.

agree strongly	agree somewhat	neutral	disagree somewhat	disagree strongly
☐	☐	☐	☐	☐

e)   A major motivation behind my starting up a business is to allow myself to develop as a person.

agree strongly	agree somewhat	neutral	disagree somewhat	disagree strongly
☐	☐	☐	☐	☐

f)   A major motivation behind my starting up a business is to provide employment for me or my family.

agree strongly	agree somewhat	neutral	disagree somewhat	disagree strongly
☐	☐	☐	☐	☐

g)   A major motivation behind my starting up a business is to allow me to improve the welfare of my family and contribute to the community.

agree strongly	agree somewhat	neutral	disagree somewhat	disagree strongly
☐	☐	☐	☐	☐

h) A major motivation behind my starting up a business is to help reduce the tax on my income.

agree strongly	agree somewhat	neutral	disagree somewhat	disagree strongly
☐	☐	☐	☐	☐

i) A major motivation behind my starting up a business is to increase my wealth.

agree strongly	agree somewhat	neutral	disagree somewhat	disagree strongly
☐	☐	☐	☐	☐

j) My decision to start up a business has been influenced by a person that I consider my role model.

agree strongly	agree somewhat	neutral	disagree somewhat	disagree strongly
☐	☐	☐	☐	☐

k) People who start up a business which fails usually have only themselves to blame.

agree strongly	agree somewhat	neutral	disagree somewhat	disagree strongly
☐	☐	☐	☐	☐

l) The ability to get a good financial return should override all other considerations when starting up a business.

agree strongly	agree somewhat	neutral	disagree somewhat	disagree strongly
☐	☐	☐	☐	☐

13) Please tick the appropriate boxes.

Gender: Female ☐   Male ☐

Age: Under 25 ☐ 25 - 34 ☐ 35 - 44 ☐ 45 - 54 ☐ 55 and over ☐

Appendix 11   Sample Demographics Compared with Population

Table 30   Sample Demographics - Geographical Location

This table compares the geographical distribution of respondents to the survey of new venture founder with the actual geographical distribution of new firms found in data from the Statistics New Zealand business demography database using relevant data for 1988 and 1989.

	New Business Formations 1988 & 1989 (%)	Sample Responses (%)
Northland Region	2.9	4.3
Auckland Region	40.9	20.5
Waikato Region	7.8	4.7
Bay of Plenty Region	5.3	2.7
Gisborne Region	0.8	4.1
Hawkes Bay Region	2.7	3.3
Taranaki Region	2.0	7.0
Manawatu-Wanganui Region	4.6	5.5
Wellington	12.5	4.7
West Coast Region	0.8	2.5
Canterbury Rural	11.4	25.4
Otago	3.8	5.9
Southland Region	1.7	1.9
Tasman Region	0.8	0.0
Nelson Region	1.1	7.2
Marlborough Region	0.8	0.0
Extra Country Island & Shipping	0.0	0.0

Table 31   Sample Demographics - Business Type

This table compares the new venture business type found in the survey of new venture founder with the actual new firm types found in data from the Statistics New Zealand business demography database using relevant data for 1988 to 1994.

	New Business Formations 1988 to 1994 (%)	Sample Responses (%)
Companies	39.0	47.7
Partnerships	24.5	18.0
Sole Traders	36.5	34.3

Table 32   Sample Demographics - Employee Numbers

This table compares the new venture size found in the survey of new venture founder with the actual found for new firms found in data from the Statistics New Zealand business demography database using relevant data for 1988 and 1989.

Employees at Start-Up	New Business Formations 1988 & 1989 (%)	Sample Responses (%)
Less than 1	27.0	9.2
1	23.8	30.1
2-3	31.2	39.0
4-5	8.4	9.7
6-10	5.8	6.8
11-15	2.7	3.5
25+	1.0	1.7

Appendix 12   Results of Multivariate Analysis

Factor Analysis

Table 33   Communalities

Extraction Method: Principal Component Analysis. Communalities of 0.50 and above are acceptable for factor analysis hence all are above the level of significance required and no variables should be eliminated from analysis.

Communalities		
Motivator	Initial	Extraction
Personal Development	1.000	.630
Employment	1.000	.748
Approval of Others	1.000	.641
Instrumentality of Wealth	1.000	.596
Tax Reduction	1.000	.550
Need for Independence	1.000	.521
Following a Role Model	1.000	.559
Family and Community Welfare	1.000	.784

Table 34   Component Selection

Extraction Method: Principal Component Analysis. The eigenvalues of the three principal components explain 62.9 precent of the variance in the motivators. The first three components are used and the balance rejected because their eignevalues are less than one.

Total Variance Explained						
	Initial Eigenvalues			Extraction Sum of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.287	28.590	28.590	2.287	28.590	28.590
2	1.517	18.962	47.552	1.517	18.962	47.552
3	1.225	15.309	62.861	1.225	15.309	62.861
4	.855	10.689	73.551			
5	.671	8.385	81.936			
6	.645	8.057	89.993			
7	.609	7.613	97.606			
8	.192	2.394	100.000			

Table 35   Components Composition

Factor loadings of .50 and above are considered to be very important. The selected factors are highlighted in bold and give the following components. Component 1: Shows unimportance of employment, increasing wealth and personal control. Component 2: Shows unimportance of reduction of tax and role model. Component 3: Shows unimportance of personal development and approval of others.   Rotation method: Varimax with Kaiser normalisation.

Motivator	Component		
	1	2	3
Personal Development	.444	-.272	**.599**
Employment	**.720**	-.454	-.152
Approval of Others	-.073	.130	**.787**
Instrumentality of Wealth	**.616**	.440	-.153
Tax Reduction	-.026	**.717**	-.187
Need for Independence	**.607**	.261	.292
Following a Role Model	.425	**.610**	.073
Family and Community Welfare	**.799**	-.267	-.273

Table 36   Statistical Significance of Factor Analysis Components

The Kruskal Wallis test was used to see if the components identified were capable of explaining significantly difference in the key variables in the survey.   As this is a 14x3 test only p values<0.05/(14x3) i.e. p<.001 are considered significant in order to give reasonable control for type I error.

	Statistical Significance of Components using Kruskal Wallis Test		
	Component 1	Component 2	Component 3
Gender	.019	.000	.023
Age	.000	.000	.000
Size of total investment	.000	.000	.000
Business Type	.348	.475	.000
Previously started a failed business	.446	.000	.000
Prior start of successful business	.877	.306	.000
Will be the only investor	.000	.002	.000
Employees at start-up	.003	.002	.000
Growth in employees over 5 years	.000	.000	.001
Expected drawings from business	.000	.003	.519
Expected increase in value	.000	.000	.000
Estimation of own failure rate	.000	.000	.000
Estimation of others failure rate	.000	.000	.000
Superior survival expectation	.000	.000	.000

Cluster Analysis

Table 37   Cluster Analysis - Final Cluster Centres

This table gives the centres of each cluster in terms of each of the motivators. The factors are rated on a 1 to 5 Likert scale of 1 for "disagree strongly" to 5 for "agree strongly" with questions asking the importance of each motivator.

	Cluster Number				
	1	2	3	4	5
Personal Development	5	5	2	3	2
Employment	2	4	4	3	4
Approval of Others	1	4	1	1	4
Instrumentality of Wealth	4	4	5	1	4
Tax Reduction	1	1	4	3	2
Need for Independence	5	5	5	2	4
Following a Role Model	1	5	5	3	1
Family and Community Welfare	1	2	5	3	4

Table 38   Cluster Analysis - Differences Between Clusters

This table presents the characteristics of the participants in the five clusters obtained from the cluster analysis. Kruskal Wallis and χ^2 tests showed all the differences between means of the clusters were statistically significant at the 1% level for all the variables listed.

	Cluster Number					Test
	1	2	3	4	5	
Number in cluster	26	62	225	34	201	
Mean Age	49	31	34	38	35	KW
Gender (% of women)	46	35	53	32	38	χ^2
Business type S/P/C	0/0/100	29/16/55	41/19/40	41/6/53	32/22/46	χ^2
Mean Size of total investment ($)	19,000	230,000	69,000	218,000	144,000	KW
Mean Success rating - own (%)	74	69	80	62	75	KW
Mean Success rating - others (%)	31	49	59	32	52	KW
Mean Employees at start-up	2.8	3.4	1.5	1.2	4.1	KW
Mean Employees after five years	4.3	7.8	3.7	3.6	5.5	KW
Mean Drawings ($ per $ invested)	0.27	0.20	0.15	0.14	0.15	KW
Mean Value per $1 after 5 years	15.78	8.48	5.79	7.77	6.57	KW
Mean Adjusted expected IRR (%)	74.8	44.9	39.5	38.4	37.6	KW
Prior start of successful firm (%)	88.5	16.1	18.7	2.9	22.4	χ^2
Prior start of failed firm (%)	0	43.5	1.8	23.5	5.0	χ^2
Work full time in business (%)	61.5	72.6	94.2	100	86.1	χ^2

Appendix 13 New Zealand Economic Conditions During the Study

This appendix is designed to assist those unfamiliar with New Zealand to understand the economic conditions that prevailed during the period of the study. While the results of the research do not indicate the failure rates, or other aspects of the study, where unrepresentative of other periods in history, the economic reforms under way in New Zealand at the time were nevertheless influential in the outcomes shown.

In 1984, the newly elected Labour government embarked on a series of radical reforms that were to transform the New Zealand economy, from perhaps one of the most regulated and protected, to one of the most open and unregulated economies in the OECD. This involved both macroeconomic and microecomic reforms. The macroeconomic reforms, which created an independent central bank that controlled the economy using a single variable, namely inflation, played a significant role in these reforms and resulted in a period of zero economic growth from 1984 to 1992. While this low economic growth would have limited the opportunity for new firms, the microeconomic reforms would have had the opposite effect.

The microeconomic reforms included the removal of import licensing and a program of rapid tariff reductions, coupled with labour market reforms. The reform of the state sector whereby state enterprises were corporatised, then progressively privatised, resulted in the need for these enterprises to shed large amounts of labour in order to achieve the efficiencies expected of private sector firms. This resulted in large increases in the unemployment level, but also created new business opportunities as contracting out of in house services increased. The manufacturing sector underwent an upheaval where inefficient industries that had relied upon protection found they were unable to survive in the new environment, or transformed themselves into importers in order to compete.

While these reforms undoubtedly caused many established firms to fail, they should, at least in theory, have opened up many opportunities for new firms to competed in the less regulated environment. Periods of economic upheaval are ones where creative destruction should thrive. It could be argued that this should have lead to the replacement of uncompetitive existing businesses with efficient new ones, leading to a lowering of failure rates of new firms at the expense of higher failure rates for established firms. In reality the pattern of start-ups and failures does not seem markedly different from that experienced at other times or in other comparable nations.