Value Based Performance Reporting: A Study of the Information used by Australasian Analysts in their Assessment of Long-Term Firm Performance (Value).

A thesis presented in partial fulfillment of the requirements for the degree of Master of Business Studies in Accounting

Massey University

Clay Colin Macfarquhar

2007

ABSTRACT:

Public company shareholders and potential investors rely on statutory and voluntary disclosures to enable an informed assessment of company performance and value. It is widely acknowledged that traditional historic accrual accounting measures do not offer a complete picture of firm performance, and that there is demand for an expanded set of performance indicators to service the needs of concerned stakeholders. The reliance on voluntary disclosure of company specific non-financial information is of particular concern to this thesis as the examination of existing literature displays evidence that such areas of performance are under-reported externally.

With reference to a range of performance indicators that New Zealand and Australian Chartered Financial Analysts identify as relevant in their assessment of performance and value, this study identifies areas of performance that are under-reported by management and where information asymmetry is proposed to exist. The issue of under-reporting is assessed through gap analysis comparing the surveyed analysts ratings for the 'predictive value' (PV) measure of each performance item/indicator to the respective ratings for 'ease of acquisition' (EA).

The study finds that analysts rely on a broad range of financial and non-financial information in their assessment of firm performance. More specifically the reporting of traditional financial information remains relevant and the extent of its provision is adequate, however the study finds that in many cases information not forming part of traditionally reported financial information has 'predictive value' relevance but is relatively more difficult to acquire. The thesis research findings therefore indicate that information reporting reliant on voluntary disclosure is at greater risk of being under-reported (externally). Such under-reporting has been found to be associated with non-financial information that relies on management identifying relevant company specific measures and subsequent voluntary disclosure. In an attempt to emphasise the importance of restoring the information balance between management and interested external parties (for performance assessment and valuation purposes), the thesis will include an exploration and discuss of literature on the benefits associated with full disclosure, along with potential means of identifying relevant measures for external reporting.

ACKNOWLEDGEMENT:

I would like to express my sincere gratitude to everyone who has contributed to this thesis, and specific thanks to the following:

To Dr Stuart Tooley, for your sound feedback and guidance throughout the duration of my research.

To the New Zealand and Melbourne (Australia) CFA members, for their significant contribution through the survey.

To Hayden Schaw (Deutsche Bank), for your time demonstrating the information collection and valuation processes. This experience was invaluable and contributed significantly to my ability to interpret the survey results.

To uSuite survey (usurvey.co.nz), for ensuring the web-based survey was hosted in a professional and secure manner.

To all of my previous University Lecturers at Auckland University and Massey University who have contributed to my interest and understanding of Accounting and Finance.

To the Massey University Library staff who have always been so friendly and helpful.

Finally, to my family and friends who have supported me, and tolerated my work and study focus over the last several years.

Table of Contents

List of Tables

List of Charts

CHAPTER ONE: INTRODUCTION

1.0 Introduction

The research reported in this thesis is concerned with the information needs of the market (for valuation and investment purposes), along with whether company statutory and voluntary disclosures are meeting these requirements. Through the examination of existing literature evidence is found that questions the ability of the current regulatory reporting framework's ability to meet the needs of the market (Dempsey et al, 1997; AAA, 2002). The potential existence of information asymmetry, along with the consequences and potential solutions provide motivation for the thesis research to further explore this aspect of external performance reporting.

Through a survey of New Zealand and Australian CFA analysts (as representatives of the market), the thesis will assess the market's information requirements and ease with which this information is acquired (Dempsey et al, 1997), where the relative comparison of these surveyed measures will allow for the identification and discussion of information gaps. To emphasise the importance of addressing these information gaps, the benefits of meeting the market's information requirements (for performance assessment and valuation purposes) are explored through existing literature, as are potential means of identifying relevant measures that should form part of external reporting.

The following sections of the chapter will:

- Establish the background for the thesis research, including an introduction to recent issues in external performance reporting.
- Explain the importance and contribution the thesis research seeks to achieve, including an overview of the research aims and method.
- Set out the structure of the thesis, including a brief summary of the thesis chapters.

1.1 Background

The key objective of every company's management team should be to maximise shareholder wealth (Shapiro, 1990). In an effort to do this management need to not only make key decisions that determine the success of the business now and in the future, but also ensure that the market is sufficiently informed to enable a comprehensive assessment of the business's value (Bartov & Bodnar, 1996).

Despite reporting requirements being set out in legislation and through listing regulations, recent research has found that a majority of management are of the opinion that their shares are undervalued by the market (Graham & Campbell, 2002). This raises the issue of a potential information gap between what management know and what has been communicated to the market. This information gap has most likely arisen due to external reporting frameworks not reflecting the significant developments that have transformed internal reporting's focus from traditional financial information to a broad set of financial and non-financial firm specific measures (Kaplan, 1998; AAA, 2002).

To date, a broad focus of firm specific measures has not been reflected in the external reporting requirements, where reporting authorities have not been able to develop a framework that ensures full disclosure of performance to the market (AAA, 2002). Although academic studies highlight the link between non-financial performance and value, legislative reporting requirements are unable to set out non-financial reporting requirements due to the firm specific nature of this information (AAA, 2002). The disclosure of non-financial information therefore relies on each company voluntarily identifying and reporting relevant non-financial performance (AAA, 2002).

Despite incentives such as increased valuations, reduced share price volatility, lower cost of capital, and greater management credibility, there is evidence of information asymmetry between management and external parties, which infers that the existing reliance on voluntary disclosure of broader performance measures seem to be failing (Dempsey et al, 1997; AAA, 2002; PWC, 2003).

1.2 Importance and Contribution of the Thesis

Briefly, the findings of this research potentially serve as an insight into the Australasian market's information requirements, along with identifying areas where under-reporting potentially exists. This is achieved through the survey of Australasian Chartered Financial Analysts (CFA), as representatives of the market, for their opinion of the perceived predictive value and ease of acquisition for 80 different items of information (Dempsey et al, 1997).

Where information gaps exist, the thesis seeks to emphasise the consequences of not meeting the information requirements of the market by exploring existing literature for evidence of both the existence and consequences of information asymmetry. Finally, the thesis will discuss the ability of existing management tools and concepts, such as the Balanced Scorecard's cause and effect relationship's ability to be applied to the identification of measures that should be reported externally to the market. This unique application of predominantly internally focussed concepts, aims to identify value relevant measures, in an attempt to ensure the market recognises the full value of the company's shares.

As non-financial reporting relies significantly on voluntary disclosure, it is important that the thesis contribution goes beyond raising an awareness of areas where under-reporting exists, to include an assessment of existing literature that outlines the cost of under-reporting / benefits of full disclosure, along with potential tools for identifying relevant information to report to the market.

Therefore the research aims and objectives of this thesis are to examine:

<u>Through an examination of existing literature:</u>

- What are the consequences of under-reporting / benefits of full disclosure of information relevant to the markets assessment of performance and value?
- What methods may be employed to identify relevant information to report to the market (for its assessment of performance and value)?

Through survey research:

- What measures are relevant in assessing value?
- What information is difficult to acquire?
- Are there any information gaps? Otherwise stated, is it hard to acquire information that is relevant to the assessment of value?
- As non-financial information is not directly covered by the regulatory reporting framework, is non-financial information under-reported to the market.

More specifically, the thesis research will seek to answer the following research questions through a survey of analysts:

- What is the perceived predictive value of performance measures?
- What is the perceived ease with which information on each of the measures can be acquired?
- Does an information gap exist?
- Is non-financial information under-reported (externally)?

1.3 Thesis Structure

The thesis comprises four more chapters, where:

Chapter two maps out existing literature relevant to and underpins the thesis research. This includes a broad examination of literature to understand, what information asymmetry is, why it exists, consequences of information asymmetry, along with potential methods of ensuring the market is fully informed. Chapter two aims to go further than examining topics traditionally associated with information asymmetry, to explore changes in the competition environment, along with management accounting developments, in an attempt to put the issue of information asymmetry and potential solutions in perspective with the current business environment.

Chapter three explains and justifies matters of methodology, design, and analysis techniques. This includes justification for the use of a web-based survey, the population surveyed, and specific methods of analysis.

Chapter four presents the findings and discussion of the analyst survey results. This chapter will identify what the surveyed analysts find relevant in their assessment of value, the ease with which this information can be acquired, and ultimately any potential information gaps.

Chapter five concludes the thesis by summarising the key findings, implications of findings and future areas of research.

1.4 Chapter Summary

The introduction chapter has set out the background, intended contribution and structure of the thesis. The literature review that follows, will further explore developments in both management and external reporting, along with evidencing the existence of information asymmetry and its consequences. The importance of the thesis research is emphasised as the literature review progresses from examining evidence of information asymmetry, to the causes and ultimately the cost of information asymmetry. Finally, the literature review will look to existing literature as a means of assessing potential methods of identifying firm specific reporting that will ensure interested external parties are fully informed of information that benefits their assessment of performance and value.

CHAPTER TWO: LITERATURE REVIEW

2.0 Introduction

This chapter will present a review of the relevant literature that has informed this study and is structured around the following three themes:

Information asymmetry: This section of the literature review will define information asymmetry, gather evidence that it exists, and explore associated costs. The reporting environment is then assessed to uncover the impact legislative reporting requirements have on information asymmetry, including whether there is demand for information beyond existing reporting requirements, and whether any additional information requirements could be incorporated into current reporting frameworks. The information asymmetry section of the literature review will conclude by putting forward alternative means of reducing information asymmetry.

Developments within management reporting (internal reporting): This section focuses on management's recent interest in firm specific performance measures, including the increased emphasis that is being placed on non-financial measures. The method of selecting firm specific measures is of particular interest to this thesis as it seeks to establish means of identifying and reporting relevant information to the market. For this reason, existing management tools and concepts, such as the Balanced Scorecards "cause and effect", relationship are examined for the ability to identify value relevant, firm specific measures.

Value: Before management tools, concepts, and internally relevant measures can be established as relevant to the market (or for analysts as representatives of the market), it is important to understand how external parties such as analysts use different types of information to assess value. This section will also draw on the previous two sections, as it assesses means of identifying measures that are relevant to analysts' assessment of value.

The literature review will not only develop the research problem and background for the thesis research, but will also seek to directly contribute to existing literature through its consideration of the linkages between a broad range existing literature from the accounting, finance, and marketing disciplines. Of particular focus will be the linkages between:

- Information gaps
- Information asymmetry
- Cost of information asymmetry
- Developments in management accounting (that have broadened management's perspective on performance)
- The value of managements broader performance focus
- The extent to which this broader management performance focus has been shared with the market
- Information disclosure requirements and methods
- The value in receiving additional external media and analyst coverage
- What information analysts as representatives of the market want
- How this information is used
- How management can identify relevant information to disclose

2.1 Background

Increasing business globalisation and advances in technology mean that the competition environment is changing, as are the competencies required to ensure businesses financially succeed now and in the future. This means that where in the past many firms have been able to focus solely on cost leadership as a competitive strategy, the competition and technology changes require businesses to incorporate a customer focus into their strategy. This new age of customer focus means concentrating on factors that provide value to customers, where innovations and efficiencies are of little value if they do not add value to the customer (Perea, Harrison & Poole, 1997).

It is ultimately this customer focussed perspective that has contributed to a broader range of measures becoming relevant to management decision making. The application of a broader set of performance measures are highlighted by popular management tools such as the Balanced Scorecard, where key reporting developments involve focusing on firm specific measures, including non-financial measures (Kaplan & Atkinson, 1998). Despite changes in the competition environment, as reflected in the internal reporting developments, corporate external reporting requirements remain focused on traditional financial reporting (AAA, 2002; NZSX, 2006; ASX, 2006).

The relevance of expanding corporate, external reporting requirements to include non-financial measures was recently considered by the Financial Standards Committee of the American Accounting Association. This involved an investigation into the ability of non-financial measures to predict future financial performance, along with their relevance to corporate equity valuation. Despite strong evidence supporting the relevance of non-financial measures, the result of the investigation was a finding by the committee that mandating a standard set of non-financial disclosures would not best serve investors, as relevant non-financial measures tended to be firm specific. The American Accounting Association did however comment that companies should be encouraged to provide relevant non-financial disclosures voluntarily, as academic research suggests that non-financial performance measures are relevant in predicting future financial performance and valuing corporate equity (AAA, 2002).

A key factor in the American Accounting Association's finding against mandating a standard set of non-financial disclosures was the market's conditional interpretation of information. More specifically, the relevance of information depends on firm specific characteristics such as the type of competitor, the industry, regional characteristics, environmental and regulatory factors. Therefore, the American Accounting Association found that non-financial information may be more appropriately identified and reported voluntarily by the individual firms (AAA, 2002).

Where reporting requirements are limited to traditional financial information, evidence of information gaps suggest that corporate voluntary disclosure has been inadequate in meeting the markets information requirements (Dempsey et al, 1997). It is unclear whether the existence of information gaps are a result of companies not recognising the information requirements of the market, or some other limiting factor.

Regardless of the cause, information asymmetry comes at a cost to existing shareholders. This cost occurs when the market is forced to make investment decision without all relevant information, with the result being the markets inability to fully recognise the value of the company (Bartov & Bodnar, 1996).

2.2 Information Asymmetry

2.2.1 Definition of Information Asymmetry

Information asymmetry can be defined as a situation where relevant information is known to some, but not all interested parties. The consequence of information asymmetry is reflected by diminished levels of market efficiency, due to the inability of all market participants to access information required for decision making (Bartov & Bodnar, 1996; Investor words, 2006). Information asymmetry can be further defined by examining the different types of information asymmetry, being adverse selection and moral hazard (Shapiro, 1990).

Adverse selection occurs where one party, such as managers, have more knowledge about the current and projected performance of the firm than outside investors. Where adverse selection creates uncertainty for investors, the value of the firm's equity is likely to be compromised (Shapiro, 1990; Bartov & Bodnar, 1996). Additionally, adverse selection may create opportunities for managers or other insiders to exploit their information advantage at the expense of others. This may result in managers limiting or releasing biased information, which can compromise investors decisions (Shapiro, 1990).

Moral hazard is the second type of information asymmetry and affects most medium and large businesses. Moral hazard arises due to the difficulty shareholders, who are generally separate from management, have observing the quality of senior management effort and decision making. Under conditions of moral hazard, a manager could represent any deterioration in firm performance as being a consequence of factors beyond management's control (Shapiro,1990; Investor words, 2006).

The securities market is susceptible to information asymmetry problems due to both the presence of inside information and insider trading. Inside information exists where managers have knowledge of current or future factors that external parties are not aware of that would impact on the assessment of the firm's value. Equally, the existence of, inside information allows those who have the information to potentially earn superior profits through actions that are not necessarily in the best interest of investors (Shapiro,1990; Investor words, 2006).

2.2.2 Existence and Cost of Information Asymmetry

The existence of an information gap was considered by Dempsey et al (1997) through a survey of 2,751 financial analysts for a range of measures perceived predictive value, against the perceived ease of acquiring this information. Through this survey, Dempsey et al were able to find areas where an information gap existed. Such an information gap was particularly evident for non-financial measures such as quality and customer satisfaction, where these measures where perceived to be important by the financial analysts, despite the apparent difficulty in acquiring this information.

Dempsey et al's (1997) study provides evidence that financial analysts (as representatives of the market) are not being provided with all the information that they consider to be relevant in their assessment of value. The information gap highlighted by the study's survey results shown in Appendix one, demonstrate that traditional financial information is generally easily acquired, where as measures within categories such as product quality and customer satisfaction, were more difficult to acquire.

Although Dempsey et al's study establishes the existence of information gaps, based on a strict definition, evidence of information asymmetry would also require it to be demonstrated that management had this information. Although not directly related to Dempsey et al's research, studies examining developments in the information and tools used by management indicate that in many cases, management were likely to have this information (Kaplan, 1998; AAA, 2000). Management's use of such information is highlighted through the development and implementation of tools such as the Balanced Scorecard, where a broad set of firm specific measures, including measures of non-financial performance are reported to management (Kaplan & Norton 1992 ;Kaplan, 1998).

Evidence of the consequences of information asymmetry can also be found in existing literature. Where examples of such consequences, include the detrimental affect information asymmetry has on limiting the market's ability to recognise the full value of the company (Barry & Brown, 1986). This consequence of information asymmetry is highlighted in research findings, where senior management believe their company's shares are undervalued by the market (Graham & Campbell, 2002). Specific evidence of

this nature was found in the Financial Executives International (FEI) Survey, where it was shown that two thirds of executives surveyed felt that their common shares were undervalued by the market, compared with 3% who thought their shares were overvalued. This was particularly surprising as the survey was conducted at a time when the Dow Jones 30 was approaching a new record of 10,000 (Graham, 1999).

Where the strict definition of information asymmetry is applied, it would need to be shown that management had information that external parties did not have (Investor words, 2006). This is to some extent difficult to directly evidence, however the combination of the following studies establish broad evidence of information asymmetry, through:

- The identification of information gaps: based on the relative ease of acquisition for measures that analysts rate highly for perceived predictive value (Dempsey et al, 1997).
- Establishing that management information had developed to include the collection and analysis of a broad set of measures: as highlighted by the development of a new set of management reporting tools, such as the Balanced Scorecard (Kaplan & Norton 1992; Kaplan, 1998; AAA, 2002).
- Identifying the cost of information asymmetry: identified as the inability of the market to recognise the full value of the company (Barry & Brown, 1986).
- Evidence of information asymmetry consequences: A significant proportion of financial executives felt that their common shares were undervalued by the market, at a point in time when the Dow Jones 30 was approaching a record high (Graham, 1999; Graham & Campbell, 2002).

Dempsey et al's identification of information gaps, along with findings that the majority of executives felt that the market had undervalued their company's shares is a strong indicator of information asymmetry (Barry & Brown, 1986; Graham, 1999). This information imbalance has most likely developed from the continued financial focus of the external reporting framework, compared to the developments that have transformed management reporting, where there has been a shift from a financial focus to include a

broad range of company specific financial and non-financial measures (Kaplan, 1998; AAA, 2000).

As this study is concerned with all information gaps, regardless of whether management have access to this information, it is of interest to assess whether the consequences of external uncertainty changes based on whether management have access to this information. Despite a lack of literature discussing this point, the researcher is of the opinion that the same costs would apply, as in both situations external parties are dealing with the same uncertainty. Therefore any information gap, as represented by an item of information that external market participants consider relevant to their assessment of value, yet hard to acquire would incur the same costs as discussed for information asymmetry. An alternative view of the assumption made by the researcher can be reflected upon when considering the question of, how the external parties would differentiate as to whether or not management possessed the information.

The researcher therefore interprets the cost of not meeting the information requirements of the market in its assessment of performance and value to be the same as the cost of information asymmetry, with the only potential difference being management's identification of the undervaluation issue. This concept is crucial to this study as it seeks to emphasise the significance of not fully disclosing relevant information to the market, irrespective of whether management are currently collecting this information.

Establishing the existence of information gaps will be of greater significance to this research where it can be shown that there is both a cost to not fully disclosing relevant information, along with outlining potential benefits for companies that make complete performance disclosures. From a technical perspective, the undervaluation of shares can be explained through information asymmetry creating higher transaction costs for trading shares in the company, which then raises the required rate of return, ultimately resulting in the lower than expected share price (Bartov & Bodnar, 1996).

Another explanation for the cost of information asymmetry is proposed by Barry and Brown (1986), where it is put forward that the cost of capital is increased by forcing investors to take on the risks of forecasting investment performance based on incomplete information. The implication of this for firms with lower levels of disclosure

is that they will have a higher information risk and therefore be subject to a higher cost of capital than firms with higher disclosure levels and lower information risk (Barry & Brown, 1986).

A recent study by Piotroski (1999) supports the position that information risk increases the cost of capital. Piotroski (1999) studied the impact that reported segment information has on market expectations and stock prices. This study found that firms providing additional segment disclosures have a contemporaneous increase in the market's capitalisation of earnings, which is consistent with the firm having a lower cost of capital. The consequence of a higher cost of capital, through lack of disclosure, is a lower valuation result. Where a valuation is performed by a discounted cash flow (DCF) analysis, the impact of a higher cost of capital is reflected by the reduced value that is attributed to future cash flows. This reduced value is due to the DCF method taking all future cash flows and converting them back to a year zero value using an inflated cost of capital (Shapiro, 1990; Piotroski, 1999). The presence of information asymmetry therefore represents a limitation in the optimisation of a firm's share value as well as a frustration to investors looking to gather adequate information as part of their investment decision process (Shapiro, 1990; Bartov & Bodnar, 1996).

Where insufficient information is made available to the market, it is possible for investors to collect information themselves and effectively reduce the extent of information asymmetry. However, at an individual level, the information gathering required to reduce information asymmetry is quite expensive, as significant fixed costs are incurred to collect the information. The potential gains for a large investor, from an increase in share price may be enough to offset the cost, however, it is unlikely that smaller investors could justify the costs involved (Shapiro, 1990; AAA, 2002; Appendix two). Companies must also consider cost when deciding what information is to be reported to the market. These costs vary from the cost of collecting and reporting information, to the potential cost of releasing competitively sensitive information (PWC, 2003).

"Drilling Deeper," a study by Pricewaterhouse Coopers (PWC) (2003), surveyed petroleum companies on the collection and communication of performance data to the market. One of the findings from the "Drilling Deeper" study was the difficulty

involved in gathering some key data of sufficient quality to meet the needs of investors. There was also a level of difficulty in establishing how best to communicate key indicators, such as the quality of their management and workforce. Finally, the study found that some reporting shortfalls were a result of insufficient or unreliable information that may be remedied through information system modifications or upgrades (PWC, 2003).

Whether information is withheld from the market due to its competitive sensitivity, or information collection issues, there is a danger that opportunities could be lost with analysts and investors. This lost opportunity is acknowledged in the PWC study (2003) "Drilling Deeper," where survey respondents identified the following as benefits from more comprehensive reporting:

- Reduced share price volatility
- Increased Valuations
- More long-term investment
- Lower cost of capital
- Greater management credibility

Furthermore, the survey found that all participants agreed that more comprehensive reporting should include:

- Non-financial drivers
- Business strategy
- Benchmarking (to competitors)
- Forward looking information (e.g. plans and targets)

With clear benefits achievable from communicating all key information to the market, an obvious question remains as to, why full disclosure is not made? Commentary within the "Drilling Deeper" study suggests that in many cases companies may simply be underestimating the importance of certain non-financial measures to external stakeholders. The significance of this oversight is made clear, as the PWC study also suggests that there is a distinct advantage to be gained by companies who successfully expand on their traditional financial reporting to meet the needs of investors (PWC, 2003).

Despite the obvious benefits of reducing information asymmetry, a limiting factor in reducing the information gap could be attributed to the sensitivity of information. This limitation would most likely vary based on the level of competition and barriers to entry in any given market. Unfortunately, this presents a conflicting situation for management where maximising the value of a company's shares requires minimising information asymmetry, while protecting competitively sensitive information (PWC, 2003; Shapiro, 1990).

2.2.3 Information Disclosure

Information disclosure, within an accounting context involves making information available to interested external parties. This simple definition does not set out what information to collect, at what level of detail, reported to whom, and in what format? The theoretical solutions to these questions may be guided by the three reporting paradigms, being (Coy & Dixon, 2004):

- Stewardship – This relates to the agency relationship that exists between management and shareholders. Within this paradigm the reporting function is used to demonstrate that the resources entrusted to the agent have been used in a proper manner.
- Decision usefulness – Where the output of the reporting function is to aid (predominately) investors, creditors and other suppliers of capital (both actual and potential) in their decision making.
- Public accountability - Recognising a wider stakeholder group interest in the social, political, and economic activities and affairs of the reporting entity (Coy, Fisher & Gordon, 2001).

The study reported in this paper is concerned with the information requirements of one group of stakeholders, namely, financial analysts, and accordingly is grounded in the decision usefulness paradigm. The decision usefulness paradigm is motivated by neo-classical economic considerations and assumes that the reporting of 'useful' accounting

information will facilitate rational economic decisions enabling more efficient allocation of resources (FASB, 1980).

The efficiency of capital markets is reliant on corporate disclosures, such as regulated financial reports which include financial statements, along with management discussion and analysis (Healy & Palepu, 2001). In general, a New Zealand listed company's reporting requirements are governed by a combination of the Companies Act 1993, Financial Reporting Act 1993 (FRA), Securities Markets Act 1988, and the New Zealand Stock Exchange (NZSX) listing rules. These regulatory requirements set out minimum information disclosures that must be made at certain times during the year, and can be summarised as a control framework that ensures stakeholders receive regular financial information on the company's performance and liquidity. Australian listed companies also have minimum information disclosure requirements as set out by their equivalent legislation, along with the Australian Stock Exchange (ASX) listing rules (Australian Treasury, 2007).

In addition to regulatory requirements, companies will generally release further information through press releases, investor websites, analyst presentations and other corporate reports. Independent financial analysts, industry experts and financial press also report their interpretation of available information to the market, where such additional information contributes to many external parties establishment of a comprehensive view of a company's performance (Healy & Palepu, 2001; AAA, 2002).

The additional information and interpretation of performance data by independent analysts and press, can represent a significant increase in exposure and information disclosure for listed companies. Unfortunately, not all firms will benefit from additional coverage as discovered in the findings of FCR (2004) research report, which reviewed the additional independent media and analyst coverage given to companies listed on the Australian Stock Exchange (ASX). A key finding of this report revealed that in 2003 only 27% of over 1600 ASX listed companies gained media attention for their December 2003 results. A lack of media coverage was even more evident for small and medium size business's which struggled to stand out amongst the numerous result announcements that would occur each day in the final week of a reporting period (FCR, 2004).

The lack of independent analyst attention and high level of competition to gain media coverage, may reduce the exposure of a company's shares to the market, along with reducing the amount of independent and non-financial discussion of the firm's performance. Where a firm's results lack exposure to the market, there may be merit in the utilisation of alternative methods of communicating performance. The potential dual role of marketing to satisfy both customer and shareholder objectives may offer part of the solution to increasing both exposure and the amount of information (particularly non-financial information) that is issued to the market. This dual role was considered by Hodgson (2004) in her study that explored the link between marketing and shareholder value. The conceptual model used in this study shows the potential for marketing, traditionally only valued for its ability to influence sales, to take on a dual role, with the additional function of having flow-on impacts on share value.

To some extent, such a dual perspective may present marketing as a potential solution to the previously discussed costs associated with information asymmetry, and market exposure issues. However, where additional information is communicated to the market with the aim of reducing information asymmetry and ultimately influence the market's assessment of value, it is crucial that the information is both timely and relevant to the assessment of value (Barry & Brown, 1986; AAA, 2002). Additionally, it is important that the information is accepted as valid, otherwise the market may have limited or no use for this information (Frost, Gordon & Hayes, 2006).

Where regulatory reporting requirements are met, the information disclosed is generally subject to some level of independent verification (Frost et al, 2006). As the types of disclosures to the market develop, the method of verification of these disclosures may also need to develop. Where traditional disclosures were highly focused on financials, verification could be sought through financial auditors. Now that non-financial information is growing in relevance (Kaplan, 1998; AAA, 2002), the most appropriate means of verification for this type of information also needs to be considered. Financial auditors may struggle to objectively analyse the accuracy of disclosures relating to technological developments, where as other reputable, independent parties may be better suited to assess the accuracy of these statements. An example of one such organisation would be Euro NCAP where independent safety tests are carried out on

motor vehicles, therefore allowing newly developed safety technology to be compared to various standards and other products on the market (Euro NCAP, 2007).

Further consideration of the verification / audit of non-financial disclosures is beyond the scope of this thesis.

2.2.4 Demand for Reporting Beyond Financial Performance

As the investment market place is greatly influenced by the views of analysts and fund managers (FCR Report, 2004), it is of particular interest to consider the information requirements of these market participants as an indicator of what is required by the market for investment decision making. Recent research offers some enlightenment on the information requirements of analysts and fund managers, as a need for a broad cross-section of information beyond the scope of financial measures, which specifically includes a strong demand for non-financial measures (Ernst & Young, 2000). The growth in the demand for reporting non-financial performance is made particularly clear in research by the Ernst & Young Centre for Business Knowledge (2000), where it was found that fund managers attribute at least 35% of their investment decision to non-financial performance. Additionally, the study found that more accurate forecasts were made where the analysts used more non-financial information (Ernst & Young, 2000).

The relevance of non-financial information as part of analysts assessment of performance and value is further supported by Dempsey et al (1997), where analysis of these results reveals that not only are non-financial measures relevant to analysts, in many cases non-financial measures were considered very important in the assessment of value (Dempsey et al, 1997). The following table was taken from Dempsey et al's survey results, and has been reproduced to show the top 20 measures based on the mean perceived predictive value ratings attributed by the surveyed analysts. Ratings were given based on a five point scale (one to five), where one is a low rating and five is high (Dempsey et al, 1997).

Table 2.1 Dempsey et al (1997) Top 20 Perceived Predictive Value Measures

Measure	Predictive Value	
	Mean	Rank
Cash Flow	3.94	1
Market Share	3.89	2
Experience / Reputation of Management	3.89	2
Potential Competition	3.86	4
Net Income / Earnings per share	3.74	5
Return on Equity	3.58	6
Continuity of Management	3.55	7
Capacity Utilisation	3.47	8
Percent of Sales Due to New Products	3.47	8
Sales	3.37	10
Capital Investment	3.34	11
R&D Expenditures	3.34	11
Percent of Sales from Proprietary Products	3.31	13
Product Diversification	3.31	13
Return on Sales	3.28	15
Brand Awareness	3.25	16
Return on Assets	3.23	17
Ethical Behaviour of Management	3.23	17
Number of New Products	3.21	19
Customer Diversification	3.16	20

In reviewing the top 20 measures, it is significant to find a diverse range of highly ranked measures. More specifically, it is clear that many of the measures do not form part of the traditional financial reporting framework, thereby establishing a demand for reporting beyond financial information (Dempsey et al, 1997; AAA, 2000). This section of the literature review is limited to the confirmation of analysts' use of non-financial measures as part of their assessment of performance and value, further discussion of how such information is utilised by analysts is covered in section 2.4.1 of the literature review. With the demand for non-financial measures established, literature on the ability

of non-financial measures incorporation into the reporting framework is discussed in the following section.

2.2.5 Standardised Reporting Requirements

Research by Healy and Palepu (2001) found where information asymmetry exists, it is difficult to fully evaluate the quality of a company, and as a result the company tends to be undervalued in the stock market. Healy and Palepu make the point that under these conditions, a "good performing company" has an incentive to proactively disclose its information to the market in order to maximise the value of its shares. However, the inverse relationship applies to a "poor performing company" where there is nothing to gain from the disclosure of any additional, negative information. Based on this, one of the conclusions made by Healy and Palepu is that relying on the autonomy of companies would not be enough, and that it is necessary to have information intermediaries and/or regulations implemented that mandate information disclosure (Healy & Palepu, 2001).

Australasian reporting requirements in general, reflect the statements made by Healy and Palepu through the existence of statutory reporting requirements. These reporting requirements are however quite limited, as they generally focus on core financial performance reporting (Healy & Palepu, 2001; ASX, 2006; NZSX, 2006). As discussed previously in the literature review, the rise in profile of non-financial information lead to the American Accounting Association (2002), undertaking research to consider whether a standard set of non-financial disclosures would benefit investors. Despite strong academic evidence supporting the relevance of non-financial information, the American Accounting Association ultimately found against extending the reporting requirements of companies, due to the variability of relevant measures that would exist between industries and individual companies in general.

To some extend Healy and Palepu (2001) and the American Accounting Association's (2002) findings are conflicting. Although Healy and Palepu make a valid point for regulating disclosures, the rationale as to why this is not done is made clear by the findings of the American Accounting Association. In simplistic terms, individual

companies are too different, therefore making a standard set of disclosures beyond core financial information of no benefit to investors (AAA, 2002).

The point raised by Healy and Palepu, that a poor performing company will not report negative non-financial performance without statutory requirement presents a real risk as this issue may contribute to the abundance of evidence reflecting the inadequate reporting of non-financial performance (Dempsey et al, 1997). However, there is still a cost of not fully disclosing relevant performance, as the market is unable to fully recognise the value of a company's shares where insufficient disclosures exist (Bartov & Bodnar, 1996). Therefore, in the situation suggested by Healy and Palepu, where companies will not voluntarily report bad performance, information asymmetry costs would apply, as the market would not appreciate uncertainty and would reflect this in the price investors were willing to pay for the company's shares (Bartov & Bodnar, 1996).

Although there may be instances where the cost of reporting bad news may be greater than the cost of information asymmetry, the point being made here is that there will still be a cost to non-disclosure. Additionally, where external non-financial reporting develops closer to meeting the needs of the market, any shortfall in information under these circumstances may potentially be viewed as an intentional omission. Even under such circumstances, the counter argument may be that the market may not know that information is being withheld. However, non-disclosure is less likely to go un-noticed where the market is constantly scrutinised by analysts who are experts in the assessment of value relevant data (Dempsey et al, 1997). Investors may also become suspicious if a company traditionally made a certain non-financial performance disclosure and subsequently ceased to disclose this information without adequate reasoning.

Healy and Palepu's (2001) discussion of statutory requirements goes beyond the regulation of reporting requirements to include the need for a level of assurance that the non-financial information reported is a fair and accurate representation of the company's performance. The key point made here is that for information to be accepted by the market, it must be verified (Oliverio, 2007). Relevant highlights on the existing framework applied to the verification of information disclosed to the market, includes the awareness that verification of externally reported information has traditionally been

through the independent audit of a company's financial statements (Oliverio, 2007). It may be possible for non-financial information to be verified in the same manner. However, in many cases other independent bodies may be more suited to verify the ability of non-financial performance to drive future financial success. Additionally, some level of verification may be added to certain types of disclosures where they are analysed and reported by reputable analysts or media groups (Healy & Palepu, 2001).

The interaction between the quality heterogeneity and asymmetrical information, is assessed by Akerlof (1970) from a consumer's point of view. Akerlof's discussions of a "Lemons Market" is not only relevant to buyers of consumer goods, but can also be applied to investors buying shares, as in both cases the key issue relates to the availability of information to assess the true value. In Akerlof's discussion of the "Lemons Market" it is theorised that where quality is undistinguishable prior to purchase (due to information asymmetry), the buyer is aware of the sellers ability to attempt to mislead the purchaser of the quality of the product being purchased, and for this reason, the buyer takes this incentive into consideration. Under these conditions Akerlof states that only the average quality of the good will be considered, which in-turn means that goods of above average quality will be undervalued by the buyer (Akerlof, 1970).

When the "Lemon Market" theory is considered from an investor's perspective, the prospect of shares being undervalued due to uncertainty is reaffirmed. This means that where a company is performing well in non-disclosed areas of performance, the market will not recognise this value. The opposite may also be true as companies may refrain from voluntarily disclosing poor performance that would adversely affect their perceived value (Akerlof, 1970). Although the consumer market may be able to legislate to limit the existence of the "Lemons Market," it may be more difficult to rectify this situation for investors, as relevant information is firm specific (AAA, 2002). Investors may be more appropriately compared to consumers in the second hand market, where the concept of "Buyer Beware" is highly relevant, due to the lack of warrantees (Akerlof, 1970).

The reliance on management to make appropriate voluntary disclosures may be reflected by analysts' consideration of the experience / reputation and ethical behaviour of management in their assessment of a company's value (Dempsey et al, 1997). This reflection by analysts demonstrates that there would likely be a subsequent cost to identified non-disclosure, as management's reputation may be impacted and considered in future value assessments by analysts. This statement is supported by PWC (2003), where one of the benefits of increased (broader) performance disclosure was greater management credibility.

2.2.6 Reducing Information Asymmetry

With the importance of meeting the information requirements of the market established, the question remains as to how these information requirements can be identified? As discussed in the findings of the American Accounting Association report (2002), there is no standard set of information requirements that can be applied to every company. Therefore, without the guidance of reporting requirements, companies will need to look at other methods of identifying the markets information requirements. This research seeks to assist in raising the awareness of such issues, through the identification of information gaps, and examination of related studies that emphasise the consequences of not disclosing all relevant information (relevant to external parties assessment of performance and value), along with potential solutions. The researcher considers the following to be potential solutions to information asymmetry between companies and the market:

1) Establishing relationships with analysts, or relevant professional bodies to constantly assess the analyst's information requirements. In this situation, the analysts or professional bodies would act as representatives of the market. This solution relies on the participation of a third party, and although in many cases their may be a mutual benefit to such a relationship, this may not apply to all companies. This thesis has limited ability to influence this relationship, and is therefore beyond the scope of this thesis.

2) The use of academic studies examining the information requirements of the market, and key areas where information gaps exist. This thesis has analysed previous studies such as Dempsey et al's (1997) research on analysts' information requirements and will seek to contribute directly to this option in later chapters where the thesis research results are presented and discussed.

3) Self identification and release of relevant information. Industry comparisons may be of some use in identifying relevant information to report to the market. However, different types of market competitors are likely to have different value drivers. Given that the business can not rely entirely on a standard set of reporting requirements based on industry and competitor type, the company may need to self identify and report relevant information.

Although option one is beyond the scope of this thesis, option two and three are addressed through the presentation of subsequent research results and literature discussion. The thesis research seeks to directly contribute to option two through the survey of Australasian analysts, where the results and discussions of this research are examined in chapter four. Although option three is beyond the scope of the research contribution, further exploration and discussion of option three is undertaken in the subsequent sections of the literature review. This will include placing particular emphasis on the exploration of recent management accounting concepts and developments. Additionally, the Balanced Scorecard's cause and effect relationship will be examined for the potential adaptation of this concept to identify value relevant information that will meet the market's information requirements.

2.3 Developments in Management Reporting (Internal Reporting)

2.3.1 Use of Non-Financial Measures

A new age of customer focus has ultimately contributed to a broader range of measures becoming relevant to management decision making (Perea et al, 1997). The broadening perspective of management reporting is emphasised by modern management tools such as the Balanced Scorecard, which offers a more diverse perspective on performance when compared to traditional methods which focus on historical financial performance (Kaplan & Norton, 1986).

The Balanced Scorecard utilises many modern management accounting developments, and these will be explored within the remainder of the literature review. These developments include:

- The identification and monitoring of firm specific measures.

- The utilisation of a diverse set of performance measures, most notably including non-financial measures (non-financial measures will be reviewed for their value relevance).

- The Balanced Scorecard's reliance on the existence of a cause and effect relationship. This key development within the balanced scorecard will be critically reviewed for its application to the assessment of value relevant measures.

2.3.2 Balanced Scorecard: Cause and Effect Relationship

Developed by Kaplan and Norton in the early 1990s, the Balanced Scorecard is a management tool that uses a mix of both financial and non-financial measures in an attempt to take a broad view of the organisation's performance (Kaplan & Norton, 1992). Taking a broader view of the organisation's performance is a key concept of the Balanced Scorecard and is highlighted in the use of its four key categories of performance, being:

- Financial performance
- Customer relations
- Internal business processes
- Learning and growth activities

Each of these four categories generally contains four to seven measures that are used to show the organisation's performance (Kaplan & Norton, 1992). One of the key developments in the Balanced Scorecard is the removal of a short-term focus on financial results. This is achieved through the Balanced Scorecard's broader focus on other, non-financial areas of performance, which acknowledges that future financial performance is also of significant importance. In doing this the Balance Scorecard relies on the non-financial measures to act as an indicator of future financial performance (Kaplan & Norton, 1992).

The link between current non-financial performance and future financial performance is achieved in the Balanced Scorecard by the proposal of a cause and effect relationship existing between the four outlined perspectives. The cause and effect relationship effectively proposes that the measures of organisational learning and growth are the drivers for the measures of internal business process. The internal business processes are then the drivers of the customer perspective measures, which then have a final cause and effect relationship with financial performance (Kaplan & Norton, 1996).

Despite the Balanced Scorecard, along with its cause and effect relationship assumption being widely implemented into organisations throughout the world, there are several criticisms of this management tool. Relevant to this study is the criticism of the Balanced Scorecard's cause and effect relationship, where it is suggested that there is no causal, but rather a logical relationship among the perspectives (Norreklit, 2000). This criticism and its impact on the potential adoption of the cause and effect relationship to identify value relevant measures is further examined, as the strength of the cause and effect relationship is crucial to investors and management alike.

In response to the criticism of the cause and effect relationship, it is important to recognise that the Balanced Scorecard has not been created as a template of measures to be applied to all organisations, and that each individual organisation would need to build their own Balanced Scorecard that reflects its strategy. Additionally, the criticism of the cause and effect relationship, may place too much emphasis on an exact definition of "cause and effect" versus "logic", where the function of the Balanced Scorecard is not exclusively a strategic control tool, but also a learning tool. It is however of crucial importance that the cause and effect relationship should be constantly monitored for inconsistencies and improvements (Kaplan & Atkinson, 1998; Norreklit, 2000; Frigo, 2002b).

When considering the term "cause and effect relationship" within a management accounting context, it can be seen that this relationship has been used successfully in other management accounting tools such ABC costing. The cause and effect relationship used in ABC costing is also not always able to be supported by a precise calculation. However, the focus is not on the cause and effect relationship being precise but rather whether it exists, and the focus it places on organisational learning (Cooper & Kaplan, 1999).

Ittner and Larker (2003) add insight into the cause and effect relationship, where they discuss choosing performance measures on the basis of causal models. Also known as value driver maps, these models lay out the plausible cause and effect relationships that may exist between the chosen drivers of strategic success and outcomes. It is however extremely important that companies continually check the validity of their causal models to ensure that they do actually go on to prove that actual improvements in those

non-financial performance measures go on to affect future financial results. If companies do not investigate the causal relationship then they run the risk of measuring aspects of performance that may not lead to financial success (Ittner & Larker, 2003).

In general management accounting literature tends to positively view and implement the cause and effect relationship (Kaplan & Norton, 1992; Cooper & Kaplan, 1999; Ittner & Larker, 2003). However, it is important that the cause and effect relationship is not viewed as precise, able to be applied as a template or static. An organisation must therefore gather evidence of the linkages over time, with the challenge being to identify the strength and speed of the causal linkages among the non-financial and financial measures (Horngren, Foster & Datar, 2000). The Balanced Scorecard on this basis, would evolve over time as the organisation gains experience in which non-financial objectives and measures best forecast the subsequent financial performance.

The cause and effect relationship applied in the Balanced Scorecard, along with the causal models identified by Ittner and Larker (2003), may offer a method for management to identify key measures to disclose to the market. Before applying such methods, it is crucial to understand the internal measures before assuming they will be relevant externally. A potential difference between traditional management accounting and analyst's application of performance information is cash flow, timing and risk (Shapiro, 1990; Ross et al, 2004). More specifically, the linking of non-financial measures to future financial performance does not consider actual cash-flows. They also do not formally recognise the time value of money, nor do they differentiate for risk (Norreklit, 2000). Where cash flow, timing and risk are relevant to decision making, the ultimate focus of disclosures should be based on a set of relevant measures that can be linked to value (Norreklit, 2000).

2.3.3 Value Relevance: The Balanced Scorecard and Non-Financial Measures

In the assessment of existing management accounting tools ability to identify value relevant measures, it is of particular interest to examine whether the use of these management tools, have been effective in creating value. Frigo (2002) examines evidence of where tools such as the Balanced Scorecard can add value to a business through the alignment of strategic performance measures and results. This study found that companies whose stock price out performed that of their competitors are likely to have a formal strategic performance measurement system. This is particularly relevant as the study defines a formal strategic performance measurement system as either VBM or a Balanced Scorecard framework. It is significant that the use of these frameworks added value to the companies, as this indicates that the measures and assumption within these management tools are relevant to management decision making in maximising the value of the company. Further to this, success in creating value may add to the viability and relevance of using such tools in the identification of information to report to the market.

Ittner, Larker, & Randell (2003) recently completed a study that adds to the argument that a broad set of disclosures have value relevance. Ittner et al's study considered the performance implications of strategic performance measurement in financial services firms and found evidence that firms making more extensive use of a broad set of financial and particularly non-financial measures, have higher measurement system satisfaction and stock market returns than other firms with similar strategies or value drivers. These findings come from a study of 140 US financial services firms, and although the study finds advantages in measurement system satisfaction and stock market returns for those companies that incorporate a broad set of performance measures, on average it does not find any economic advantage for companies who use a Balanced Scorecard.

Although Ittner et al's (2003) findings did not support the use of the Balanced Scorecard providing an economic advantage over those that do not use it, the study does reflect the distinct economic advantages that can be achieved from measurement diversity. An important distinction that the study makes with regard to the advantages gained from measurement diversity, is that measurement diversity is distinct from

greater measurement on an absolute scale. More specifically, it is the breadth of the measures, rather than the number of measures that drive the economic advantage.

Unfortunately, no detail is given as to how each firm identified its performance measures, as although Ittner et al's (2003) study did not find any advantage for the use of the Balanced Scorecard, it would be of interest to identify how the broader range of measures were selected. The significance of this information would be to demonstrate whether simply taking a broader view of the companies performance resulted in the economic advantages, or whether firm specific causal models were used to identify a the broad range of measures (such as the Balanced Scorecard's cause and effect relationship). Without knowing this true driver, it is still significant to the research within this thesis that Ittner et al (2003) found economic advantages for companies incorporating a broader performance focus. The reference to these advantages being particularly relevant to non-financial measures is even more significant to this thesis research as it places additional emphasis on the value relevance of non-financial disclosures.

2.4 Value

2.4.1 Value and How it is Measured

With such a strong emphasis and benefit arising from the use of non-financial information, it is of interest to this research to understand how non-financial information is incorporated into an analyst's assessment of value. Unfortunately there is limited research on analysts use of non-financial measures for valuation, therefore finance text books, along with a practical assessment of an analyst's valuation process (Appendix two), have been used to demonstrate how non-financial information is particularly relevant to the assessment of value and cash flow forecasts.

A common finance approach to measuring value involves the use of discounted cash flow analysis (Shapiro, 1990). This method of measuring value involves assessing how a business's decisions and performance affects both short and long-term cash flows. Further emphasis has been placed on discounted cash flow methods of valuation since the recent trend of corporate collapse, with financial analysts now being urged to place greater emphasis on reviewing valuation techniques and procedures, with Discounted Cash Flow (DCF) models being strongly promoted (Beneda, 2003). The focus on DCF models for valuation purposes is promoted based on the following proposed advantages over other methods (Beneda, 2003):

- Separates operating performance from non-operating performance
- Able to value divisions and projects
- Allows for changes
- Generates other useful information
- Easy to evaluate affects of alternatives
- Shows how corporate decisions affect stakeholders

Despite these advantages DCF methods of valuation do not present an exact science as such valuation methods involve making assumptions about the future financial performance of a company, in order to project forward cash flows. The future cash flows are then subject to the company specific discount rate, which is used to convert all

future cash flows, back to year zero, where the sum of the discounted cash flows represents value (Shapiro, 1990; Ross et al, 2004). Where a DCF model is used to assess the value of an organisation, the projected cash flows need to be established through the analysis of historical financial information (including trend analysis), along with assumptions about future performance. Some of the key assumptions relate to basic financial information such as anticipated sales and expenses. This financial performance information needs to be projected forward to ultimately result in the calculation of net cash flows in each period (Shapiro, 1990; Ross et al, 2004).

In the projection of the company's financial performance, assumptions such as sales growth rates, cost inflation, and conversion of sales into cash (recoverability of sales made on credit) need to be made. It is assumptions like these that rely heavily on non-financial measures to effectively act as an indicator of future financial performance. The prediction of future sales (or sales growth rate) is an example where non-financial information can be used to establish or confirm assumptions about future sales. Existing market share, along with the company's ability to either increases its market share, grow the market, or increase margins will greatly influence sales revenue in future years. As an example, non-financial information such as the quality of the company's products, customer satisfaction and anticipated technological developments would assist in the estimation/confirmation of these variables (AAA, 2002; Ittner & Larcker, 2003; Appendix two).

As valuation models such as the DCF model rely heavily on both a diverse set of measures and cash flow forecasts, it is imperative that this information is available and accurate (Beneda, 2003). In the case of cash flow, accurate cash flow forecasting is not only useful to analysts in assessing value, as companies themselves can directly benefit from accurate cash flow information. These benefits include the ability to pay down debt, reduction in the company's financial exposures to currency and interest rate risk, and potentially improving the company's credit rating (Labate, 2004). In order to achieve these benefits, an understanding of what actually determines cash flows at any point in time will be required. This involves seeking an understanding of the factors that drive changes in current and future sales and costs (Labate, 2004).

Forecasting relies on fast and accurate information, which is now more achievable due to recent developments in information technology (IT). This is largely due to increasing levels of automation that can be applied to the entire process of collecting and processing internal information. These developments should therefore allow information to be communicated in a timely manner (IMA, 1999). These technological developments along with analysts increased focus on DCF models, mean that cash flow forecasting will become more than just a means of performing checks and balances. Internally, cash flow data can potential be utilised by management as a means of strategic planning, and externally, the quality, support and timeliness of cash flow information forms part of the valuation and investment decision process (Labate, 2004).

This section of the literature review has discussed the basic aspects of DCF valuation and associated subjects, however further discussion beyond this basic principle along with the calculation of the discount rate is beyond the scope of this thesis.

2.4.2 Identification of Measures Driving Value

Where the Balanced Scorecard was seen to rely on causal links between the measures within the four perspectives of performance, it is of interest to examine whether this causal model could be applied to identify measures that impact on the assessment of value. Theoretically, two firms competing in the same industry would not necessarily have the same value drivers as their strategy may be based on a different type of competition. For example one firm may compete on cost where as the other may compete on a differentiating factor, or target a specific market. This, along with potentially different sources of competitive advantage, means that it is unlikely industry standard measures could be applied. Based on this logic position, the same concept of requiring individual development of relevant measures applied to the Balanced Scorecard will also apply in the assessment of measures to report externally (Kaplan & Norton, 1992; AAA, 2000).

The above statement is supported by research performed by Aaker (1989), where the examination of what measures managers from 248 distinct businesses thought reflected the sustainable competitive advantages of their business. A significant finding of this

study was that there is not a distinct group of measures where competitive advantage could be found. Although there were trends within industries, still no one or two measures were found to be success drivers to all the competitors within each industry. This strengthens the position that an individual company needs to identify and develop their own core competencies as a means of seeking continued competitive advantage. Another important finding from the study was that all participants identified more than four sources of competitive advantage, indicating that perhaps one single competitive focus is not adequate to base a strategy on (Aaker, 1989). Therefore, if the Balanced Scorecard's cause and effect relationship, or Ittner and Larker's value map drivers were used in the identification of value relevant measures, all areas of performance would need to be considered, and not just a single competitive focus.

Ittner & Larker's (2003) discussion of the selection of the Balance Scorecard's non-financial measures brings attention to the effectiveness of non-financial measures as leading indicators of future financial performance being dependent on the establishment of a causal link. Further to this, the identification of such measures would involve sophisticated, quantitative and qualitative analysis of the factors actually contributing to the economic results (Ittner & Larker, 2003).

The remaining difference between the Balanced Scorecard's ultimate focus and that of analysts, is cash flow, timing and risk (Norreklit, 2000). Where the Balanced Scorecard's ultimate link is to financial performance, analysts are interested in value (Shapiro, 1990; Kaplan & Norton, 1996). This does not necessarily limit the Balanced Scorecard's ability to identify value relevant information for external disclosure, it means that some adaptation of the Balanced Scorecard, and the linkages within the cause and effect relationship may be required to more accurately reflect relevant information for external reporting, more specifically cash flow, timing and risk need to be considered.

2.5 Chapter Conclusion

The literature review has established that there is a link between information asymmetry and the ability of the market to fully recognise the value of a company's shares (Barry & Brown, 1986). These findings are important as they recognise the cost associated with information asymmetry, along with the potential for managers to influence the value of shares by ensuring complete, relevant and timely reporting takes place. As legislative and listing requirements predominantly focus on financial reporting, non-financial reporting largely relies on such incentives motivating companies' management to make additional voluntary disclosures (AAA, 2002).

In the absence of a regulatory reporting framework to guide all aspects of reporting required by the market, the scope of the literature review was expanded to assess potential means by which management may identify relevant information to report externally. Tools such as the Balanced Scorecard and its cause and effect relationship were found to have an association with enhanced value (Frigo, 2002). It was therefore put forward that tools such as the Balanced Scorecard, modified to acknowledge cash flow, timing and risk would be suitable for management as a guide to ensuring comprehensive, relevant external disclosure.

The extent to which the regulatory reporting framework and voluntary compliance meet the information requirements of external parties' investment decisions is assessed in chapter five. The method and analysis to be undertaken in this assessment is set out in the following chapter (chapter three).

CHAPTER THREE: RESEARCH DESIGN

3.0 Introduction

This chapter starts by outlining the research problem (established within the literature review) and study design, before going into specifics on the selection of participants, and method of research.

3.1 Research Problem

The literature review's discussion of the existence and cost of information asymmetry, along with the growing relevance of non-financial measures, forms the basis of the research problem. With these issues in mind, the thesis seeks to identify potential information gaps in the Australasian market, through the survey of Australasian analysts.

Section 3.3 of this thesis sets out the rationale for using analysts as representatives of the market. On this basis, the analysts' view of the following will be of particular interest to this study:

- What measures are relevant in assessing value?
- What information is difficult to acquire?
- Are there any information gaps? Otherwise stated, is it hard to acquire information that is relevant to the assessment of value?
- As non-financial information is not directly covered by the regulatory reporting framework, is non-financial information under-reported to the market.

More specifically, this thesis will seek to answer the following research questions through a survey of analysts:

- What is the perceived predictive value of performance measures?
- What is the perceived ease with which information on each of the measures can be acquired?
- Does an information gap exist?
- Is non-financial information under-reported (externally)?

The research contribution from this thesis is supported by the examination of existing literature concerned with the costs of under-reporting / benefits of full relevant disclosure, along with the examination of potential tools to be used in the identification of information relevant to external parties' assessment of performance and value. Assessed through a broad selection of Accounting and Finance literature the following questions are addressed:

- What are the consequences of under-reporting / benefits of full disclosure of information relevant to the markets assessment of performance and value?
- What methods may be employed to identify relevant information to report to the market (for its assessment of performance and value)?

3.2 Study Design

Quantitative, descriptive research has been selected as the most appropriate research strategy for this study. This type of research is generally associated with the use of a survey, which is consistent with the approach selected for this thesis (Hair et al, 2003). The research strategy was decided based on both the research problem and the targeted participants. As this thesis seeks to identify information gaps through analysts' assessment of perceived predictive value and ease of acquisition, the access to appropriate analysts became the primary concern in selecting the research method.

Section 3.3 outlines the participant selection rationale, with the outcome being the participation of the New Zealand and Melbourne (Australia), CFA branches. As the members of these branches are spread across a wide geographical area, including two different countries and time zones, the use of alternative research methods such as interviews or discussion groups seemed problematic. Additionally, the survey method was seen as appropriate for its ability to maintain the anonymity of the participants, its usefulness in describing the characteristics of a population, the ability to target a bigger sample of the population, and the speed with which data could be collected (Babbie, 1973; Hair et al, 2003).

A self administered, web-based survey has been selected as the means of administering and collecting the survey data. Selection of this survey method was primarily driven by the need to minimise the time required by both the professional body issuing the survey, and the participant completing the survey. Unfortunately there was a distinct lack of relevant research that could be used to assess the merits of different survey methods for analysts. However, discussions with the survey review group (as defined in section 3.5) revealed that computer and web-based tools formed an essential part of the analyst's role, where these tools were used to both access and communicate information.

Despite the lack of strong evidence to support the use of a web-based survey over traditional paper based surveys, it was the opinion of the researcher and the professional body being surveyed, that a web-based survey would be the most appropriate method. This decision was made primarily based on:

- The participants level of computer literacy.
- The participants level of internet and web-based resource familiarity.
- The speed with which a web-based survey can be opened, and completed.
- The ease with which the participating professional body could issue the survey to its members.

In searching for prior research work of a similar nature, the US study by Dempsey et al (1997) was found. Although not an exact match, several components of the study are able to be adapted and used in this research. The most significant contribution taken from this study is the establishment of a base set of performance measures. Using the base set of relevant performance measures established by Dempsey et al (1997) has negated the necessity to carry out exploratory research. However, it is crucial that the performance measures used in the survey are both complete and relevant to current Australasian analysts. In order to achieve this, a survey review group was established to review the measures for appropriateness and completeness (justification for this method is developed in section 3.5).

In designing the survey and the research process in general, various considerations were made, which included:

- High-level executive sponsorship
- Writing better and shorter questions
- Minimising demographic questions
- Using a five-point scale
- Carefully choosing the type of survey method
- Using the most appropriate method to boost response rate

(Babbie, 1973; Hair et al, 2003).

These key design considerations are applied throughout the research process, and were considered in discussions with senior representatives from the participating bodies. Evidence of the design considerations are demonstrated throughout the thesis, which includes the issue of the survey by senior members of the professional organisations, the survey content, and the use of a five point scale.

In addition to incorporating best practices in the survey, the overall design and application of the survey considered:

- The impact on the participating professional body. Further discussed in section 3.6.
- Comparability with the US study by Dempsey et al (1997). Where consistency with the US study by Dempsey was considered appropriate as it would allow for additional comparisons to be made.

3.3 Participants

For the purposes of this study, analysts are defined as people in the profession of assessing the value of companies, for the purpose of investment decision making or for strategic purposes. Examples of roles that fall within the definition are financial analysts, investment bankers, and corporate finance advisors. This definition is developed in line with the research problem, research method, and related study completed by Dempsey et al (1997). An expanded set of roles that were considered relevant to this study can be found in Appendix three, where the survey participants' roles are listed.

Analysts have been chosen as the target group for this survey as they are experts in the assessment of value. Where the accounting profession has traditionally focused on historical financial information, analysts have considered a broader spectrum of information in assessing value and investment options (Dempsey et al, 1997; Kaplan, 1998). Analysts also have first hand knowledge of the ease with which value relevant information can be acquired. Although recent developments in accounting have seen the focus of accountants broaden, professional accounting bodies were excluded based on the range of roles with which they represent and, accounting bodies such as NZICA unwillingness to support a role targeted survey.

The Chartered Financial Analysts Institute (CFA) were selected as the professional body whose members would be most appropriate to survey. CFA is a professional organisation comprised of members who work as financial analysts, portfolio managers, along with other investment professional. The CFA members were selected for the survey as their professions involve understanding and assessing the value of companies (http://www.cfasociety.org.nz).

Although other relevant professional finance bodies were considered for the survey research, no other professional bodies were identified that had the same concentration of analysts and who would participate in the survey. In assessing the suitability of participants for this survey, a clear distinction was made between those who actively assess the value of companies through the collection and analysis of information, compared to those who give general financial planning or investment advice principally based on the analytical assessment of a third party. This was an important distinction to make early in the research phase, where the relevance of the survey results were prioritised over the quantity of participants.

As a result, the CFA Institute was identified as a professional body whose members could be expected to have the experience and knowledge to assess the value relevance and ease with which information could be acquired. Through discussions with respective branch Board members, this study gained the participation of both the New Zealand and Melbourne (Australia) CFA branches. Examination of the appropriate CFA websites along with discussions with senior CFA members about the roles their members generally undertake, confirmed that the CFA members roles were consistent with what was required to assess the value relevance and ease with which information could be acquired.

3.4 Survey Participants Statistics

The analysts participating in the survey research belong to the New Zealand and Melbourne (Australia) CFA branches. The membership and overall response rate details are presented below:

New Zealand CFA Branch Members	124
Melbourne CFA Branch Members	162
Total CFA Members	286
Response Rate	18.88%

Note: Summary web-survey statistics are detailed in Appendix three.

3.5 Questionnaire

Development of the survey questionnaire has significantly relied on research by Dempsey et al (1997), on the use of strategic performance variables as leading indicators in financial analysts' forecasts. Dempsey et al (1997) surveyed 2,751 financial analysts on the frequency of use, predictive value, and ease of acquisition of sixty three measures that are frequently associated with the long-term performance of companies. Dempsey et al established this surveyed list of measures from an examination of literature in the fields of accounting, finance and strategy. These measures were then refined through the circulation and discussion with a group of twelve analysts and executives.

As this thesis is concerned with companies making adequate disclosures, the application of Dempsey et al's established value relevant measures, along with their assessment of perceived predictive value and ease of acquisition would be appropriate for incorporation into the thesis research. Before relying exclusively on the measures identified by Dempsey et al, the applicability of measures relevant to research that was published in 1997 (almost a decade ago), along with the list of measures geographic origin (USA) were considered as a potential weakness. To ensure Dempsey et al's performance measures are both relevant and complete with respect to the current

Australasian market, a survey review group was established to undertake this review. The survey review group was comprised of five analysts, who were sent the list of measures established as relevant by Dempsey et al (1997), along with a sample survey for discussion and feedback.

Although a focus group was the preferred method, the time commitment that would be required from the participants, along with their relatively long hours and often unpredictable workloads meant that their review and input into the survey needed to be flexible. In order to meet the needs of the survey review group, a method similar to that used by Graham & Campbell (2002) was replicated by sending the survey out to a small group of analysts for direct feedback (in many ways similar to a pilot study). Once updated to reflect the contribution of the review group, a modified survey was then issued to the two participating CFA Boards for feedback and approval.

The survey review group identified seventeen additional measures that they considered relevant in the assessment of a company's value, along with three measures that could be removed from the base set of measures provided by the Dempsey et al' (1997) survey. In the interest of comparability, the three measures that had been identified as being of little relevance to the assessment of value were left in the final survey. These measures were left in to allow for greater comparison between the Australasian survey and Dempsey el al's US survey. Removal of three measures would not only have affected the comparability of measures on an individual basis, but would ultimately impact the values attributed to the categories. Additionally, the removal of only three measures from the survey would make minimal difference to the number of measures surveyed and the time required to complete the survey.

The 17 additional measures identified by the survey review group for inclusion in the Australasian survey created a dilemma, as the inclusion of these measures would significantly increase both the number of measures examined and the time to complete the survey. Ultimately, these measures were included in the final survey as they had been identified as being relevant by the survey review group, and the exclusion of these measures would be at the cost of issuing a survey that potentially did not consider all value relevant information. The complete list of measures surveyed can be found in Appendix four, where categories 'A' to 'H' include the measures established by

Dempsey et al (1997) and category 'I' represents the measures that were added to the survey based on the survey review group's input.

In addition to increasing the number of measures assessed, a significant departure made from Dempsey et al's survey (1997), was the number of rating criteria being applied to the measures. Dempsey et al (1997) required the participants to rate the measures based on three different criteria:

- Frequency of Use
- Predictive Value
- Ease of Acquisition

Examination of the findings by Dempsey et al (1997), reveal that frequency of use is dependant on the predictive value and the ease of acquisition ratings. Dempsey et al identify this relationship within their study, where they find that "on average, frequency of use scores change point for point with changes in predictive value, and change one-third of a point for each unit change in ease of acquisition." Relevant statistical analysis by Dempsey et al supporting this finding is reproduced in Appendix five.

As a result of this correlation, along with consideration for the relative time requirements of the survey participants, the Australasian survey examined the measures based on their:

- Predictive Value
- Ease of Acquisition

It is the opinion of the researcher, that the exclusion of frequency of use from the Australasian survey has minimal impact on assessing the information requirements of analysts. Additionally, the narrower focus of the survey will have no impact on the assessment of the existence of an information gap.

In Summary, the questionnaire issued to the CFA analysts required the application of a rating (1 to 5), based on their opinion of each measures perceived predictive value (in

the assessment of performance and value) and ease of acquisition. The 80 measures assessed by analysts came from Dempsey et al's established measures (63), along with the survey review groups additional measures (17), ensuring a contemporary, market relevant set of measures were surveyed. The following section will explain the procedure and analysis for the survey research, including the rationale behind the use of a web-based survey, along with an overview of the types of analysis undertaken.

3.6 Procedure and Analysis

An online web-based survey was used as the survey method for this research. The survey was issued via email, by a senior member of each of the participating CFA societies. The email contained a link to the survey along with words of encouraged participation from the senior CFA member.

The web-based survey was justified as the most appropriate method to use for several reasons, including:

- Maintained the privacy of the CFA members contact details.
- Easy distribution of the survey by the CFA branch - minimal time required to issue the survey.
- Arguably decrease the time required by the CFA members to complete the survey.
- The joint opinion of the researcher and the survey review group that busy analysts, who are computer literate, and familiar with web-based tools would prefer to complete a web-based survey to a traditional paper based survey.

For the above reasons the web-based survey was seen as a means of gaining the CFA branches participation in the survey, by contributing to the production of a survey that could be completed in 10 minutes or less, and potentially increasing the response rate.

Additional considerations were made to the professionalism and control aspects of the web-based survey method, including:

- In order to ensure that the web-based survey is both secure and bug-free, it has been hosted by a professional New Zealand based online survey company (http://usurvey.co.nz/usurvey/default.aspx).

- For control purposes, the first section of the survey collects the participants name, this information is only used to ensure that no duplicate surveys are submitted.

- The final section of the survey asked the participants to rate the survey method. This was included to collect information on the accepted use of a relatively new collection method, along with aiding in any potentially low response rate issues. The analysis of the acceptance of web-based surveys will be limited by a significant bias, where the non-respondents may represent analysts that prefer traditional survey methods.

The various methods of analysis utilised in this thesis are explained in conjunction with the presentation of the results from such analysis, throughout the results and discussion chapter (chapter four). Explanation of the analysis methods have been presented in this way to assist with the understanding and application of these methods, along with assisting the flow of discussion. However, the following points briefly summarise the key aspects of the research analysis:

- Predictive Value (PV) was rated by the surveyed analysts on a scale of one to five (1= no value relevance, 5 = high value relevance).
- Ease of Acquisition (EA) was rated by the surveyed analysts on a scale of one to five (1=difficult or can not acquire, 5 = easy to acquire).
- The significance of the difference for each survey measure's PV and EA ratings are statistically assessed using a 95% confidence interval.
- An information gap is assessed using the formula (PV-EA)PV. This formula places emphasis on the PV rating in the assessment of an information gap, and is considered by the researcher as the preferred method for assessing information gaps based on the argument that any limitation in the acquisition of information

that is rated highly for PV would create higher levels of uncertainty. Further justification, including a worked illustration of the rationale for using this formula to assess information gaps is set out in chapter four, section 4.4.3.

- Statistical analysis is limited due to the response rate, along with the identification of other preferred means of analysing the survey results, such as simple rank comparisons, trends, and alternative comparison formulas, e.g. the researchers preferred method of assessing an information gap is through the formula (PV-EA)PV (as justified in chapter four, section 4.4.3).
- Statistical significance testing is performed on the PV-EA results. Additionally, statistical methods are applied within the charts used to present and compare the survey results (as shown in chapter four).
- Unless otherwise stated $p<0.05$ is applied to statistical significance tests. Testing in some instances is also applied at $p<0.01$, to further challenge the findings.
- The survey results have been collated and analysed using Microsoft Excel and the R Project for statistical computing and graphics. The R project software is an open source and freeware statistics tool that has been utilised throughout the results chapter to create graphs and charts that aid in interpreting the survey results data (http://www.r-project.org/).

In presenting and comparing the survey data, the empirical results and discussion section utilises the following charts and table based analysis:

- Chart of frequency distribution.
- Rank table – for individual measures mean ratings.
- Chart of measures confidence intervals and means – presented in both rank order and grouped to illustrate category trends (along with trends between categories).
- Rank table – for categories.
- Plot flow charts - used for analysis of PV-EA results, along with financial vs. non-financial result comparisons, and the comparison between Australasian and US survey results.

The following statements assist in the understanding of omissions, and sequence of discussion for the following items:

- It is important to note that throughout the analysis of an information gap, based on both the direct assessment of PV-EA ratings and when utilising the information gap formula (PV-EA)PV, the thesis does not consider negative scores as relevant to this thesis, other than to acknowledge that in these areas the ratings applied by the surveyed analysts indicate that the information is easily acquired relative to their assessment of the importance of this information in the assessment of performance and value.
- Throughout the empirical results and discussion chapter, comparisons are made between the Australasian and US survey ratings and/or rank, where such a comparison may help with the interpretation or place emphasis on certain results. Although the direct comparison of the Australasian and US results may be limited by factors including the method of survey, participants, differing markets, economies and close to 10 years time difference, considered comparisons of the rating values applied to the measures along with the relative rank may contribute to the interpretation of the Australasian survey results. For this reason comparisons are made throughout the empirical results and discussion chapter on a relevance basis, with a brief comparison of the two studies results undertaken in chapter four, section 4.6.
- The empirical results and discussion chapter sequence has been established to follow the thesis research questions as outlined in section 3.1 of this chapter, with the comparison of Australasian vs. US survey results being presented last as a secondary analysis, not directly relating to the research questions.

3.7 Ethical Considerations

The information being dealt with in this survey is low risk, in terms of information sensitivity. Regardless of the low risk assessment, every effort has still been made to conduct the survey in a professional manner and maintain the confidentiality of the information collected.

By using an online survey it has been possible to offer the participating CFA societies greater confidence in the security of its members database. This has meant that instead of members details being acquired from the CFA societies, senior members in each of the participating Australasian CFA offices, have placed a link to the online survey in a bulk email to members that also contains words of encouraged participation. In order to ensure additional confidentiality and efficiency, the survey was hosted by a professional New Zealand survey company on a secure website (http://usurvey.co.nz/usurvey/default.aspx).

In order to further maximise the quality, professionalism and ethical nature of the survey, CFA members have been included in the survey development group. The final survey and a method statement were also subject to a review and final approval by each of the CFA Society Boards.

Information sharing has been a key consideration in the development and participation of the CFA societies in this research. It has been agreed with each of the CFA societies that they will be provided access to both the raw data produced by the survey, along with the researcher's analysis of the data. Additionally, every participating member is to be provided with the opportunity to obtain this information. This has been complied with, by disclosing a contact email address at the conclusion of the survey, where members are encouraged to contact the researcher directly should they wish to obtain a copy of the survey data and or the researcher's analysis.

A critical ethical consideration has been the identity of the respondents. The survey has collected the names of participants as a control measure to exclude any duplicate responses. As agreed with the CFA societies the entire name field of the survey data was removed once the data had been examined for duplicates. This means that the name

fields were removed before analysis was performed and before the data is shared with the CFA societies and its members.

In consideration with the wishes of the CFA societies no comparison will be made between their respective members survey results. Therefore, the CFA societies are to be viewed as one body and the survey data has been analysed on this basis. The analysis of the two CFA member branches survey results, as one set of results, is supported by the similarities in their membership entry criteria, training, member professions, global proximity, reporting, and business environments.

Finally, as this research is using the measures developed by Dempsey et al (1997) as a base set of measures, permission for the use of these measures has been requested and approved via email correspondence with Mr Dempsey.

CHAPTER FOUR: EMPIRICAL RESULTS AND DISCUSSION

4.0 Introduction

This chapter will present and discuss the survey results, including analysis of the analysts PV and EA ratings. Based on these survey results the existence of an information gap will be assessed, along with specific comparisons between the survey results for financial and non-financial measures. As this thesis seeks to identify potential information gaps that may impact the market's assessment of value, it is the information gap section that will take a more detailed view of the survey results, along with their potential cause and impact. The PV and EA sections will therefore be more concise in detail, identifying key observations before focusing on where information gaps may exist.

Secondary analysis and discussion is undertaken within this chapter, to compare the thesis survey results to Dempsey et al's US survey. Where relevant, general comparisons are made throughout this chapter, with specific comparisons discussed in section 4.6 of this chapter.

4.1 Results Analysis

The results analysis and discussion will set out responses to the following research questions:

- What is the perceived predictive value of performance measures?
- What is the perceived ease with which information on each of the measures can be acquired?
- Does an information gap exist?

Analysis and discussion of data relevant to these research questions will be achieved through the use of the following:

- Frequency distribution charts
- Rank tables – for individual and category measures mean ratings.
- Confidence interval and mean – presented in a chart format
- Significance testing for PV-EA results
- Gap analysis using the formula (PV-EA)PV
- Plot flow charts – used to display the PV-EA results, financial vs. non-financial result, and Australasian vs. US survey results.

4.2 Predictive Value

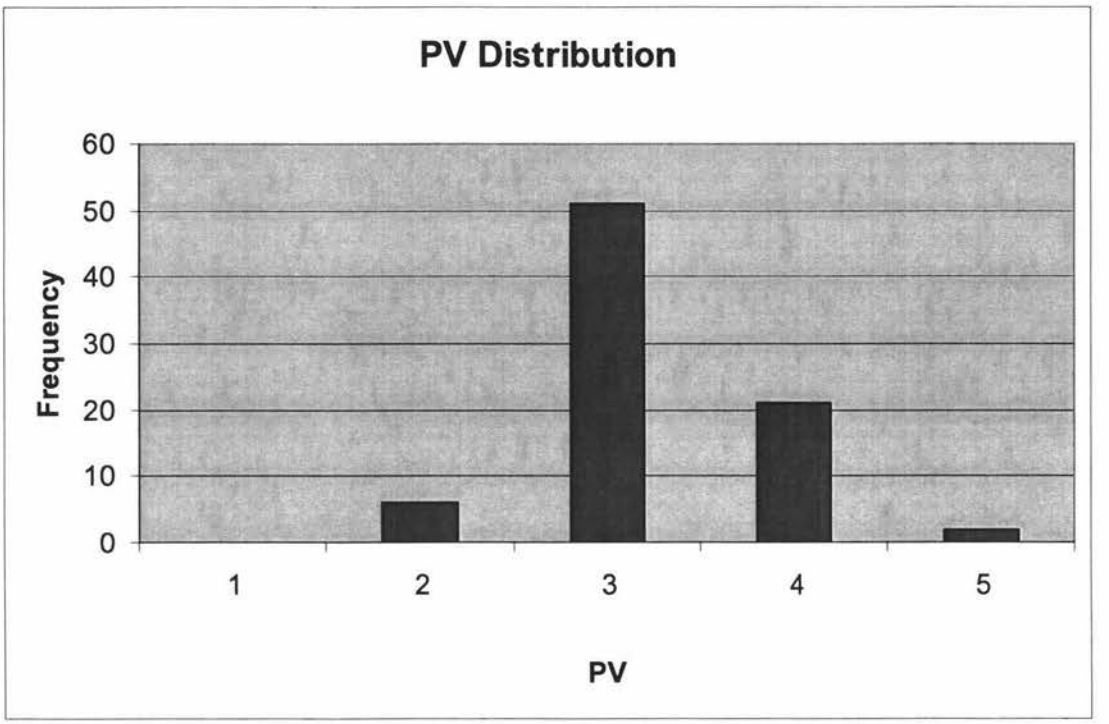
Predictive Value (PV) represents the analysts perceived PV of each individual measure for their assessment of performance and value. The assessment of the perceived PV is important both to the establishment of the measures value relevance, and as a comparable to the corresponding ease of acquisition rating (for the assessment of an information gap). The survey utilised a five point scale to capture the analysts ratings for each measures PV, where a rating of five represents the opinion that the measure is highly relevant in the assessment of value, and a rating of one reflecting the opinion that the measure is of little or no relevance to the assessment of value. Based on the analysis of these survey ratings, this section of chapter four will provide a response to the research question: what is the perceived predictive value of performance measures?

Note: in order to minimise any repetition of discussion, the analysis and discussion of the PV results is completed at a high level only, allowing for further discussion of the results in the identification of potential information gaps (Section 4.4 of this chapter).

4.2.1 PV Survey Results Distribution

The first view of the PV survey results is undertaken through an examination of the frequency distribution of the measures mean PV ratings (rounded to the nearest whole number).

Chart 4.1 PV Survey Results Distribution



The distribution (as shown in chart 4.1) reflects the opinion of the surveyed analysts that all measures have at least some value relevance, even if this is in some cases minimal. This statement is made based on the fact that none of the measures received a mean PV rating lower than two. The distribution also shows that the majority of measures received a mean rating of three or four, reflecting the analysts' opinion that the majority of measures are relevant in their assessment of value. Two measures, being Cash Flow and Barriers to Entry received a mean rating of five (rounded to the nearest whole number), indicating that the surveyed analysts believe that these measures are essential to the assessment of value.

4.2.2 Individual Measure Analysis

Presentation of the frequency distribution for PV results revealed that a broad section of measures are relevant to analysts in their assessment of performance and value. The complete table of individual survey results and rankings for PV (as set out in Appendix six) allows for further observations to be made, including the diverse range of measures that analysts rated as relevant in their assessment of value. This observation is supported by 54 of the measures receiving a mean PV rating of three or higher, with all categories except for social responsibility, being represented. Highlights of the PV results are reflected in Table 4.1 (below) where the cut-off for the measures presented has been limited to the five measures receiving the highest mean PV rank, based on both the results of significance tests displayed in Chart 4.2 and the need to keep discussion at this point of the analysis concise.

Table 4.1 Five Top Ranking PV Survey Results

Measure	Cat.	Predictive Value
		Mean
Cash Flow	A	4.72
Barriers to Entry	I	4.56
Industry Structure	I	4.35
DCF Analysis	I	4.28
Potential Competition	E	4.26

The following points are made in reflection on the results presented in Table 4.1:

- Consistent with the results of Dempsey et al's (1997) US study, Cash Flow achieved the highest rank with a mean rating of 4.72. This confirms the relevance of cash flow as a key driver of analysts' value assessment.
- Associated with cash flow is DCF Analysis which was also confirmed as being highly relevant to analysts assessment of performance and value through the fourth highest PV rating of 4.28. Despite inferences from the name that this is a cash flow measure, DCF Analysis is firm specific and involves the forecasting

and discounting of future cash flows (Appendix two). In order to allow for such projections DCF analysis relies on a broad range of firm specific data, therefore companies looking to meet this information requirement need to ensure the relevant information components used to create a DCF Analysis are made readily available to the market for analysts to interpret (Appendix two; Beneda, 2003). The high PV rating attributed to DCF Analysis may be reflective of the additional emphasis that has been placed on discounted cash flow methods of valuation since the recent trend of corporate collapse (Beneda, 2003).

- The merits of the thesis use of a survey review group is highlighted by three of the additional measures (Category I) receiving a top five PV ranking. Although not included in Dempsey et al's US study DCF Analysis, Barriers to Entry, and Industry Structure were included in the top five mean PV ratings.
- Although not included in Dempsey et al's US survey, Barriers to Entry and Industry Structure could be argued as being related to, or drivers of Potential Competition (Appendix two). Potential Competition was assessed as highly relevant to analysts' assessment of value in Dempsey et al's (1997) US study with a mean PV rating of 3.86, representing the fourth highest PV rating for the US study. The importance of Potential Competition in the assessment of value is verified by the Australasian study where the measure ranked fifth overall and second when excluding the additional measures (category I measures), with a mean PV rating of 4.26. Where a relationship exists between Barriers to Entry, Industry Structure and Potential Competition, the thesis survey results for these measures reflect the high importance of information relating to the competition environment.

4.2.3 PV Confidence Interval Graphs

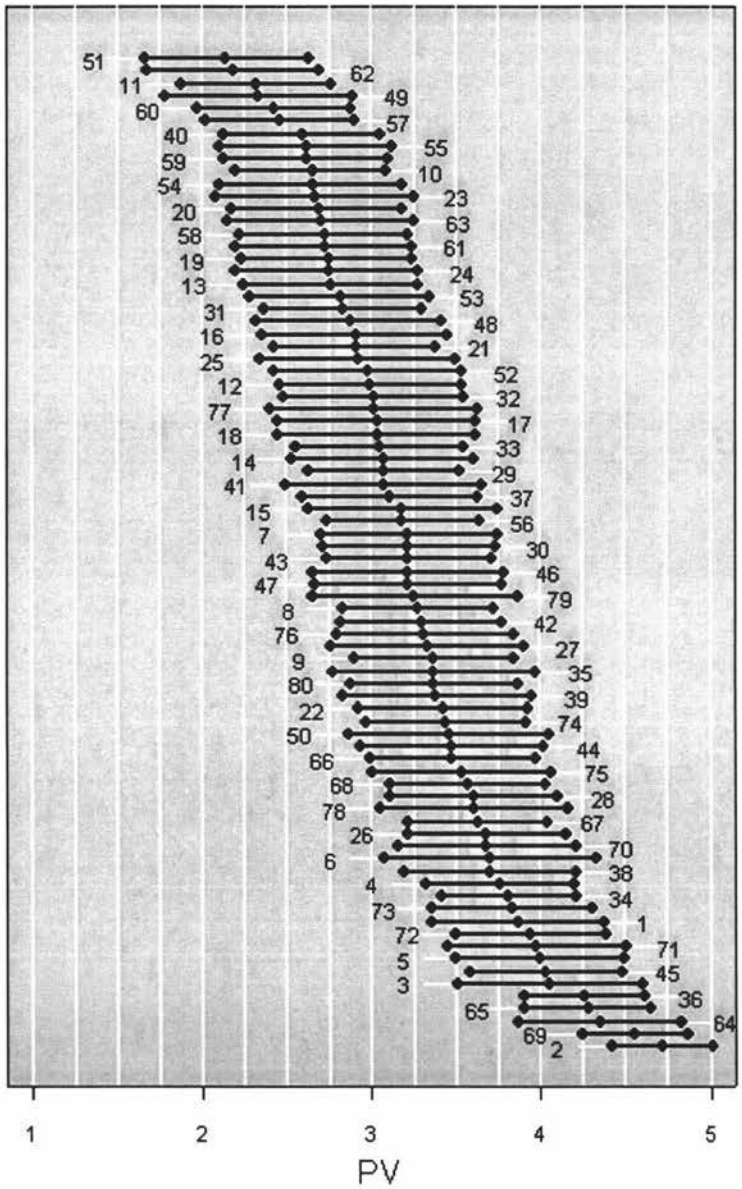
Confidence interval graphs seeks to add to the PV and EA results discussion by visually displaying PV and EA mean results and confidence intervals. Through the use of Bonferroni confidence intervals and comparison graphs, further analysis is undertaken on statistical significance and trends. Throughout this section the various measures will be labelled on the graphs according to their assigned number in Appendix four. This type of referencing has been used to minimise the clutter on the graphs which compares the results of 80 measures in a single chart.

The method used in the following analysis for comparing the values of two means, involves the calculation of confidence intervals for each of the means and observing where these overlap. As estimates from a sample contain variability, the mean and variability have been combined to compute confidence intervals. For the purpose of this analysis a 95% confidence interval has been used to identify whether the PV results for the measures are significantly different. As this analysis involves the comparison of 80 measures confidence intervals, it is likely that some of these measures will be significantly different by chance, due to the nature of confidence intervals. To compensate for this multiple comparison issue, a critical value has been used that is based on both the level of confidence (95%), and the number of comparisons being made. These confidence intervals are called Bonferroni confidence intervals (Bickel & Doksum, 1977).

A test of two means would normally utilise a critical value of 1.96 for the test, with the confidence interval being the mean ± 1.96 × the standard deviation. However, for the comparison of 80 different means, the value of the Bonferroni critical value is 4.16, meaning that the confidence intervals are the mean ± 4.16 × the standard deviation. This gives confidence intervals that are more than twice the width of intervals that would be used to compare only two means, giving greater assurance that differences identified are not due only to chance but are, in fact, statistically significant.

Chart 4.2 (below) presents each of the measures PV mean and confidence intervals in rank order (from lowest to highest PV mean).

Chart 4.2 Confidence Intervals for PV



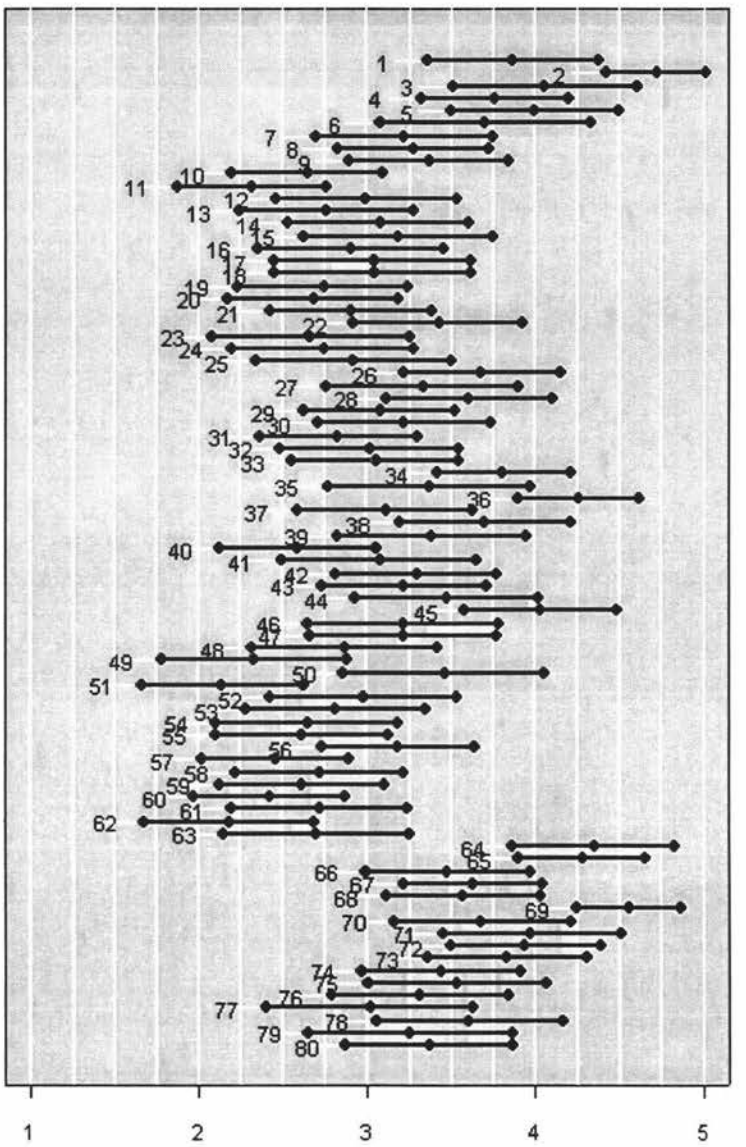
The above graph clearly shows that statistically significant differences exist for the survey PV results. Although overlaps exist between many of the measures, the top five ranked measures (as discussed in section 4.2.2 of this chapter) are clearly statistically different to the majority of the measures PV results. These top five measures include (in rank order) Cash Flow, Barriers to Entry, Industry Structure, DCF Analysis and Potential Competition. This chart clearly supports the focus of previous comments within this chapter on the importance of these top five measures value relevance.

It is not quite as clear at the other end of the scale, where the lowest ranked measures are not as clearly statistically removed from the majority of PV results, primarily due the broad confidence intervals displayed in the chart for the majority of the measures PV ratings. The broad confidence intervals are largely a result of the variability in ratings for these measures, with the result being that the majority of measures PV results are not statistically significant from each other.

Further analysis of the measures means and confidence intervals on an individual basis identifies Cash Flow (labelled on Chart 4.2 as number 2), as a stand out result based on both a high mean rating and narrow confidence interval. This reflects the ratings applied by analysts were both high and subject to minimal variability, or more specifically, the surveyed analysts tended to agree on the high value relevance of cash flow information.

An alternative view of these results can be achieved through sorting the results in Chart 4.2 by measure number. As the measures were first sorted into categories before being attributed a reference number (Appendix four), the analysis in Chart 4.3 (below) allows category measures to be viewed together.

Chart 4.3 Confidence Intervals for PV - Grouped



In reviewing Chart 4.3 the following category observations are made:

- The Financial category is represented by measures 1 to 9 inclusive, where Cash Flow is clearly a stand out measure, both in terms of its mean and narrow confidence interval.
- The Product Quality and Customer Satisfaction category is represented by measures 10 to 16 inclusive, where it can be seen that the measures were rated relatively consistently with the exception of Warranty Claims which received the lowest mean PV rating for the category.

- The Process Efficiency category is represented by measures 17 to 28 inclusive, where it can be seen that the measures were rated with a degree of variability. Capital Invested and Capacity Utilisation can be seen as stand out measures within this category, as they received the highest mean PV rating for the category.
- The Product and Process Innovation category is represented by measures 29 to 33 inclusive, where it can be seen that this category's measures have been rated relatively consistently.
- The Competitive Environment category is represented by measures 34 to 43 inclusive, where this category's ratings can be seen to have a reasonable amount of variability. Potential Competition stands out from the other measures in the category for both its high mean and narrow confidence interval.
- The Quality and Independence of Management category is represented by measures 44 to 50 inclusive, where it can be seen that the measures were rated with a large amount of variability. Experience and Reputation of Management stood out with both a high and fairly consistent PV rating. The Ethical Behaviour of Management also received a relatively high PV rating, however it is the high PV rating along with the rating variability that makes this measure's results of particular interest. The range of PV ratings attributed to the Ethical Behaviour of Management may reflect varying opinions on the reliance that can be placed on controls (such as audit) to ensure appropriate management behaviour (Appendix two).
- The Human Resource Management category is represented by measures 51 to 59 inclusive, where Employee Turnover stands out with the highest category PV rating along with a relatively moderate range of results.
- The Social Responsibility category is represented by measures 60 to 63 inclusive, where consistently low PV rating have been attributed to this category's measures. These poor ratings are particularly noticeable for the Community Involvement measure (62).
- The additional measures are represented by measures 64 to 80, where both a degree of variability, yet an overall high mean PV rating is evident. Of the measures within this category, Barriers to Entry stands out for having both a high mean PV rating and a particularly narrow confidence interval.

4.2.4 Category Analysis

Further to discussions within the previous section, Table 4.2 (below) shows each of the categories average mean and rank results for Predictive Value, along with Dempsey et al's US survey comparatives.

Table 4.2 PV Category Results

Category	Predictive Value				
	US		Australasian		
	Average	Rank	Average	Rank	Rank
	Mean	Cat.	Mean	Cat.	Cat. All.
A. Financial	3.29	1	3.78	1	1
B. Product Quality and Customer Satisfaction	2.61	6	2.84	6	7
C. Process Efficiency	2.89	5	3.07	4	5
D. Product and Process Innovation	3.10	3	3.04	5	6
E. Competitive Environment	3.21	2	3.38	2	3
F. Quality / Independence of Management	3.00	4	3.23	3	4
G. Human Resource Management	2.48	7	2.69	7	8
H. Social Responsibility	2.12	8	2.51	8	9
I. Additional Measures	N/A	N/A	3.70	N/A	2

Key discussion points from a review of table 4.2 include:

- The Financial category received the highest mean rating of 3.78, which is consistent with the US survey which also received the highest category mean of 3.29, confirming the continued relevance of traditional financial information.
- Although the additional measures do not represent a specific category of performance, it is notable that the inclusion of these measures in the Australasian survey, has proven relevant through a mean PV result of 3.7, which ranks 2nd behind the Financial category.
- At the other end of the scale Social Responsibility, along with Human Resource Management were the lowest rated categories, with respective means of 2.51 and 2.69. This result is consistent with the findings of the US survey where

means of 2.12 and 2.48 were achieved. These results reveal Social Responsibility category measures such as Affirmative Action, Environmental Performance, Community Involvement, and Litigation, to have consistently failed at being identified by analysts as highly value relevant. This observation is based on low PV ratings in both the Australasian and US surveys. A potential reason for these results may be that the market only interprets data as relevant where there is an obvious additional financial impact, where the financial impact of social responsibility may already be provided for in the disclosure of the core financial measures that report the cost of complying, or the ramifications of non-compliance with statutory social and environmental legislation. Overall, these survey results raise the observation that there is potentially little or no value relevance beyond complying with social and environmental statutory minimum requirements.

- Despite low survey results for relevance in the assessment of value, measures within the Social Responsibility category should not be completely written-off as irrelevant, as value drivers can change over time as peoples concerns and priorities change. This is particularly relevant now given the growing awareness of environmental and social impacts that are currently a focus of media and international Government discussion (Harrabin, 2007). Recent examples of increased social awareness can be seen through the issue of CO2 emissions, where the cost of global warming has been associated not only with environmental impacts, but also a potential impact on the global economy (Harrabin, 2007). With the increased profile of this issue, it is possible that as consumers become better informed on the issue, they may start making choices based on products environmental and social impact. Equally likely industries with the greatest impact on social and environmental issues may be subject to Government intervention.
- The remainder of the categories mean PV ratings reflect at least an average level of value relevance and confirm the diverse range of category measures that are relevant in an analyst's assessment of value.

4.3 Ease of Acquisition

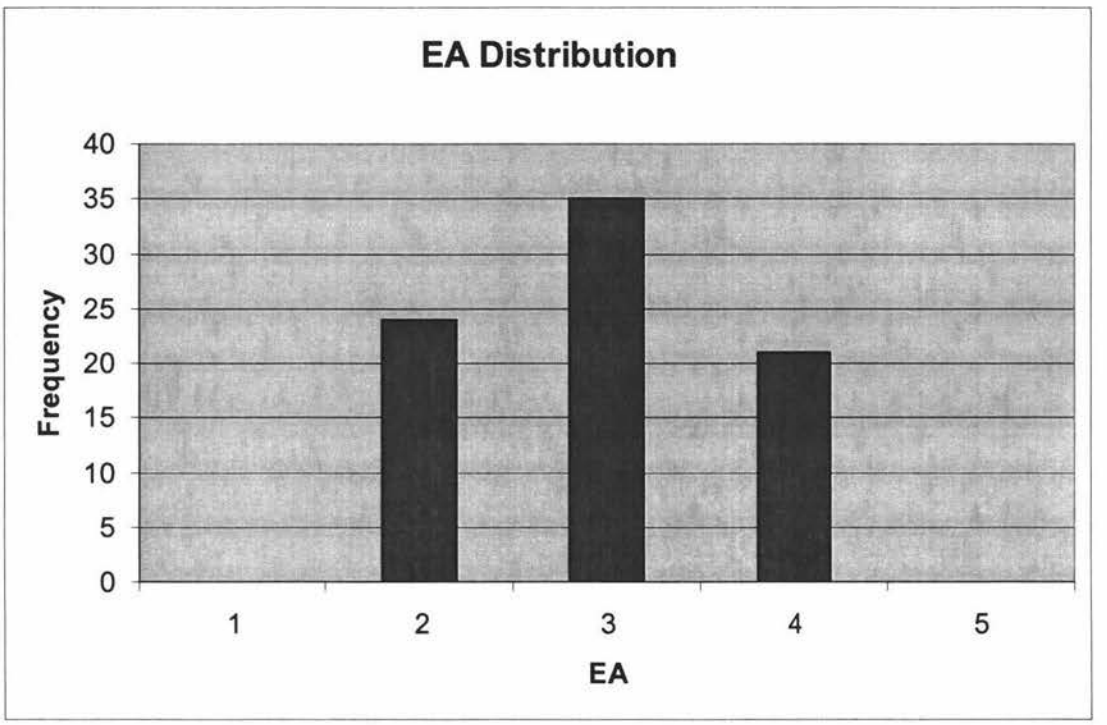
Ease of acquisition (EA) reflects the analysts view on how difficult information is to obtain for the various measures. The assessment of the EA is important both to the establishment of the ease with which information can be acquired, and as a comparable to the corresponding PV rating (for the assessment of an information gap). The survey utilised a five point scale to capture the analysts' ratings for each measures EA, where a rating of five represents the opinion that the information is easy to acquire, and a rating of one reflecting the opinion that information is very difficult to acquire or can not be acquired. Based on the analysis of these survey ratings, this section of the thesis will provide a response to the research question: what is the perceived ease with which information on each of the measures can be acquired?

Note: in order to minimise any repetition of discussion, the analysis and discussion of the EA results is completed at a high level, allowing for further discussion of the EA results in the identification of potential information gaps.

4.3.1 EA Survey Results Distribution

The first view of the EA survey results is undertaken through an examination of the frequency distribution of the measures mean EA ratings (rounded to the nearest whole number).

Chart 4.4 EA Survey Results Distribution



The EA distribution results (Chart 4.4) show that the ratings attributed to the surveyed measures have been limited to a mean between two and four (when rounded to the nearest whole number). Noticeably, none of the surveyed measures received a mean EA rating of one or five, reflecting the analysts' opinion that there is at least some level of difficulty or effort required to obtain all measures, and that with some level of difficulty all information should be able to be acquired. Despite none of the measures receiving a mean of one, a significant number of measures received a rating of two, reflecting some difficulty in the acquisition of information relevant to those measures. Such an EA rating may be of concern where the measure's respective PV rating is high, as this would represent a potential information gap in the assessment of value.

4.3.2 Individual Measure Analysis

The EA results are set out in Appendix seven (in rank order), with the measures that are easier to acquire information for at the top of the table. Sorting the information by rank helps to identify trends including an obvious pattern where all the measures that are easiest to acquire information for, are either from the financial category or rely on financial information. The inverse situation applies to the measures that do not form part of traditional financial reporting, where measures ranging from the Ability to Customise Products, Percentage of Repeat Sales, and Service Responsiveness were all rated as being comparatively more difficult to acquire. Further to this observation, a trend can be observed where measures relying on non-financial information have generally been more difficult to acquire. Based on this initial observation for financial vs. non-financial measures, specific analysis of this information characteristic's affect on PV, EA and ultimately a potential information gap will be explored in section 4.6 of this chapter.

The following extract from Appendix seven shows the ten lowest mean EA results, along with reference to the respective category they are attributed to (Cat.). Category references are used in Table 4.3, with the corresponding category name being detailed within Appendix four.

Table 4.3 Lowest Ranking EA Results

Measure	Cat.	EA
Customer Surveys	B	2.26
Percent Repeat Sales	B	2.22
Defect Rates/Yield Rates	C	2.20
Affirmative Action	H	2.19
Employee Turnover	G	2.15
Labour Market Relations	G	2.15
Customer Complaints	B	2.13
Service Responsiveness	B	2.00
Absentee Rates	G	2.00
Percent On-Time Delivery	B	1.98

Reviewing Table 4.3, it can be seen that none of the measures from the Financial or additional measures categories have ranked in the bottom ten. From a general trend perspective it can also be seen that measures from the categories Product Quality and Customer Satisfaction (B), along with Human Resource Management (G) have featured strongly in this table, representing potential information collection difficulties in this area. Additionally, the table confirms the concern over the accessibility of non-financial information, as all of the measures receiving a bottom ten mean rating for EA rely on non-financial information.

The next extract considers the top ten mean EA ratings, as taken from Appendix seven.

Table 4.4 Top Ranking EA Survey Results

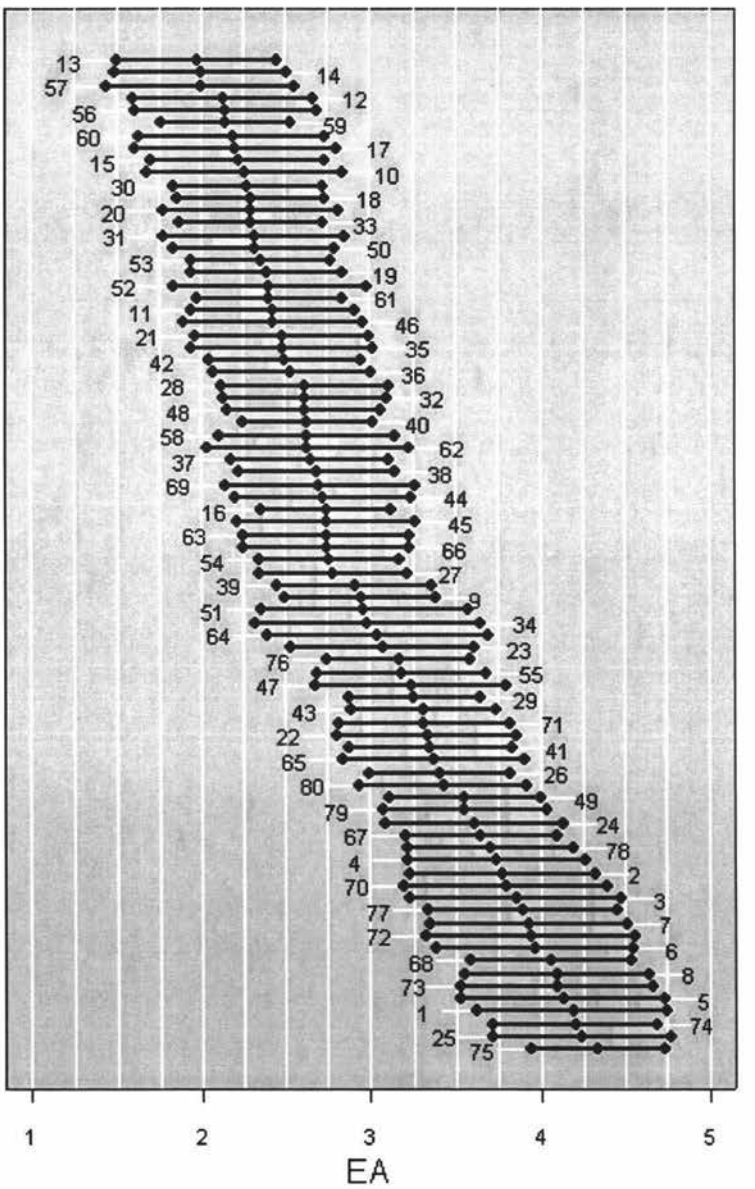
Measure	Cat.	EA
Interest Cover	I	4.33
Accounts Receivable divided by Sales	C	4.24
Dividend Yield	I	4.20
Net Income / Earnings per share	A	4.19
Sales	A	4.13
Price Earnings Ratio	I	4.09
Equity divided by Total Assets	A	4.09
Gearing Numbers / Ratios	I	4.06
Return on Sales	A	3.96
EBITDA Margin	I	3.94

The above table confirms the ease of access to traditional financial information, where measures from the Financial (A) and additional measures (I) category have dominated the table for measures that are easiest to acquire information for. These measures are clearly based on traditional financial information, which is of contrast to the lowest rated measures, highlighting the need for specific analysis of the survey data for the affect of the financial vs. non-financial data characteristic (as detailed in section 4.5 of this chapter).

4.3.3 EA Confidence Interval Graphs

As explained for PV confidence interval graphs (section 4.2.3), Chart 4.5 displays the mean and confidence intervals for each measure's EA survey results. Chart 4.5 initially presents the measures in rank order, the results are then presented in reference number order (Chart 4.6) allowing for further analysis of the results by category.

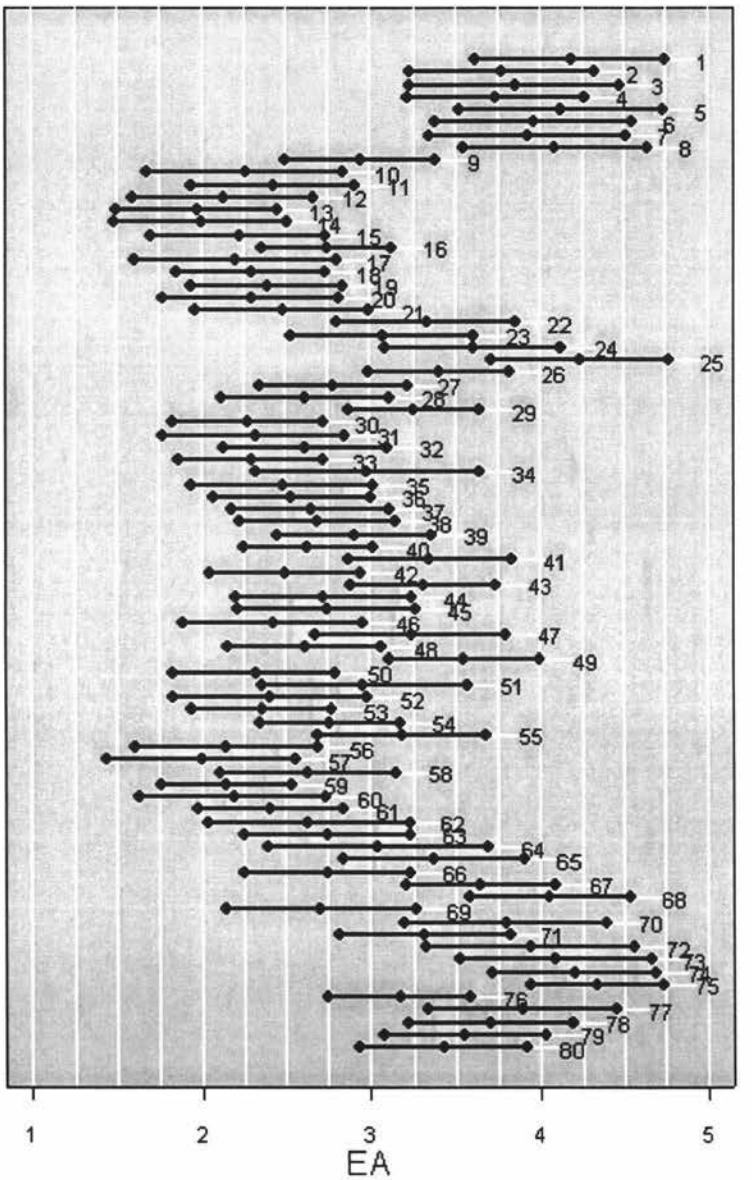
Chart 4.5 Confidence Intervals for EA



The analysis contribution from Chart 4.5 can be summarised by the statistically significant difference that can be clearly identified between the measures rated highly for EA compared to those rated poorly for EA.

Sorting the measures by their number reference, allows for an illustration of category trends (Chart 4.6), and facilitates discussion on potential reasons for the difference in the accessibility for the various types of information.

Chart 4.6 Confidence Intervals for EA – Grouped



Based on the EA mean and confidence interval results presented in Chart 4.6, the following observations are made:

- The Financial category is represented by measures 1 to 9 inclusive, where all measures with the exception of the Quality of Accounting Policies have rated distinctively high for ease of acquisition. The low rating for the Quality of

Accounting Policies is of some concern and may link in to other information concerns, such as the Quality and Independence of management and the Ethical Behaviour of Management. There is potentially a common link here, being the overall transparency of how the organisation is run and performance reported, with an associated topic being the level of assurance that the market can take from audited financial reports.

- The Product Quality and Customer Satisfaction category is represented by measures 10 to 16 inclusive. Overall these category measures have been rated consistently low for EA, and based on the confidence intervals, these non-financial performance measures can be seen to have statistically different results from the Financial category results, where the EA for financial measures have been rated significantly higher by the analysts.
- The Process Efficiency category is represented by measures 17 to 28 inclusive. This category has received the greatest variance of results, with many of the measures EA ratings being statistically different from each other. On closer examination the measures that rated highly for PV tended to be based on reported financial information, where as the lower EA rated measures tended to rely on non-financial information.
- The Product and Process Innovation category is represented by measures 29 to 33 inclusive, where it can be seen that this category's measures have received consistently low EA results with the exception of R&D Expenditures. This exception is likely to be due to both R&D Expenditure data being financial, and tax incentives to measures R&D Expenditure separately (Income Tax Act 2004).
- The Competitive Environment category is represented by measures 34 to 43 inclusive. These category measures have received relatively low EA ratings with the exception of Geographic and Product Diversification. This exception is of no surprise as even if not specifically reported, existing Geographic and Product Diversification data would be obtainable through general analysis of other publically available information.
- The Quality and Independence of Management category is represented by measures 44 to 50 inclusive, where measures have received low to average ratings. Not surprisingly, the dispersion of ownership measure was an outlier

with a relatively high EA rating, as this information is available to the public on the companies office website (www.companies.govt.nz).

- The Human Resource Management category is represented by measures 51 to 59 inclusive, where few highlights can be observed other than the category measures variety of low to average EA ratings.
- The Social Responsibility category is represented by measures 60 to 63 inclusive, where generally low EA ratings can be observed. Despite this low EA rating these measures are unlikely to be identified as having an information gap, as they received similarly low PV ratings (Appendix six).
- The additional measures group are represented by measures 64 to 80, where both a degree of variability, yet an overall high mean EA rating is evident. However, Forecasted Variables and Barriers to Entry stand out for having relatively low EA ratings. Interestingly measure 64, being Industry Structure has a particularly wide confidence interval, reflecting the variety of EA ratings attributed by analysts. This result may be a reflection of an ease of acquisition that is industry or firm specific.

4.3.4 Category Analysis

Further to discussions within the previous section, Table 4.5 (below) shows each of the categories average mean and rank for Ease of Acquisition, along with Dempsey et al's US survey comparatives.

Table 4.5 EA Category Results

Category	Ease of Acquisition				
	US		Australasian		
	Average	Rank	Average	Rank	Rank
	Mean	Cat.	Mean	Cat.	Cat. All.
A. Financial	4.27	1	3.85	1	1
B. Product Quality and Customer Satisfaction	2.03	8	2.25	8	9
C. Process Efficiency	3.02	4	2.89	2	3
D. Product and Process Innovation	3.01	5	2.55	5	6
E. Competitive Environment	3.17	2	2.80	3	4
F. Quality / Independence of Management	3.04	3	2.80	4	5
G. Human Resource Management	2.46	7	2.51	6	7
H. Social Responsibility	2.55	6	2.49	7	8
I. Additional Measures	N/A	N/A	3.59	N/A	2

Key discussion points from a review of table 4.5 include:

- The Financial category has the highest average mean of 4.27, indicating that the measures within this category are generally easy to acquire.
- At the other end of the scale the Product Quality and Customer Satisfaction category has the lowest average mean of 2.03, reflecting the difficulty that the surveyed analysts have in acquiring relevant information for these measures.
- This category level comparison draws further attention to the contrast between the EA ratings for measures that are based on financial information compared to non-financial information, where the Product Quality and Customer Satisfaction category represents measures that are generally non-financial.
- It is significant to see that the additional measures identified by the survey review group, were at a category level relatively easy to acquire. The additional measures had an average mean of 3.59, which is second only to the Financial

measures category which had an average mean of 3.85. However, within the additional measures group, individual measures ratings did vary to a large extent. This is shown in Appendix seven where it can be seen that measures such as Interest Cover, Dividend Yield, Price Earnings Ratio and Gearing Numbers/Ratios, that rely on traditional, core financial numbers were easier to acquire than Barriers to Entry and Industry Structure which do not form part of traditional financial reporting.

- In general the Australasian category results are inline with Dempsey et al's US study. This is highlighted through both studies finding it easiest to acquire information on Financial measures and hardest to acquire information for the category of Product Quality and Customer Satisfaction. Although there are some variations in the exact ranking of categories, the results of the two studies at a category level are consistent to the extent that they find categories such as Financial, Competitive Environment, Process Efficiency, Quality/Independence of Management, and Product and Process Innovation easier to acquire compared to Product Quality and Customer Satisfaction, Human Resource Management, and Social Responsibility categories which were rated as harder to acquire.

The Ease of Acquisition survey results have been useful in identifying the measures for which information is difficult to acquire. However, the next section of this chapter will also utilise the EA results, where a comparison of the Predictive Value and Ease of Acquisition survey results are made in order to identify the existence of information gaps. This analysis will be particularly interested in areas of performance that have been rated highly for Predictive Value, yet also rated as being relatively difficult to acquire.

4.4 Information Gap

Information gaps represent areas of performance that have been rated highly for Predictive Value, yet also rated as being relatively difficult to acquire. The assessment of potential information gaps will therefore rely on the PV and EA survey results to identify areas where under-reporting exist. Based on the analysis of these survey ratings, this section of the thesis will provide a response to the research question: Does an information gap exist? Or more specifically: Is it hard to acquire information that is relevant to the assessment of value?

In response to this research question, this section will initially consider statistical differences between the PV and EA results for each measure, before assessing potential information gaps using the formula (PV-EA)PV. The results and rationale for using this calculation are presented in section 4.4.3 of this chapter.

4.4.1 Statistical Analysis of PV - EA

The first method of analysing potential information gaps involves assessing whether the difference between PV and EA survey results for each measure is significant. This analysis is undertaken by subtracting the mean EA rating from the mean PV rating (PV–EA) for each measure, looking at the distribution and summary statistics for these results and then performing significance testing to identify the threshold/value where the result of PV-EA is statistically significant.

The following summary statistics and frequency distribution (Chart 4.7) relate to the results of the PV-EA calculation:

- Mean = 0.25
- Standard deviation = 0.6539
- Median = 0.3

Chart 4.7 PV – EA Distribution

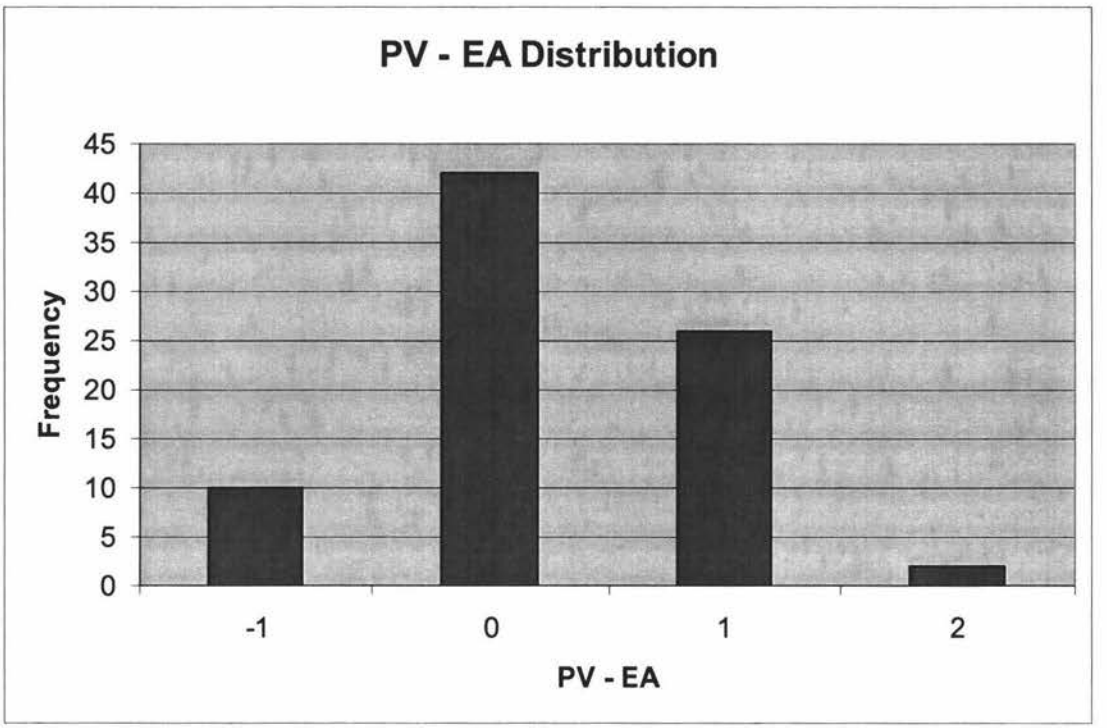


Chart 4.7 above summarises the distribution of the PV-EA results, rounded to the nearest whole number. This chart indicates that the majority of measures do not have an information gap, as when rounded to the nearest whole number, the result for the majority of the measures assessment of PV-EA is zero or less. There were however 26 measures where PV-EA resulted in a gap of one, and two results where PV-EA resulted in a gap of two (Potential Competition, and Barriers to Entry), reflecting instances where an information gap is likely to exist.

The frequency distribution has identified areas where an information gap is likely to exist (PV>EA), along with areas of performance reporting where the analysts information requirements appear to have been met (PV<EA or PV=EA). As this thesis seeks to identify areas where under-reporting exist (information gaps), results of the PV-EA calculation that are equal to or less than zero are not further examined as they represent areas of performance where (relative to PV) information is easy to acquire. However, prior to dismissing all of the PV-EA results that are represented on the frequency distribution as having a net result of zero, it is important to acknowledge that Chart 4.7 utilises PV-EA results that are rounded to the nearest whole number. Subsequent analysis will therefore consider the exact result of each measures mean PV-

EA calculation in the identification of potential information gaps. The following calculations will therefore seek to examine the statistical significance of the survey results in greater detail through the use of a t-distribution. The t values for a sample size of 80 are listed below for the various probabilities:

Probability:	t value
p=0.01	2.888
p=0.05	2.285
p=0.1	1.990

In order to be conservative, testing has been undertaken for significance at both the 1% and 5% level. The workings for these calculations are detailed below, where the initial assessment of an information gap threshold utilises the following probability and t value: p=0.01, and t=2.888.

The calculation for significance is as follows, where t represents the calculation that would be performed on each measure:

t = (value1 – value2)*sqrt(sample size) / sample standard deviation

Because it is known that where any value of t > 2.888 will give a statistically significant difference, algebra can be used to see how big the difference needs to be, for the result to be significant.

2.888 = difference * sqrt(80) / 0.6539

→ difference = 2.888 * 1.9 / sqrt(80) = 0.211

Therefore, any difference greater than 0.211 is statistically significant.

Where the above calculation is reproduced using p=0.05, the result is 0.167, therefore at the statistical significance level of p=0.05, any difference between PV and EA greater than 0.167 is statistically significant.

When applied against the survey results, the identification of information gaps at both p=0.05 and p=0.01 are similar, with 43 and 45 measures being respectively identified as having a significant difference between the PV and EA survey results. The PV-EA results for measures (where PV-EA is greater than 0.167) are detailed in Table 4.6 (below).

Table 4.6 Measures with Significant PV – EA Results

Measure	PV	EA	PV-EA	PV-EA
	Mean	Mean		Rank
Barriers to Entry	4.56	2.70	1.85	1
Potential Competition	4.26	2.54	1.72	2
Industry Structure	4.35	3.04	1.31	3
Experience / Reputation of Management	4.04	2.74	1.30	4
Ethical Behaviour of Management	3.46	2.31	1.15	5
Service Responsiveness	3.07	2.00	1.07	6
Employee Turnover	3.19	2.15	1.04	7
Percent of Sales from Proprietary Products	3.70	2.69	1.02	8
Capacity Utilisation	3.61	2.61	1.00	9
Percent Repeat Sales	3.17	2.22	0.95	10
Cash Flow	4.72	3.78	0.94	11
Percent of Products Protected by Patents	3.22	2.28	0.94	11
DCF Analysis	4.28	3.37	0.91	13
Brand Awareness	3.37	2.48	0.89	14
Customer Complaints	3.00	2.13	0.87	15
Market Share	3.81	2.98	0.83	16
Defect Rates/Yield Rates	3.04	2.20	0.83	16
Customer Diversification	3.30	2.50	0.80	18
Involvement of the Board of Directors	3.22	2.43	0.80	18
Percent On-Time Delivery	2.76	1.98	0.78	20
Continuity of Management	3.48	2.72	0.76	21
Percent of Sales Due to New Products	3.06	2.30	0.76	21
Product Development Time	3.04	2.30	0.74	23

Forecasted Variables	3.48	2.74	0.74	24
Implied Growth Rate	3.98	3.31	0.67	25
Employee Involvement	2.98	2.41	0.57	26
Age of Plant and Equipment	3.33	2.78	0.56	27
Number of New Patents	2.83	2.31	0.52	28
Strategic Alliances	3.39	2.91	0.48	29
Employee Training	2.81	2.35	0.46	30
Tariff or Quota Protection	3.11	2.65	0.46	31
Labour Market Relations	2.61	2.15	0.46	31
Absentee Rates	2.46	2.00	0.46	31
Ability to Customize Products	2.91	2.48	0.43	34
Quality of Accounting Policies	3.37	2.94	0.43	35
Number of New Products	3.02	2.61	0.41	36
Customer Surveys	2.65	2.26	0.39	37
Order to Delivery Time	2.68	2.30	0.38	38
Manufacturing Cycle Time	2.74	2.39	0.35	39
Environmental Performance	2.72	2.41	0.31	40
Capital Investment	3.69	3.41	0.28	41
Shareholder disputes	2.87	2.61	0.26	42
Affirmative Action	2.43	2.19	0.24	43
Return on Equity	4.06	3.85	0.20	44
Litigation	2.91	2.74	0.17	45

The above list of measures represents 45 of the 80 measures surveyed, indicating that over half of the measures surveyed received PV and EA ratings that were significantly different (and positive). The statistical analysis above will contribute to the thesis assessment of information gaps, however additional analysis will follow that utilises the information gap calculation of (PV-EA)PV.

4.4.2 Information GAP Calculation

This section outlines the method and reasoning for assessing potential information gaps utilising alternative means to the direct comparison of PV-EA results. As with the direct comparison of PV and EA ratings, this section utilises these same survey results, however emphasis throughout this section will be placed on measures that received high PV ratings, based on the position that any difficulty in acquiring information for measures rated highly for PV would create greater levels of uncertainty and risk. The following information gap calculation is therefore applied:

GAP = (PV - EA) PV

This method of calculation has been used in favour over a straight comparison of PV less EA, as it achieves the desired emphasis on measures that are rated as being highly relevant in the assessment of value yet hard to acquire. The appropriateness of this information gap calculation method is best explained from a practical perspective, where the examples and discussion below illustrate the rationale behind the information gap calculation method:

PV = Predictive Value
EA = Ease of Acquisition
GAPb = basic gap calculation = PV – EA
GAPe = enhanced gap calculation = (PV-EA)PV

Example one:	Example two:
PV = 5	PV = 3
EA = 3	EA = 1
GAPb = (5-3) = 2	GAPb = (3-1) = 2
GAPe = (5-3)5 = 10	GAPe = (3-1)3 = 6

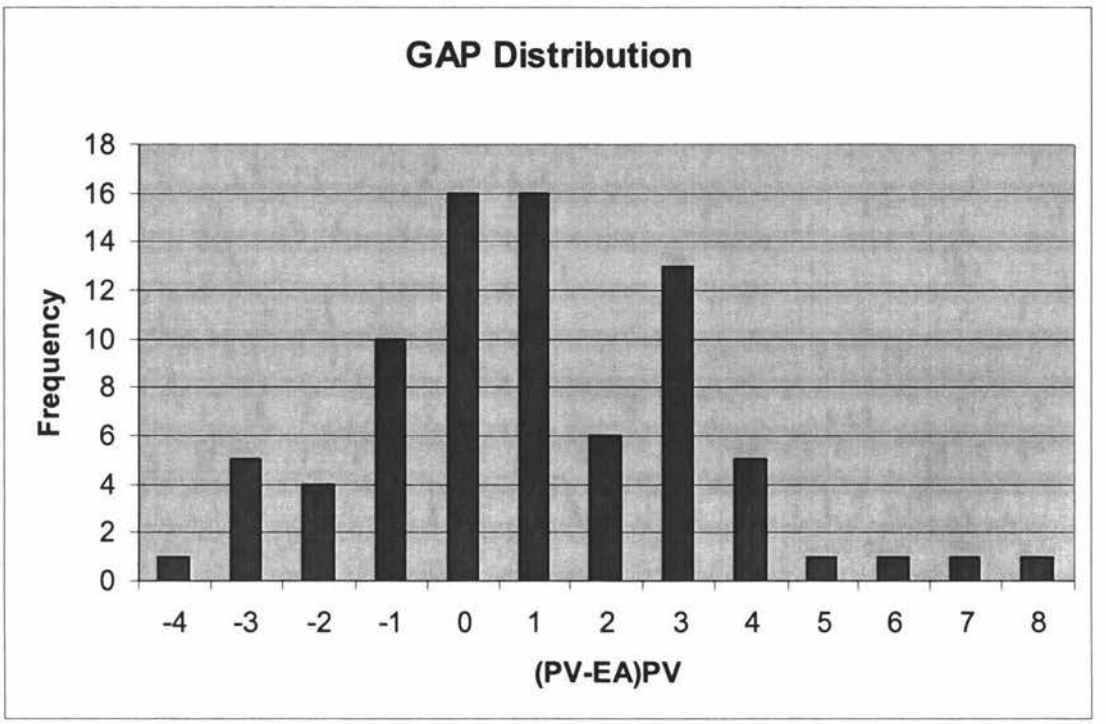
From the example above it can be seen that where the information gap is calculated using GAPb, both example one and example two result in information gap calculations of 2. In comparison, the GAPe method results in an information gap calculation of 10 for example one, and six for example two. This method of calculation can therefore be seen to amplify the assessment of an information gap where the measure has been rated highly for PV. Based on the result illustrated by this example, it was considered by the researcher that this method of GAP analysis provided a more informed representation of the significance that the PV rating would have on the assessment of an information GAP.

Note: The use of the calculation (PV-EA)PV is consistent with the analysis used in Dempsey et al (1997). As Dempsey et al do not explain in detail the rationale for the utilisation of this method of assessing an information gap, the rationale and examples used to illustrate the method in section 4.2.2 rely on the researcher's interpretation (based on the result of applying the formula).

4.4.3 Information GAP Significance & Distribution

Based on the (PV-EA)PV information gap calculation, Chart 4.8 (below) displays the distribution of the gap calculation results (rounded to the nearest whole number).

Chart 4.8 GAP Distribution



The distribution of (PV-EA)PV results as shown in Chart 4.8 (above), give some insight into the existence of potential information gaps. Measures with a mean rating of zero or below (being 36 of the 80 measures) have no real risk of having an information gap as these measures received an EA rating equal to or greater than their PV rating. Positive numbers on the distribution (being 44 of the 80 measures) reflect measures that have mean PV ratings that are greater than their mean EA ratings, and therefore present an area where under-reporting may exist.

Further interpretation of the positive results displayed in Chart 4.8 relies on an understanding of the gap calculation. For this reason it is reiterated that any difference between a PV and EA result is amplified where the PV rating is high. With this in mind the frequency distribution clearly shows potential information gaps for many of the measures where the information gap calculation has ranged up to a result of eight

(rounded to the nearest whole number). Based on the calculation method, the measures attributed a higher information gap result have the greatest risk of an information gap. Further analysis of the frequency distribution displays a tailing off effect as the calculation exceeds a result of three, where nine measures can be identified as resulting in an information gap calculation of four or greater. On this basis the threshold for detailed individual analysis within section 4.4.4 of this chapter will be rounded to the top ten measures, in order to ensure the measures most at risk of an information gap are specifically analysed and discussed.

4.4.4 Individual Measure Analysis

This section is concerned with the analysis and discussion of the individual information gap calculation results. Before focusing on the top ten information gap risks (based on the information gap calculation result), a review of the complete listing of information gap results (as detailed in Appendix eight) draws attention to the following trends:

- Measures forming part of, or derived from traditional financial reporting were generally identified as having a negative information gap result, indicating that an information gap is not likely to exist for these types of measures.
- Conversely, measures that are generally non-financial in nature and do not form part of core, traditional financial reporting have tended to rank highly for the calculated information gap.
- Additionally, measures that did not rank highly for Predictive Value, tended to result in a negative or low information gap result (which is consistent with the intention of the information gap formula).

Information gap trends identified for measures based on their financial vs. Non-financial classification confirm previous analysis and discussions, with this specific aspect of the results analysis being discussed further in section 4.5 of this thesis. The analysis of the individual results now moves to a focus on the measures identified by the information gap calculation as the most likely to have an information gap. On this basis Table 4.7 (below) displays the ten measures with the highest information gap results.

Table 4.7 Information Gap - Top 10 Rank

		A	B	C	D
	Cat.	**Predictive Value**	**Ease of Acquisition**	**GAP**	**GAP**
		Mean	**Mean**	**(A-B)A**	**Rank**
Barriers to Entry	I	4.56	2.70	8.44	1
Potential Competition	E	4.26	2.54	7.34	2
Industry Structure	I	4.35	3.04	5.72	3
Experience / Reputation of Management	F	4.04	2.74	5.23	4
Cash Flow	A	4.72	3.78	4.46	5
Ethical Behaviour of Management	F	3.46	2.31	3.98	6
DCF Analysis	I	4.28	3.37	3.88	7
Percent of Sales from Proprietary Products	E	3.70	2.69	3.77	8
Capacity Utilisation	C	3.61	2.61	3.61	9
Employee Turnover	G	3.19	2.15	3.30	10

Table 4.7 (above) shows the ten highest information gap results, along with details of their related category PV mean, EA mean, and resulting information gap calculation. Based on a review of the data within Table 4.7 the following key observation/discussion points are made:

Barriers to Entry, Potential Competition and Industry Structure

Barriers to Entry, Potential Competition and Industry Structure are debatably all measures that relate to the competition environment. From a logic perspective it could even be argued that Barriers to Entry and Industry Structure act as drivers of Potential Competition. With such an association in mind the consistent identification of these measures as areas where an information gap exists, emphasises that this is an area of performance that is both of high relevance to analysts in their assessment of performance and value, yet is relatively difficult to acquire. Additionally, it is of significance to note that Potential Competition was also identified by Dempsey et al as having the highest information gap (Barriers to Entry, and Industry Structure were not assessed by Dempsey et al).

Relative to the majority of measures surveyed, individual companies have limited control over the Barriers to Entry, Industry Structure and Potential Competition. It may therefore be that uncertainties in the market related to this type of information may be due to technological advances, the developing global market and Government intervention. This statement is made based the researcher's observations within the Australasian market, and then verified within the analyst valuation model study/discussion detailed in Appendix two. Examples of the observations which form the basis of this statement follow:

- The telecommunications industry is a good example in Australasia, where both Australian and New Zealand Telecommunications companies have been subject to Government intervention and technology changes (Commerce Commission, 2006). Government intervention has occurred through the unbundling of the broadband component of the telecommunications industry, changing the industry structure and allowing greater competition for broadband suppliers (Commerce Commission, 2006). This example specifically illustrates where barriers to entry existing due to large set up costs and extensive infrastructure requirements can be removed through Government intervention.

- The telecommunications industry also acts as an example where technology changes can affect the barriers to entry. An illustration of this point can be made through the observation of advances in wireless technologies that have seen new entrants to the broadband market, with suppliers such as Woosh and Wired Country utilising wireless technology to compete with the landline based broadband suppliers (www.woosh.com; www.wiredcountry.co.nz). This example illustrates how barriers to entry resulting from the time and cost involved in setting up infrastructure to compete in the broadband and landline telephone market, can be overcome through technology advances.

- The examples above for government intervention and technology advances, have an impact beyond barriers to entry, as once such barriers are removed the level of potential competition changes, as would in many cases the industry structure (especially evident in the case of government intervention).

- Global market developments, accompanied by telecommunications advances are also creating increased levels of competition. A recent example is the outsourcing of call centre activities to India (Ahmed, 2004). For many industries telecommunication advances can bring the world closer together, these developments combined with the relatively low cost of labour in India, have opened up a new export market for India, where they can now offer customer services and technical support services at a competitive price to the global market. This example illustrates clearly how geographical barriers can be overcome through technology advances, along with the flow on impact of potential competition and industry structure.

From the examples given above it can be seen that Government intervention, global market developments and technological advances can change the level of competition in an industry very quickly. Additionally, these industry changing events will act as both threats and opportunities to respective competitors in the market. In the majority of cases, companies themselves would have little if any influence over these events, along with little to add in terms of reporting relevant information to the market in these areas. For these reasons Barriers to Entry, Industry Structure and Potential Competition may remain an area that is both value relevant, yet difficult to acquire information reflecting future variables.

Experience and Reputation of Management / Ethical Behaviour of Management

Experience and Reputation of Management ranked fourth in the Australasian survey and seventeenth in the US Survey. This difference is primarily due to the respective ease of acquisition ratings, as both the Australasian and US surveys rated the Experience and Reputation of Management highly for Predictive Value. The difference between the two studies information gap rating is therefore due to the US analysts rating the information as being easier to acquire relative to their Australasian counterparts.

Before exploring potential reasons for the identification of the Experience and Reputation of Management as an area where an information gap is likely to exist, it is of interest to acknowledge that a second measure from the Quality / Independence of Management category, being the Ethical Behaviour of Management, has been identified

in the top ten measures (based on the information gap calculation). The Ethical Behaviour of Management ranked sixth in the Australasian information gap calculation and second for an information gap in the US study, reflecting the fact that both the US and Australasian studies relate these measures as relevant in the assessment of value, yet there are concerns on the ease of acquiring this information.

Literature on agency theory may assist in the interpretation of these information gap results where concerns over the quality and ethics of management may be explained by the level of risk that is assumed based on the theoretical position that management are ultimately self interested (Shapiro, 1990). Such theories may suggest reasons why an information gap may arise for the measures of Experience and Reputation of Management, along with the Ethical Behaviour of Management, however this is an area of performance that may be difficult to communicate. Although a positive historical track record for individual members of the management team may help to alleviate concerns or even inspire confidence when brought into an underperforming business (Shapiro, 1990), there is a limit on what can be done to reflect the appropriateness of decision making, along with their ethical behaviour.

In the case of most large companies, audit firms should be able to add some confidence to the ethical behaviour of management. Although it does not help that audited companies such as Enron and WorldCom suffered corporate collapse involving questionable management decisions and behaviour (Oliverio, 2007).

Relevant to these areas of performance is the alignment of management and shareholder goals. Where the appropriate construction and communication of a remuneration package seen to align senior management's goals with that of the shareholders, may add to the level of certainty that shareholders and other external parties can place on the ethical behaviour of management. Additionally, auditors continue to have a vital role in assuring shareholders that management are behaving ethically (Oliverio, 2007). Audit independence initiatives subsequent to recent corporate collapses, along with the resulting liability for the audit firms involved, should add to the assurance that can be placed on audited company reports (Oliverio, 2007).

Cash Flow and DCF Analysis

It is significant that Cash Flow has one of the highest information gap ratings (fifth highest) from the survey, as Cash Flow is one of the measures that comprise the Financial category. This outlying result demonstrates the importance of reviewing the survey results at an individual level, as category results only report averages for the relevant measures.

Although both the Australasian and US survey found Cash Flow to be relevant in the assessment of value, only the Australasian survey found this information hard to acquire. It is also of some contradiction that Cash Flow can be hard to acquire when cash flow reporting forms part of the core reporting framework (NZSX, 2007; ASX, 2007). The explanation for this result may therefore lie in both the interpretation of Cash Flow and the increased emphasis that has been placed on cash flow based valuation methods since the recent run of corporate collapses (Beneda, 2003).

Additionally, the literature review (section 2.3.1) along with discussion in Appendix two may help to explain such information gaps through the observation of the growing focus on DCF based methods of valuation. Such literature and discussions support the emphasis that has been placed on Cash Flow, however this does not address why this information is rated as difficult to acquire. Upon reflection, it is the researcher's view that poor ratings for Cash Flow EA may actually be related to the detail and timeliness of the cash flow information. This statement is made based on cash flow data being made readily available in external reports, along with consideration for analysts' use of cash flow information, which includes the forecast of cash flows based on many other variables (Appendix two). These statements are however only the opinion of the researcher and limited in support, therefore the low EA result for Cash Flow would benefit from further research where examination of the cash flow relevant information requirements could be explored, along with companies ability to meet these information needs.

Related to Cash Flows is the Discounted Cash Flow (DCF) measure which also ranked highly for a potential information gap. DCF was ranked seventh for information gap from the Australasian survey, and forms part of the additional measures that were added

by the survey review group. Based on the literature review of DCF based valuation, it can be seen that this performance measure draws on a broad range of information, from core financial reports to value driving non-financial performance (Shapiro, 1990; Appendix two).

As Cash Flow forms part of DCF Analysis, the information gap results can be seen as consistent, with both of these measures being identified as a significant risk for an information gap. Although these two measures may not be as closely related as the names imply, as Cash Flows in a traditional sense refers to the presentation of a historic record of cash flow movements, along with a cash flow position at a point in time (normally the financial year end position). In contrast the DCF Analysis relies on discounting forecasted cash flows, where forecasted positions are developed by relying on a broad set of information (Shapiro, 1990; Appendix two). To this extent, the perceived difference between the traditional cash flow reporting and DCF Analysis, may offer a potential explanation to the low EA ratings attributed to the Cash Flow measure, where the analysts interpretation of useful cash flow information may go beyond the traditionally reporting of cash flow information to include more timely, or even projected cash flow positions (with explanations).

Another explanation for the high information gap rating attributed to DCF Analysis, may be a result of DCF methods reliance on a mix of firm specific financial and non-financial information, where it is likely that the low EA ratings for non-financial measures would impact the overall rating for EA applied to DCF Analysis. On this basis the low EA rating attributed to DCF Analysis appears to be consistent with many of the other measure it is dependant on.

The considerations for the potential cause of these information gaps suggests that where companies seek to meet the information requirements of analysts with regard to Cash Flow data and DCF Analysis, consideration beyond historic measures/positions should be considered, along with other financial and non-financial information that may support or allow for cash flow projections.

Percentage of Sales from Proprietary Products, Capacity Utilisation and Employee Turnover

Other top ten information gap measures include Percentage of Sales from Proprietary Products, Capacity Utilisation and Employee Turnover. The most likely cause of these measures receiving a high information gap result is that these measures are not commonly reported as part of traditional financial reporting. Despite the lack of reporting in this area of performance, the collection of the information for these measures should not be technically difficult or time consuming to acquire. However, reporting broken-down sales data and capacity related information may be limited due to the competitive sensitivity of this information.

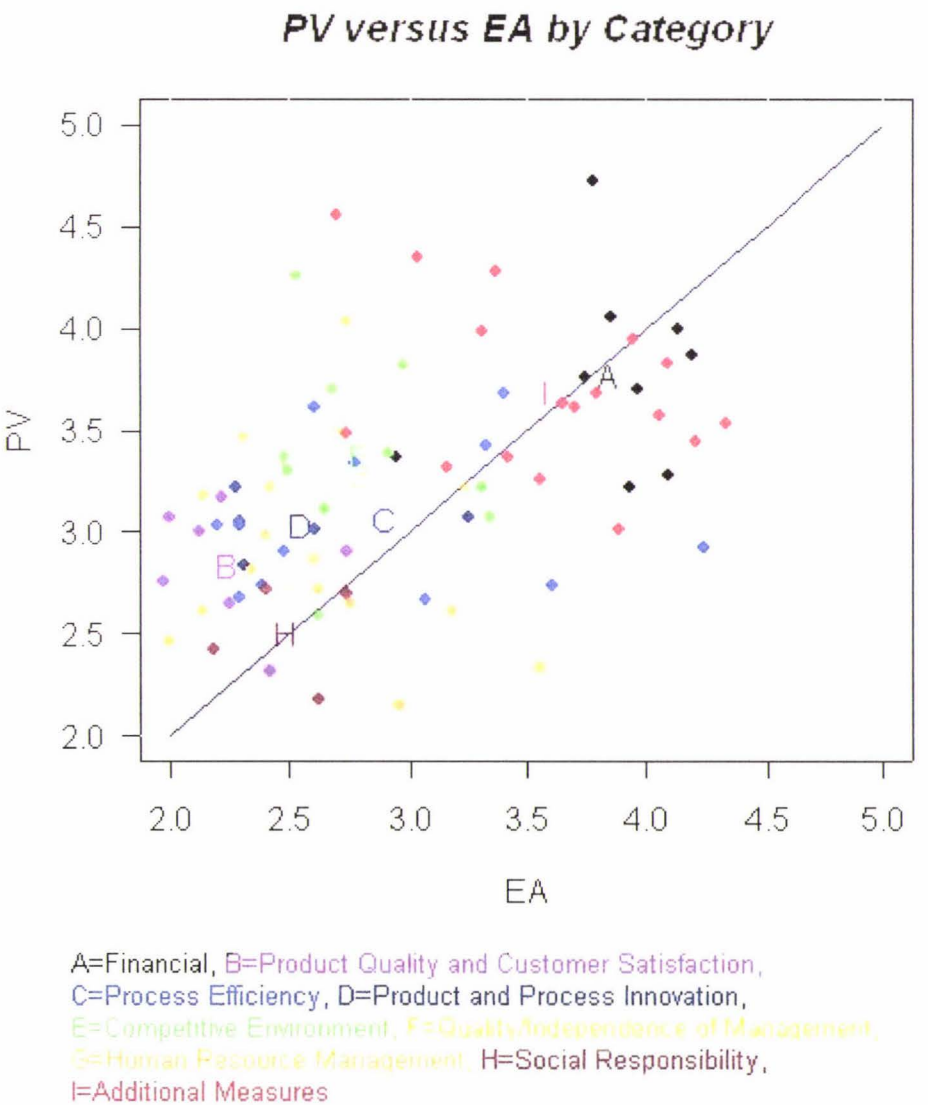
Dempsey et al's US survey also found high information gap results for Percentage of Sales from Proprietary Products, and Employee Turnover where these measures were ranked thirteenth and tenth (respectively). Although not featuring quite as significantly, Dempsey also found Capacity Utilisation relatively difficult to acquire when compared to the PV rating, and this measure was ranked twenty first based on the information gap calculation. Overall this relatively consistent finding (between the Australasian and US studies) confirms the under-reporting that exists in these areas of performance reporting.

Despite potential information sensitivity across the measures discussed above, it is surprising that where a demand exists for further information on staff turnover, that this information could not be supplied. As an example, data on staff turnover would be particularly useful for analysing service industries, with the reporting of staff turnover and associated information potentially giving the market an insight to the company culture and factors that may impact on the company's ability to offer a quality service in the future. Although normal levels of turnover may vary from industry to industry, benchmarking and changes in staff turnover may be valuable information to the market for investment decisions. Based on this illustrative example, companies are likely to be able to overcome information sensitivities to some extent, and reduce the level of under-reporting in these areas of performance, although it is acknowledged that due to information sensitivities, there may always be some limitations on what is reported for these measures.

4.4.5 Information GAP Plot Flow

To facilitate further analysis of potential information gaps, the PV and EA data has been presented on a plot flow chart below (Chart 4.9). This chart compares the PV and EA results for the categories individual measures mean results. In order to achieve this, the chart uses coloured plots to identify the individually plotted measures categories, along with the category means being plotted on the chart utilising their previously assigned reference ('A' to 'I').

Chart 4.9 PV vs. EA Plot Flow



The positive diagonal line running through Chart 4.9 acts as a reference point where PV and EA are equal, this line will be referred to in subsequent discussions as the line where PV=EA. Based on the information gap calculation of (PV-EA)PV, the higher a measure appears on the vertical axis, coupled with the distance between the measures plot and the PV=EA line, the greater the information gap result will be. The inverse relationship applies to measures that have plotted below the PV=EA line, where this occurs, the measure can be identified as receiving a mean EA rating higher than the respective PV rating, and would therefore not be considered at risk of having an information gap.

Within the plot flow chart some level of clustering can be seen for each of the categories measures, with the exception of category 'I'. This result is not surprising as category 'I' measures represent the measures added to the Australasian survey by the survey review group, and do not represent a true category. The plot flow identifies several of the additional measures as having received a high PV rating with a lower respective EA rating. As category 'I' measures represent additional measures identified by the survey review group, it is of interest to question whether the resulting information gap for several of these measures relates to a recent increase in their value relevance. This may be the case for DCF Analysis, which represents one of the three most significant category 'I' plots, however the type of information represented by Barriers to Entry and Industry Structure, was included in the Dempsey et al survey through Potential Competition, where an information gap was also found.

At a category level an observation can be made for categories B, D, E and F, where these categories results seem to be a significant distance from the PV=EA line, compared to the remaining categories whose mean results plot close to or on the PV=EA line. From an overview perspective this shows that with the exception of categories B, D, E and F, EA category means can be considered approximately equal to its mean PV survey result.

Further analysis of the individual plots on Chart 4.9 result in the following key observations:

- Cash Flow (from category A): appears as a black plot near the top of the chart, well above the PV=EA line, representing a potential information gap.
- Barriers to Entry (from category I): appears as a red plot near the top left of the chart. This measure has been clearly rated highly as important in the assessment of value (PV), yet it has a poor mean rating for EA. Based on these respective ratings, Barriers to Entry can be considered as an area where an information gap exists.
- Industry Structure (from category I): appears as a red plot near the top of the chart (to the right of Barriers to Entry). Compared to Barriers to Entry, Industry Structure is closer to the PV=EA line, however the respective PV and EA ratings are such that it would be considered as an area where an information gap is likely to exist.
- DCF Analysis (from category I): appearing as the next red plot, to the right of Industry Structure. The plot on Chart 4.9 confirms previous discussions on the information gap risk attributed to DCF Analysis.
- Potential Competition (from category E): this plot is well above the PV=EA line and is at particular risk of an information gap due to the low EA vs. High PV rating that has the plot sitting high in the top left corner of the chart.
- Ethical Behaviour of Management (from category F): This plot is well above the PV=EA sitting high in the top left corner of the chart, representing an information gap risk.

Consistent identification of significant information gaps, from the plot flow analysis proves the relevance of the gap calculation being, (PV-EA)PV, as both the gap calculation and the plot flow chart have drawn attention to the same set of measures as high risk for an information gap.

The final review undertaken in the assessment of information gaps involved reviewing all of the relevant Tables and Charts examined throughout this thesis for PV, EA and in the assessment of an information gap. This review was undertaken to ensure that there were no inconsistencies or trends overlooked in the itemised review, with the combined review resulting in the following two issues being identified for further discussion:

- The identification of an information gap for Cash Flow.
- Overlooking a potential weakness in the Quality of Accounting Policies.

Despite Cash Flow being identified as having a potential information gap, the confidence interval analysis does not recognise Cash Flow as having an EA result significantly different from the other Financial category measures (measures 1 to 9). From a statistical analysis perspective, this Cash Flow EA result observation may indicate some weakness in the identification of an information gap in this area. However, before a Cash Flow information gap is dismissed, the strong PV result for Cash Flow, both in terms of the high mean and short spread of the confidence interval reflects that this is a very important component in the analysts assessment of value, and therefore any limitation on the acquisition of relevant, timely information in this area may impair an analyst's assessment of value.

The plot flow method of analysis used in Chart 4.9 adds to the interpretation of the Cash Flow survey results where the EA rating for cash flow is seen to be consistent with measures from the same category (financial), however the PV rating for cash flow is very high, emphasising the relevance that the analysts place on this measure in assessing value. This high PV rating also means that any limitation placed on this data may create some uncertainty for analysts and therefore affect their assessment of value.

The Quality of Accounting Policies has also been selected for further discussion as although overlooked due to the PV and EA results being similar (3.37 and 2.94 respectively), the mean and confidence interval chart (Chart 4.6) identifies the quality of accounting policies as an outlier within the Financial category, with its relatively low mean EA rating. As accounting policies are disclosed in the annual reports, any limit to the EA rating must be driven by either the detail or quality of this disclosure. There is not enough information to make a conclusive statement over the driver of this relatively

low EA rating, however some additional inferences may be drawn from the identification of the Ethical Behaviour of Management as an area where a potential information gap exists.

4.4.6 Category Analysis

Discussions of category results have been made throughout the sections of this chapter examining the issue of potential information gaps. This section with therefore look to briefly examine category results utilising the summary table below (Table4.8).

Table 4.8 Gap Category Results

Category	GAP				
	US		Australasian		
	Average	Rank	Average	Rank	Rank
	Mean	Cat.	Mean	Cat.	Cat. All.
A. Financial:	-3.12	8	-0.09	8	9
B. Product Quality and Customer Satisfaction:	1.52	1	1.76	2	2
C. Process Efficiency:	-0.48	6	0.62	5	5
D. Product and Process Innovation:	0.27	2	1.50	4	4
E. Competitive Environment:	0.25	3	2.17	1	1
F. Quality / Independence of Management:	0.00	5	1.75	3	3
G. Human Resource Management:	0.13	4	0.60	6	6
H. Social Responsibility:	-0.84	7	0.09	7	8
I. Additional Measures	N/A	N/A	0.11	N/A	7

At a category level the Australasian results show that there is no information gap for the Financial category, as the information needs for this category were found to be easily acquired. This result is not surprising, given that financial information is part of the core, traditional reporting framework for companies.

Process Efficiencies, Human Resource Management, and Social Responsibility categories all show little if any evidence of an information gap at a category level. This finding is largely due to the lower ratings these categories received for both Predictive Value, and Ease of Acquisition.

Product Quality and Customer Satisfaction, Product and Process Innovation, Competitive Environment, and Quality/Independence of Management categories all appear to have some level of information gap. The resulting information gap for these categories is due to the relatively high ratings for Predictive Value, yet relatively low ratings for Ease of Acquisition. With the relatively low EA ratings attributed to these categories measures being both consistent with the identification of the trend for measures relying on the disclosure of non-financial information, along being a driver of the high information gap results.

The additional measures, as a group, do not appear to have an information gap, this is due to both the PV and EA ratings being similarly high. This result highlights the caution that should be taken when analysing the findings at a group/category level, as although an information gap is not identified for the additional measures group, individual measures within this group were identifies as being likely to have an information gap (this issue also applies to the other categories). Although the category means are intended to summarise the potential existence of an information gap among the measures within a particular category, averaging out the results reduces the quality of the information. For this reason the category results should be analysed with caution, as ultimately the results for the individual measures themselves will reflect where the study has potentially identified information gaps.

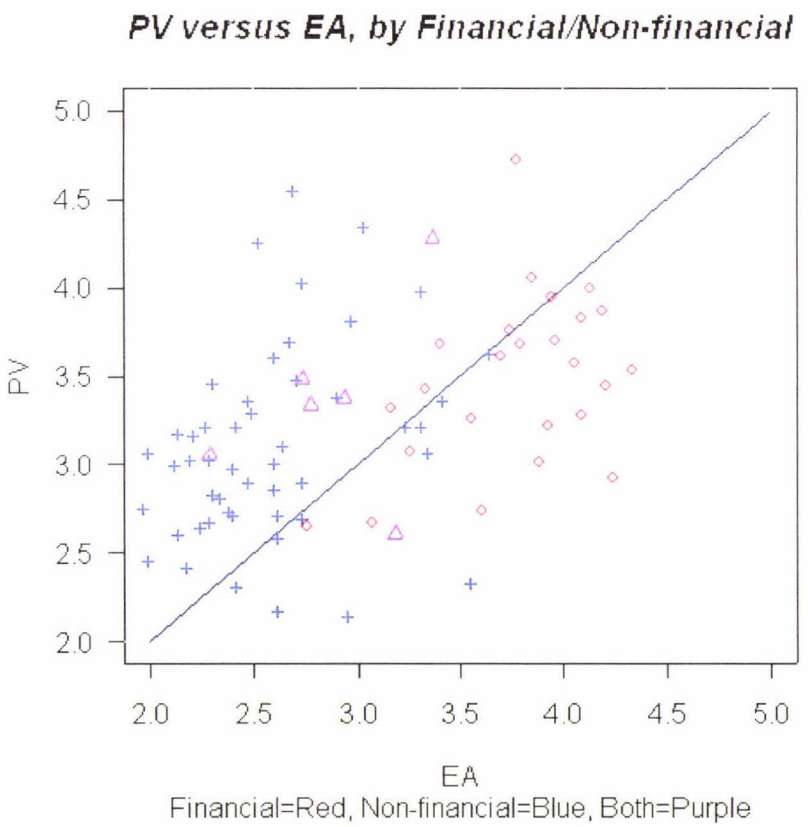
4.5 Financial versus Non-Financial Measures

Throughout the results chapter, inferences have been drawn from the data analysis and discussion that the financial vs. non-financial characteristic may be an influencing factor on the Ease of Acquisition and ultimately a potential information gap. This section seeks to verify these findings by analysing the measures results based on whether they rely on financial information, non-financial information, or a combination of both financial and non-financial information. More specifically, this section of the thesis addresses the following research question: Is non-financial information under-reported (externally)?

The analysis addressing this research question relies on the researcher identifying whether each of the surveyed measures rely on financial, non-financial, or both financial and non financial information. As a control to ensure such a characteristic was applied to each of the measures accurately, the researcher's classifications were reviewed by two members of the survey review group. The characteristic assigned to each of the measures, can be found in Appendix nine.

The following chart (Chart 4.10) compares the PV and EA results for measures based on their classification as being reliant on either financial, non-financial, or both financial and non-financial information.

Chart 4.10 Non-Financial PV versus EA Plot Flow



As used for the information gap analysis in section 4.4.5 of this chapter, Chart 4.10 uses a PV=EA line to assist the identification of measures where the PV and EA results are different. Measures that plot above the PV=EA line are at risk of an information gap as the measure has an EA result lower than the PV rating. Therefore the risk of an information gap increases as the measure's plot moves further above the PV=EA line.

A review of the results displayed in Chart 4.10 clearly confirms earlier observations that non-financial measures are more difficult to acquire and are more likely to have an information gap. The chart shows only one financial measure plotting well above the PV = EA line, being cash flow, with the reverse being true for non-financial information where the majority of measures have plotted above the PV = EA line. Measures relying on both financial and non-financial information are also generally plotting above the PV = EA line.

Overall the results show that the current reporting environment has been successful in ensuring the financial information requirements of analysts are met (with the exception of cash flow). However, non-financial information that has not formed part of traditional financial reporting can be identified as more difficult to acquire and more likely to have an information gap.

4.6 Australasian versus US Survey Results

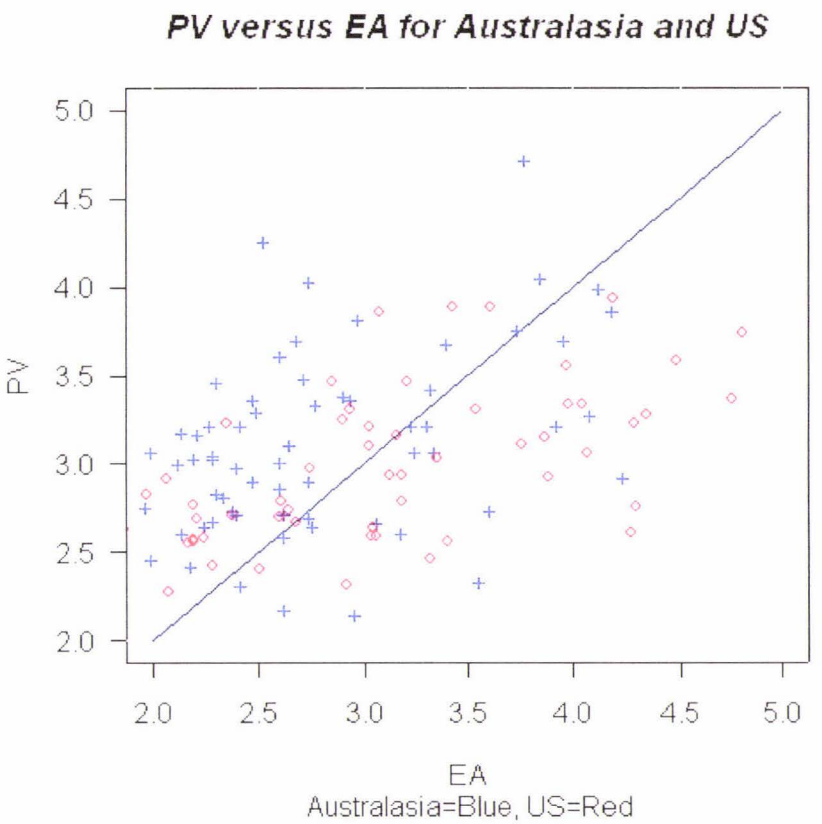
Comparisons have been made between the thesis survey results and Dempsey et al's (1997) US survey results throughout the previous sections of this chapter. This section of the results chapter will expand on these comparisons through specific analysis of the two sets of survey results. This analysis does not directly address any of the research questions, and on this basis along with comparative analysis being limited by the different countries reporting and regulatory systems, participant backgrounds, population, sample size, survey method, and an approximate 10 year time difference, the analysis undertaken will be at a basic summary level.

Note: Comparison can only be made between the measures within categories 'A' to 'H', as these measures are common between the two studies. Category 'I' measures were identified as value relevant by the Australasian survey review group, and therefore do not appear in Dempsey et al's survey. The additional measures have not been allocated to an existing category, in order to preserve the comparability of the category results from Dempsey et al's US survey. Additionally, the measures within category 'I' do not represent a type of reporting category. The additional measures would therefore be more

appropriately viewed on an individual basis or only viewed as a group to assess the relevance of updating value relevant performance disclosures.

The comparison of the two studies survey results commences with the analysis of Chart 4.11 which plots the Australasian and US results together against their relative PV and EA ratings.

Chart 4.11 Australasian & US – PV Versus EA Plot Flow

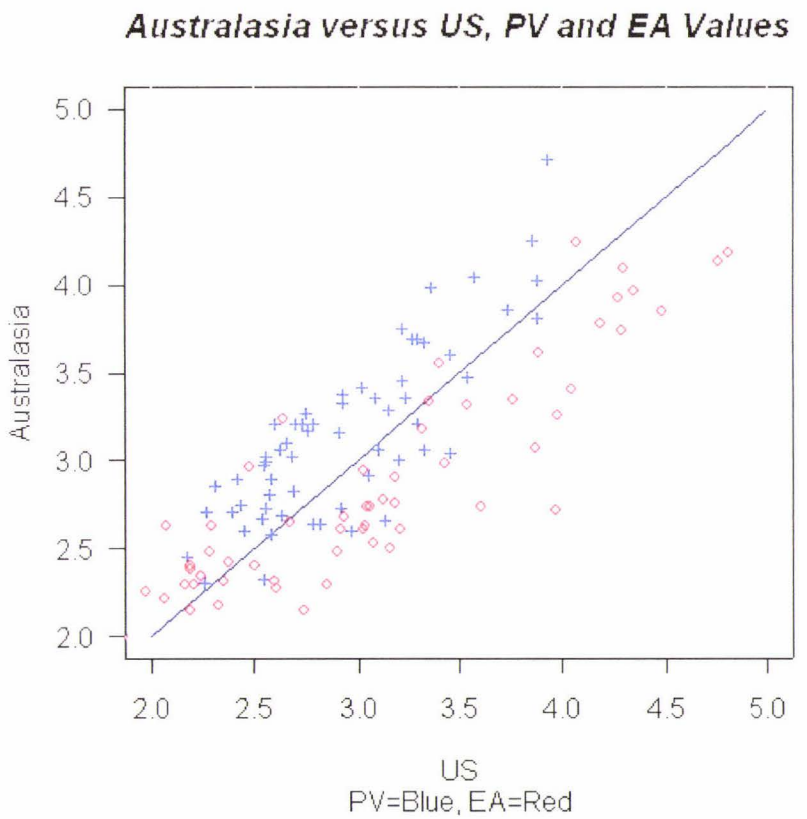


Quite noticeably the Australasian results have generally plotted further to the left compared to the US results, indicating that the Australasian analysts have generally rated the measures as more difficult to acquire. With the limited sample size and potential inconsistent use of the definition of an analyst between the two studies, it is difficult to know whether the results indicate that information is generally more difficult to acquire in Australasia.

An alternative view of the measures can be seen in the subsequent chart (Chart 4.12), where the PV and EA results are plotted based on their Australasian and US ratings. A review of Chart 4.12 further highlights that many measures have been given a lower EA rating in the Australasian survey compared to the US survey.

Despite the EA differences, it can be seen that the PV results have plotted relatively close to the Australasia = US rating line. This observation is not as strong for the EA ratings, however the EA measures have generally been rated similarly in both surveys on a rank basis (Appendix one and seven).

Chart 4.12 Australasian & US – PV Versus EA Plot Flow (b)



4.7 Chapter Conclusion

The empirical results and discussion chapter has analysed, presented and discussed the Australasian analysts survey results. Throughout the analysis, limitations such as survey sample size and response rate have hampered the statistical analysis. Despite this limitation, analysis of the survey results found evidence of information gaps for individual measures, and more generally for non-financial measures that do not form part of, or rely on, traditional financial reporting. The following chapter will summarise the key findings from the thesis research and conclude on the research questions.

CHAPTER FIVE: SUMMARY AND CONCLUSION

5.0 Introduction

This chapter will seek to summarise and conclude on how the thesis research has contributed to answering the following research questions:

- What is the perceived predictive value of performance measures?
- What is the perceived ease with which information on each of the measures can be acquired?
- Does an information gap exist?
- Is non-financial information under-reported (externally)?

Along with how discussions within the literature review on the following questions contribute to this study:

- What are the consequences of under-reporting / benefits of full disclosure of information relevant to the markets assessment of performance and value?
- What methods may be employed to identify relevant information to report to the market (for its assessment of performance and value)?

5.1 Summary of Key Findings

This section of the summary and conclusion chapter identifies the key findings that provide a response to each of the research questions.

The following key findings have been identified from the results chapter, that relate to the research question: What is the perceived predictive value of performance measures? Otherwise stated, what information is useful to the analysts in their assessment of value?

- The survey results found that a broad range of measures were relevant in the surveyed analysts assessment of value. This was found through the analysts applying a mean PV rating of three or greater (from a five point scale) to 54 of the 80 surveyed measures.
- The broad range of value relevant measures are attributable to range of categories, showing the diversity of information that is relevant to analysts assessment of value. More specifically, measures from all of the categories, with the exception Social Responsibility (category H), were represented in the 54 measures that received a mean PV rating of 3 or greater.
- The Social Responsibility category was rated lowest for PV, with category measures such as Affirmative Action, Environmental Performance, Community Involvement, and Litigation, failing to be identified by analysts as being highly value relevant. Previous discussion of these results within the thesis considered the importance of not discounting the relevance of Social Responsibility measures based on these survey results, as value drivers can change as peoples concerns and priorities change. This is particularly relevant as a growing awareness of environmental and social impacts are highlighted through recent media reports and international Government discussions (Harrabin, 2007).
- Five individual measures were identified as having significantly high PV ratings, being Cash Flow, Barriers to Entry, Industry Structure, DCF Analysis, and Potential Competition (Chart 4.2).

The following key finding has been identified from the results chapter, that relate to the research question: What is the perceived ease with which information on each of the measures can be acquired? Otherwise stated, what information is difficult to acquire?

- Although specific examples of measures receiving high or low ratings for EA can be identified (see Tables 4.3 & 4.4), the response to the question as to what information is difficult to acquire is better summarised by the characteristic of the measures driving the result. It was therefore found that measures that are non-financial in nature or that can be identified as reliant on non-financial

information have been identified by the survey ease of acquisition results to be more difficult to acquire than measures that are financial in nature.

The following key findings have been identified from the results chapter, that relate to the research question: Does an information gap exist?

- Statistical analysis of PV and EA ratings found that 45 measures had PV and EA ratings that were significantly different. Indicating that there is at least some level of information gap for these measures.
- At a category level the survey results found that analysts associate financial measures as having a high value relationship, high ease of acquisition and therefore no associated information gap.
- An exception to the financial category's high ease of acquisition results is the Cash Flow measure. Cash Flow was identified as being highly relevant in the assessment of value, yet not equally as easy to acquire. For this reason, Cash Flow was identified as a measure that potentially has an information gap. Further discussion on this result, identified the detail and timeliness of this information as a potentially limiting factor driving the lower EA result (and ultimately the resulting information gap).
- DCF Analysis was included in the survey based on input from the survey review group. This inclusion was validated by the analysts' survey results which attributed a high PV rating to this measure. When the high PV result is combined with the relatively low EA rating, DCF Analysis is identified as an area where an information gap is likely to exist. Further discussions identified the reliance of DCF Analysis to included non-financial measures, which were generally rated lower for EA and therefore potentially contribute to the identification of an information gap.
- The Experience and Reputation of Management, along with the Ethical Behaviour of Management was identified as a potential area where an information gap exists. Discussion on this result brought into question the markets view of audited financial reports subsequent to recent corporate collapse. Additionally, the design and communication of senior management remuneration aligning their goals with shareholders was proposed as a potential

means of trying to satisfy the markets concerns over management's decision making and ethical behaviour.

- Barriers to Entry, Potential Competition and Industry Structure had the highest information gaps. Discussions on these measures included their potential association, and when viewed together these information gap results confirm the uncertainty that exists for measures associated with the competition environment. Discussion on the potential information gap for these measures was suggested as being beyond the control of individual companies, where technology developments, Government intervention and a developing global market could all impact on these measures.
- Among the key findings identified, the ease of acquisition and resulting information gap results for Cash Flow and DCF Analysis were the most difficult to interpret. The literature review and survey results place a high emphasis on the value relevance of Cash Flow, yet this is not reflected in the analysts' assessment of their ability to acquire the information. At first glance this survey finding seems to be contradicted by the fact that cash flow statements are provided in listed companies' annual reports, however, it may be the timing and detail of this information that is lacking, along with potentially an interest in projected positions.
- DCF is reliant on current and projected cash flow data, which relies on assumptions about the future that are formed / supported by other financial and non-financial information. Therefore the information gap rating for DCF is consistent with the other information sources that it relies on, as both Cash Flow and measures that rely on non-financial information tended to have relatively low EA ratings and high information gap calculation results.
- To aid with the interpretation of the Cash Flow and DCF Analysis survey results, it would be useful to undertake additional research on the analysts' use of cash flow and DCF information. On this basis a limited review of an analyst's DCF based valuation procedure and related discussion have been undertaken with one of the survey review group analyst's (Appendix two). This valuation demonstration and related discussion, contributed to the discussion of the survey results. However, more in-depth research into this area would contribute to the knowledge of what information is required by analysts and how it is used.

The following key findings have been identified from the results chapter, that relate to research question: Is non-financial information under-reported (externally)?

- Trends were identified throughout sections 4.3 and 4.4 where it was identified that measures relying on or forming part of non-financial information were both more difficult to acquire and more likely to result in an information gap.
- Specific analysis performed in section 4.5 verified that the surveyed analysts had rated measures that were non-financial in nature or relied on non-financial information as more difficult to acquire, and therefore more likely to be at risk of an information gap / be under-reported externally.

Other research objectives included the examination of literature to find:

- What are the consequences of under-reporting / benefits of full disclosure of information relevant to the markets assessment of performance and value?
- What methods may be employed to identify relevant information to report to the market (for its assessment of performance and value)?

Literature relevant to these questions was addressed within the literature review (chapter two), with the following highlights:

- Consequences of information asymmetry include limiting the market's ability to recognise the full value of the company (Barry & Brown, 1986).
- Based on such a consequence, evidence of information asymmetry can be seen, where senior management believe their company's shares are undervalued by the market (Graham & Campbell, 2002).
- Specific evidence of such consequences can be found in the Financial Executives International (FEI) Survey, which found that two thirds of executives surveyed felt that their common shares were undervalued by the market, compared with 3% who thought their shares were overvalued. This was

particularly surprising as the survey was conducted at a time when the Dow Jones 30 was approaching a new record of 10,000 (Graham, 1999).

- Benefits of comprehensive external reporting were identified in the PWC study (2003) "Drilling Deeper," where survey respondents identified the following:

    - Reduced share price volatility
    - Increased valuations
    - More long-term investment
    - Lower cost of capital
    - Greater management credibility

- The reason why standardised non-financial reporting requirements are not incorporated into the regulatory reporting framework is a result of the difficulty in assessing a standard set of non-financial reporting requirements that are relevant to all companies. This statement is founded on the research conducted by the AAA (2002), where it was found that relevant non-financial information needed to be assessed on a firm specific basis.
- The requirement for non-financial measures to be firm specific, is consistent with the process used in establishing measures within the Balanced Scorecard (Kaplan & Norton, 1992).
- Analysts need for a diverse set of firm specific financial and non financial measures is also consistent with management reporting tools such as the Balanced Scorecard (Kaplan & Norton, 1992).
- With the identification of both management and external analysts requiring a similar mix of firm specific information, it is of interest to consider the use of existing management tools to identify information to report externally.
- However, in order to increase the usefulness of the Balanced Scorecard (for external reporting), the relevant measures and relationships within this tool may need to be adapted to consider cash flow, timing, and risk (Norreklit, 2000; Appendix two).

This section has provided a summarised response to the research questions, thereby concluding on the findings within this study. The following sections of this chapter

draw on the highlights discussed to take a more lateral view of the issues and findings related to this research.

5.2 Discussion

The consequence of information asymmetry was explored in the literature review, where several studies were used to show that non-disclosure of relevant information ultimately limited the markets ability to recognise the full value of the firm (Bartov & Bodnar, 1996). Where management seek to maximise shareholder value, any limitation in the markets assessment of the company's share value, is a limitation in value to shareholders. Therefore it is important for management to understand the information needs of the market, and ensure where practical that these needs are met.

A trend identified within the results section of this thesis, was the finding that non-financial measures tended to have a lower rating for EA and as a result, many of the measures that relied on non-financial reporting were identified as having an information gap. This finding needs to be considered by companies, as these measures were identified within the literature review as adding certainty to the assumptions made within valuation models (PWC, 2003). This was made particularly clear in the study "Drilling Deeper" where it was found that the accuracy of forecasts improved, when relevant non-financial information was utilised. This finding was consistent with the review of the analyst's valuation technique, where non-financial measures were actively sought to both establish and evaluate financial projections (PWC, 2003; Appendix two).

Based on the survey results identifying an information gap for measures relying on non-financial information, it may be that although management have diversified into the utilisation of non-financial measures for their decision making, they have not yet fully appreciated the significance of this information to the market in its assessment of value. To the extent that the under-reporting of non-financial information may relate to an issue of identification of relevant measures, the literature review undertook an examination of how existing management tools may assist.

The literature review explored the use of the Balanced Scorecard as a representation of the developments within management accounting. Significant to the Balanced

Scorecard, was its identification of firm specific measures, along with the introduction of non-financial measures that are identified as drivers of future financial performance. In assessing the ability of the Balanced Scorecard to the identify non-financial measures to report to the market, the literature review included a critical analysis of the Balanced Scorecards "cause and effect" relationship, along its ultimate link to financial performance.

The researcher is of the opinion that individual companies need to be proactive in the assessment of what is relevant in the assessment of value. Management should have the greatest knowledge as to what is relevant in the assessment of their company's value, and as such need to consider how other non-financial information may be relevant to external parties' assessment of the company's performance and value. Management's review of what is reported externally would ideally include examining the potential use or adaptation of existing management tools to identify value relevant measures. It is the researcher's opinion that a tool such as the Balanced Scorecard and it's cause and effect relationship are appropriate for identifying a broad range of firm specific measures, which if reported externally would allow interested external parties (such as analysts, shareholders and investors) to assess the company's short and long-term performance. However, some modification to the traditional Balanced Scorecard may be required to recognise cash flow, timing and risk.

5.3 Summary

Increasing globalisation and advances in technology mean that the competition environment is changing, as are the competencies required to ensure financial success now and in the future (Perea et al, 1997). The refocus of companies to place a greater emphasis on adding value to their customers has subsequently increased the emphasis that management placed on non-financial performance. As these non-financial areas of performance now have a greater bearing on the current and future success of the business, companies need to ensure that the market is fully informed by reporting all value relevant information. Satisfying the market's information requirements is an important component of ensuring that the full value of company shares are recognised,

thereby contributing to the maximisation of shareholder wealth (Bartov & Bodnar, 1996).

In conclusion, the Australasian survey has shown that analysts, who have been used as representatives of the market (Dempsey et al, 1997), consider a wide variety of information in their assessment of value. Based on the surveyed analysts assessment of PV and EA, many potential information gaps were identified, with the most significant information gaps generally being associated with measures that rely on non-financial information. This finding raises an issue over companies' ability to satisfy the information requirements of the market beyond legislatively enforced financial disclosures.

Financial measures in general were found to be both highly relevant to an analyst's assessment of value, and easily acquired. Based on these ratings financial measures generally did not result in the identification of an information gap. The ease of acquisition for these measures and other measures derived from core financial results is explained by the legislative and stock exchange reporting requirements.

This thesis has identified the relevance of measures beyond the core financial disclosures, and combined with the discussions of the cost of information asymmetry seeks to raise an awareness for the disclosure of all value relevant information. The researcher does however concede that in some cases disclosure may be beyond the control of management or limited through competitive sensitivity. Potential competition was highlighted as one such area where the developing global market, technology developments and Government intervention may cause uncertainty for shareholders and management alike.

Finally, the researcher would like to emphasise the need to constantly assess the value relevance of information, the importance of this is highlighted by the rapid growth in utilisation of non-financial performance data and the potential for additional focuses to develop in the future. Of particular interest will be a potential growth in the importance of social and environmental reporting which rated poorly in both the Australasian and US study for PV, but for which subsequent, significant media attention may change the attitudes of consumers and Government policy (Harrabin, 2007).

5.4 Limitations and Constraints

The limitations of this study include:

Population / Sample Size Issue:

- Research has been limited to the survey of a sample of Australasian CFA members, from the New Zealand and Melbourne (Australia) branches. It is possible that other Australasian CFA members and non-CFA members that were not surveyed may have a different view on the PV and EA for the survey measures.
- Selection of a single professional body to be surveyed may result in biased results. This concern is based on the participants' responses possibly being biased as a result of common training delivered by the professional body. This limitation is offset by the participation of the two different Australasian member societies, along with the diverse employment influences.
- It is acknowledge that analysts often deal with more firm-specific and industry-specific information when making investment recommendations, which were not provided for in the survey.
- Interpretation of category level information has been limited to general discussion, as the measures within each category have other individual characteristics which may affect both their value relevance and ease of acquisition. Other characteristics that can be attributed to the majority of the measures within the survey include a distinction between being reliant on financial vs. non-financial information. This is significant as individual measures within the generic categories adopted from Dempsey et al's US study, only represent a one dimensional association in the categorisation of the surveyed measures. On this basis, the individual measures along with general characteristic analysis were found to be most useful in the interpretation of the Australasian survey results.

- Based on events subsequent to the survey research being undertaken, the researcher would like to raise awareness of events that need to be considered when reviewing the research results. Environmental issues such as global warming and individuals carbon footprint have notably received significant media attention both in Australasia and on a global basis, and therefore should be considered when interpreting the results for social and environmental measures. These measures rated poorly for PV in both the Australasian and US surveys, however a growing awareness of social, environmental, and more recently the acknowledgement of a potential economic impact may influence consumer behaviour and, Government policies (Harrabin, 2007).

Response Rate Issues:

- The final response rate was 18.88%
- Although a second issue / reminder to the CFA members of both of the CFA branches would have most likely boosted the response rate further, this was not possible. In discussion with the CFA representatives it was pointed out that the CFA members already received a large number of emails, and that some consideration had to be made in minimising this. Additionally, the CFA members were issued with other research surveys from time to time and they did not want to overload their members with survey requests.
- Unfortunately due to the low response rate, analysis on the influence the type of finance position may have on PV and EA ratings could not be completed.

Note: In reviewing the statistical significance of the survey, it is important to acknowledge that although CFA analysts have been selected as representatives of the market, not all Australasian CFA analysts have been surveyed, and not all analysts are members of the CFA. This sample selection along with a relatively low response rate of 18.88%, need to be considered when analysing the survey results.

5.5 Future Research

The examination of analysts PV and EA ratings to identify potential information gaps came from the researcher's wider interest in performance measurements ability to add value to management decision making, along with ensuring the markets full recognition of the company's value. Now that potential information gaps have been identified, it would be of interest to look closer at how these potential information gaps could be reduced, and where successful, what impact further disclosure has on firm value.

Specific examples of future research that may contribute further to the reduction of information gaps include:

- Comparison of the measures that analysts use for assessing value to the measures that are used internally by companies to assess the firm's performance. Alternatively, research examining analysts perceived value relevance, and ease of acquiring companies internally developed KPIs, Balanced Scorecard measures, and other self identified strategic measures.

- Participate in a case study that compares the measures used in a valuation by an external analyst to the measures used internally by management as part of performance reporting, and decision making.

- Participate in a case study of a company transitioning from an external reporting focus on financial reporting to include a broader range of financial and non-financial firm specific measures. In such a case study, it would be of particular interest to review the method of identifying relevant information for reporting, along with the impact the new external reporting method may have on areas such as share price, share price volatility, management reputation and credit rating.

APPENDICES

Appendix One: Dempsey et al (1997) Survey Results

	A	B	C	D	E	F
Measures	**PV**		**EA**		**GAP**	
	Mean	**Rank**	**Mean**	**Rank**	**(A-C)A**	**Rank**
1. Net Income / Earnings per share	3.74	5	4.80	1	-3.96	60
2. Cash Flow	3.94	1	4.19	8	-0.99	39
3. Return on Equity	3.58	6	4.48	3	-3.22	57
4. Return on Assets	3.23	17	4.29	6	-3.42	58
5. Sales	3.37	10	4.75	2	-4.65	63
6. Return on Sales	3.28	15	4.35	4	-3.51	59
7. Sales divided by total Assets	2.61	43	4.27	7	-4.33	62
8. Equity divided by Total Assets	2.76	35	4.30	5	-4.25	61
9. Quality of Accounting Policies	3.10	23	3.03	31	0.22	31
10. Customer Surveys	2.83	31	1.98	57	2.41	4
11. Warranty Claims	2.27	59	1.75	61	1.18	14
12. Customer Complaints	2.57	47	1.66	62	2.34	5
13. Percent On-Time Delivery	2.45	54	1.85	59	1.47	11
14. Service Responsiveness	2.63	42	1.87	58	2.00	7
15. Percent Repeat Sales	2.92	30	2.07	56	2.48	3
16. Litigation	2.59	44	3.06	28	-1.22	45
17. Defect Rates/Yield Rates	2.57	47	1.82	60	1.93	8
18. Product Development Time	2.69	39	2.21	50	1.29	12
19. Manufacturing Cycle Time	2.57	47	2.20	51	0.95	19
20. Order to Delivery Time	2.55	52	2.17	54	0.97	18
21. Ability to Customise Products	2.43	55	2.29	48	0.34	28
22. Operating Costs Per Employee	3.03	25	3.36	20	-1.00	40
23. Sales Per Employee	3.15	21	3.87	14	-2.27	53
24. Cost of Goods Sold divided by Inventory	2.93	29	3.89	13	-2.81	55
25. Accounts Receivable divided by Sales	3.06	24	4.07	9	-3.09	56
26. Capital Investment	3.34	11	4.05	10	-2.37	54
27. Age of Plant and Equipment	2.94	27	3.13	26	-0.56	35
28. Capacity Utilisation	3.47	8	3.21	22	0.90	21
29. R&D Expenditures	3.34	11	3.98	11	-2.14	51
30. Percent of Products Protected by Patents	2.79	32	2.61	40	0.50	26
31. Number of New Patents	2.70	38	2.60	41	0.27	30
32. Number of New Products	3.21	19	3.03	31	0.58	25
33. Percent of Sales Due to New Products	3.47	8	2.85	36	2.15	6
34. Market Share	3.89	2	3.43	18	1.79	9
35. Brand Awareness	3.25	16	2.90	35	1.14	16

36. Potential Competition	3.86	4	3.08	27	3.01	1
37. Tariff or Quota Protection	2.67	40	2.68	38	-0.03	33
38. Percent of Sales from Proprietary Products	3.31	13	2.94	33	1.22	13
39. Strategic Alliances	2.94	27	3.19	23	-0.74	36
40. Infringement / Anti-Trust Litigation	2.59	44	3.04	30	-1.17	44
41. Geographic Diversification	3.11	22	3.76	15	-2.02	49
42. Customer Diversification	3.16	20	3.16	25	0.00	32
43. Product Diversification	3.31	13	3.54	17	-0.76	37
44. Continuity of Management	3.55	7	3.97	12	-1.49	48
45. Experience / Reputation of Management	3.89	2	3.61	16	1.09	17
46. Involvement of the Board of Directors	2.71	37	2.38	44	0.89	22
47. Independence of the Board of Directors	2.74	36	2.64	39	0.27	29
48. Shareholder disputes	2.32	57	2.92	34	-1.39	47
49. Dispersion of Ownership	2.56	50	3.41	19	-2.18	52
50. Ethical Behaviour of Management	3.23	17	2.36	45	2.81	2
51. Equal Employment Opportunity (EEO)	1.69	62	2.48	43	-1.34	46
52. Employee Involvement	2.56	50	2.20	51	0.92	20
53. Employee Training	2.58	46	2.25	49	0.85	23
54. Profit Sharing	2.79	32	3.19	23	-1.12	42
55. ESOP Plans	2.47	53	3.32	21	-2.10	50
56. Employee Turnover	2.77	34	2.20	51	1.58	10
57. Absentee Rates	2.19	60	1.66	62	1.16	15
58. Safety Record	2.28	58	2.08	55	0.46	27
59. Labour Market Relations	2.98	26	2.74	37	0.72	24
60. Affirmative Action	1.61	63	2.33	46	-1.16	43
61. Environmental Performance	2.41	56	2.51	42	-0.24	34
62. Community Involvement	1.81	61	2.30	47	-0.89	38
63. Litigation	2.64	41	3.05	29	-1.08	41

Appendix Two: Analysts Valuation Method

Introduction

To aid with the interpretation of the survey results, an overview of an analyst's valuation method was undertaken. This overview placed particular emphasis on valuation methods that utilise discounted cash flows.

The motivation to further explore the valuation process was to aid in the understanding of the survey results, with particular emphasis on:

- Why cash flow disclosures were identified in the survey as having a potential information gap?
- How non-financial measures can be relevant to the valuation process?

The analyst who provided an overview of the valuation process, worked for a large, reputable, multinational Investment Bank. The analyst was also part of the survey review group and therefore understood the motivation and objectives of this thesis research. For confidentiality reasons the examination of the valuation process was limited to an overview and therefore did not include a review of any company specific valuation models or data. The valuation overview did involve a high level examination of the valuation procedures including the collection and use of information, along with a demonstration of how a DCF model is built.

The analyst who provided the valuation overview has performed both internal and external valuations. This is significant as the analyst has experienced both open access to internal information, along with valuations where levels of uncertainty are created due to information constraints.

With the analyst's time being valuable, the meeting was set up with the following agreed scope / objectives:

- The valuation model (DCF).
- How non-financial measures are use to calculate value.
- How uncertainty is dealt with.
- Importance of cash flows.
- Management, Value, and the Agency Problem.
- Potential competition (barriers to entry and industry structure).

The following sections represent a summary of the analyst's valuation process overview and related discussions.

The Valuation Model

As identified in the literature review, DCF based valuation methods are being put forward as more robust (Beneda, 2003). With the raised profile of DCF based valuation methods, the valuation model discussed with the analyst was an Excel based DCF model.

The model is best described by breaking it down into two sections where the associated assumptions are dealt with/presented, and the calculation method reviewed.

Assumptions:

- All the assumptions are clearly identified at the top of the model and range from sales growth rates to the discount rate.
- Setting up the model this way has distinct advantages in that all the assumptions were clearly identifiable, and as the assumptions were linked into the calculation section, individual assumptions could easily be changed.
- This method of referencing to the assumptions from the calculation section also allowed sensitivity analysis to be performed.

- Sensitivity analysis is important in this type of model as where small changes in an assumption create significant changes in the ultimate valuation, increased certainty would be sought to confirm the assumption.

Calculation:

- The calculation section took the most recent financial results and based on the assumptions, forecasted financial statements and cash flows.
- These forecasted cash flows are then discounted by the company specific cost of capital, with the sum of these discounted cash flows representing the ultimate value of the company.
- It was shown that the model is based on multiple assumptions about the future performance of the company, and for this reason the valuation model is not going to represent an exact science. Tying into the verification of these numbers was the topic of non-financial performance, as it was shown that other financial and non-financial measures are generally useful in supporting assumptions made about the company's future performance.
- As the analyst performed valuations for internal business use as well as external business use, he often reviewed companies' in-house valuation models. In his review of these in-house models, the analyst generally challenged or confirmed projections based on market, industry and firm specific information. This generally involved collecting information that does not form part of traditional financial reporting.
- From experience the analyst found that companies' in-house models were often optimistic, commonly over sighting competitive response. By this it is meant that management will project forward a growth rate that is based on a current competitive advantage without considering the future actions of competitors.

Use of Non-Financial Measures

A discussion with the analyst on the use of non-financial measures within the valuation process was undertaken in order to appreciate why such measures were relevant in the assessment of value.

The usefulness of non-financial measures could be explained from a common sense point of view. Where a company is claiming an increase in value, it should be able to support such a claim through a competitive advantage. With the competitive advantage generally falling outside of traditional financial reporting, to items such as strategic alliances, technology developments, cost efficiencies, along with many other areas of non-financial performance.

In effect this means that non-financial measures are used to derive or support assumptions used within a DCF based valuation model. For example, where sales growth rates are assumed to increase, relevant non-financial measures can be used to substantiate these assumptions. Examples of non-financial measures that could be used to support these assumptions include:

- Customer satisfaction
- Barriers to entry
- Industry structure
- Quality measures
- Warranty claims
- Patents

There is no formula for converting non-financial performance to a financial value, it is therefore often a matter of opinion. Non-financial performance in effect aids in the setting and verification of assumptions that drive the valuation model, and can therefore be quite influential in the outcome of the valuation.

Dealing with Uncertainty

There are different types of uncertainty, including uncertainty created by the lack of information, the reliability of information, and particularly relevant to valuations is the uncertainty over the future performance of the company.

Uncertainty created by the lack of information can be quite frustrating, to assist analysts with this problem, it is not uncommon for companies to have closer relationships with analysts and therefore to some extent analysts have the ability to reduce the level of uncertainty created by lack of information. Despite this, there are areas of non-financial performance that are not commonly measured or at least not reported to the market by most companies. In some cases the limited information may be due to the sensitivity of the information in a competitive market, but in many cases it was the analyst's view that there was a lack of appreciation for the relevance of certain types of performance.

Uncertainty created by the reliability of information transcends both financial and non-financial information. Although the financial reports of most large companies are subject to external audit, there is still significant room for manipulation of the results. A basic example is the creation or release of provisions that can directly influence the profit performance of that period. This agency problem associated issue can not only distort the financial performance for the period but also creates uncertainty over the future cash flow impact for the company.

The reliability of non-financial disclosures can also be an issue, for example where customer satisfaction is generated via internal surveys, there is a distinct lack of independence and therefore uncertainty over the reliability of this information. The future performance of the company in many cases creates a significant amount of uncertainty. As the value of the company is concerned not only with the current performance of the company but also the future performance, the need to project likely future performance creates uncertainty.

Finally, with the cost of time and information gathering can be undertaken to compensate for disclosure shortfalls. This may involve breaking down reported numbers and collecting industry, competitor, and other related information to assist with the assessment of performance and value. This will likely come at some cost, however

under certain circumstances such information gathering and analysis is required. It would however in many cases be more efficient for the company to report this information directly.

The level of uncertainty for the future performance of the company can also be associated with factors that include:

- Industry structure
- Potential Competition
- Availability and reliability of relevant non-financial performance
- Stability of past performance
- Perceived quality of management

Importance of Cash Flows

There are two distinct factors that influence a DCF valuation, one is the discount rate, which is generally fairly consistently applied by analysts, and the other is cash flow projections, which can vary fairly significantly when analysts make various assumptions about the future performance of a company. The analyst's assumptions are effectively the foundation of a DCF valuation, as they drive the model's projected performance of the company. The projected performance of the company along with other cash flow related assumptions result in the forecasted cash flow for each period.

In addition to being relevant to value measurement, the management of cash flows are also crucial to a business maximising its investment opportunities, along with ensuring that it remains solvent. For these reasons; past, current and future cash flows are relevant in the assessment of value and in the assessment of risk relating the solvency of the company.

Management, Value and the Agency Problem

Ultimately the value of the company is driven by the decisions that senior management make. For this reason the perceived value of management along with their reputation can be associated with many of the decisions that are made about the assumptions driving the DCF valuation model.

In addition to influencing the value of the company, management may also be in a position to act out of self interest rather than the long-term interest of the company. This may occur through business decisions and accounting treatments that maximise short-term profits that ensure management bonus targets are met.

Potential Competition

Potential competition may pose a risk to the certainty of the assumptions made in the valuation model. This is primarily due the uncertainty around the industry structure, and barriers to entry, which can quickly change, through for example government intervention. This is particularly evident in both the New Zealand and Australian telecommunications industries, where recently broadband internet unbundling reshaped these industries, bringing in new competitors and changing the income structure for the primary telecommunication provider in each country. Potential competition in the current and foreseeable competition environments is hard to assess as the global market, technology and government policy can very quickly change an industry.

Appendix Three: Key Web-Survey Statistics

Clicked on Survey Link	67
Did not start Survey	10
Responses	57
Unusable	3
Valid Responses	54
CFA NZ Members	124
CFA Melbourne Members	162
CFA Sydney Members	
Total CFA Members	286
Response Rate	0.188811

Appendix Four: Survey Measures

Measures Surveyed by Category:

A. Financial:

1. Net Income / Earnings per share
2. Cash Flow
3. Return on Equity
4. Return on Assets
5. Sales
6. Return on Sales
7. Sales divided by total Assets
8. Equity divided by Total Assets
9. Quality of Accounting Policies

B. Product Quality and Customer Satisfaction:

10. Customer Surveys
11. Warranty Claims
12. Customer Complaints
13. Percent On-Time Delivery
14. Service Responsiveness
15. Percent Repeat Sales
16. Litigation

C. Process Efficiency:

17. Defect Rates/Yield Rates
18. Product Development Time
19. Manufacturing Cycle Time
20. Order to Delivery Time
21. Ability to Customize Products
22. Operating Costs Per Employee
23. Sales Per Employee
24. Cost of Goods Sold divided by Inventory
25. Accounts Receivable divided by Sales
26. Capital Investment
27. Age of Plant and Equipment
28. Capacity Utilisation

D. Product and Process Innovation:

29. R&D Expenditures
30. Percent of Products Protected by Patents
31. Number of New Patents
32. Number of New Products
33. Percent of Sales Due to New Products

E. Competitive Environment:

34. Market Share
35. Brand Awareness
36. Potential Competition
37. Tariff or Quota Protection
38. Percent of Sales from Proprietary Products
39. Strategic Alliances
40. Infringement / Anti-Trust Litigation
41. Geographic Diversification
42. Customer Diversification
43. Product Diversification

F. Quality / Independence of Management:

44. Continuity of Management
45. Experience / Reputation of Management
46. Involvement of the Board of Directors
47. Independence of the Board of Directors
48. Shareholder disputes
49. Dispersion of Ownership
50. Ethical Behaviour of Management

G. Human Resource Management:

51. Equal Employment Opportunity (EEO)
52. Employee Involvement
53. Employee Training
54. Profit Sharing
55. ESOP Plans
56. Employee Turnover
57. Absentee Rates
58. Safety Record
59. Labour Market Relations

H. Social Responsibility:

60. Affirmative Action
61. Environmental Performance
62. Community Involvement
63. Litigation

I. Additional Measures:

64. Industry Structure
65. DCF Analysis
66. Forecast Variables
67. Management / Director Ownership Changes
68. Gearing Numbers / Ratios
69. Barriers to Entry
70. EV / EBITDA
71. Implied Growth Rate
72. EBITDA Margin
73. Price Earnings Ratio
74. Dividend Yield
75. Interest Cover
76. CAPEX and Comparatives
77. EV / Sales
78. Price Earnings / Growth
79. Normalised Accounting Numbers
80. Management / Director Ownership Levels

Note:

Measures within categories 'A' to 'H' were established in the US study by Dempsey et al (1997). Measures within category 'I', represent the additional measures resulting from the survey review group.

Appendix Five: Regression Analysis

Note: The following is a reproduction of exhibit 7 from Dempsey et al (1997).

Regression of mean scores for frequency of use, against mean scores for predictive value, and ease of acquisition.

PANEL A. REGRESSION RESULTS

F-Value	305 (< 0.0001)
Adjusted R^2	0.91
Number of Observations	63

Variable	Coefficient	t-Statistic	Prob > |t|
Intercept	-0.8411	-5.0949	0.0001
PV (Predictive Value)	0.9949	13.8484	0.0001
EA (Ease of Acquisition)	0.3262	7.4301	0.0001

Appendix Six: Predictive Value Results (rank order)

Questionnaire Analysis and Comparison

Australasian Survey

Measure	Cat.	Predictive Value
		Mean
2. Cash Flow	A	4.72
69. Barriers to Entry	I	4.56
64. Industry Structure	I	4.35
65. DCF Analysis	I	4.28
36. Potential Competition	E	4.26
3. Return on Equity	A	4.06
45. Experience / Reputation of Management	F	4.04
5. Sales	A	4.00
71. Implied Growth Rate	I	3.98
72. EBITDA Margin	I	3.94
1. Net Income / Earnings per share	A	3.87
73. Price Earnings Ratio	I	3.83
34. Market Share	E	3.81
4. Return on Assets	A	3.76
38. Percent of Sales from Proprietary Products	E	3.70
6. Return on Sales	A	3.70
26. Capital Investment	C	3.69
70. EV / EBITDA	I	3.69
67. Management / Director Ownership Changes	I	3.63
28. Capacity Utilisation	C	3.61
78. Price Earnings / Growth	I	3.61
68. Gearing Numbers / Ratios	I	3.57
75. Interest Cover	I	3.54
44. Continuity of Management	F	3.48

66. Forecasted Variables	I	3.48
50. Ethical Behaviour of Management	F	3.46
74. Dividend Yield	I	3.44
22. Operating Costs Per Employee	C	3.43
39. Strategic Alliances	E	3.39
35. Brand Awareness	E	3.37
9. Quality of Accounting Policies	A	3.37
80. Management / Director Ownership Levels	I	3.37
27. Age of Plant and Equipment	C	3.33
76. CAPEX and Comparatives	I	3.31
42. Customer Diversification	E	3.30
8. Equity divided by Total Assets	A	3.28
79. Normalised Accounting Numbers	I	3.26
30. Percent of Products Protected by Patents	D	3.22
46. Involvement of the Board of Directors	F	3.22
47. Independence of the Board of Directors	F	3.22
43. Product Diversification	E	3.22
7. Sales divided by total Assets	A	3.22
56. Employee Turnover	G	3.19
15. Percent Repeat Sales	B	3.17
37. Tariff or Quota Protection	E	3.11
14. Service Responsiveness	B	3.07
29. R&D Expenditures	D	3.07
41. Geographic Diversification	E	3.07
33. Percent of Sales Due to New Products	D	3.06
17. Defect Rates/Yield Rates	C	3.04
18. Product Development Time	C	3.04
32. Number of New Products	D	3.02
77. EV / Sales	I	3.02
12. Customer Complaints	B	3.00
52. Employee Involvement	G	2.98
25. Accounts Receivable divided by Sales	C	2.93
21. Ability to Customise Products	C	2.91

16. Litigation	B	2.91
48. Shareholder disputes	F	2.87
31. Number of New Patents	D	2.83
53. Employee Training	G	2.81
13. Percent On-Time Delivery	B	2.76
19. Manufacturing Cycle Time	C	2.74
24. Cost of Goods Sold divided by Inventory	C	2.74
61. Environmental Performance	H	2.72
58. Safety Record	G	2.72
63. Litigation	H	2.70
20. Order to Delivery Time	C	2.68
23. Sales Per Employee	C	2.67
10. Customer Surveys	B	2.65
54. Profit Sharing	G	2.65
59. Labour Market Relations	G	2.61
55. ESOP Plans	G	2.61
40. Infringement / Anti-Trust Litigation	E	2.59
57. Absentee Rates	G	2.46
60. Affirmative Action	H	2.43
49. Dispersion of Ownership	F	2.33
11. Warranty Claims	B	2.31
62. Community Involvement	H	2.19
51. Equal Employment Opportunity (EEO)	G	2.15
Median		3.22
Mean		3.24

Appendix Seven: Ease of Acquisition Results (rank order)

Questionnaire Analysis and Comparison

Australasian Survey

Measure	Cat.	Ease of Acquisition
		Mean
75. Interest Cover	I	4.33
25. Accounts Receivable divided by Sales	C	4.24
74. Dividend Yield	I	4.20
1. Net Income / Earnings per share	A	4.19
5. Sales	A	4.13
73. Price Earnings Ratio	I	4.09
8. Equity divided by Total Assets	A	4.09
68. Gearing Numbers / Ratios	I	4.06
6. Return on Sales	A	3.96
72. EBITDA Margin	I	3.94
7. Sales divided by total Assets	A	3.93
77. EV / Sales	I	3.89
3. Return on Equity	A	3.85
70. EV / EBITDA	I	3.80
2. Cash Flow	A	3.78
4. Return on Assets	A	3.74
78. Price Earnings / Growth	I	3.70
67. Management / Director Ownership Changes	I	3.65
24. Cost of Goods Sold divided by Inventory	C	3.61
79. Normalised Accounting Numbers	I	3.56
49. Dispersion of Ownership	F	3.56
80. Management / Director Ownership Levels	I	3.43
26. Capital Investment	C	3.41
65. DCF Analysis	I	3.37

41. Geographic Diversification	E	3.35
22. Operating Costs Per Employee	C	3.33
71. Implied Growth Rate	I	3.31
43. Product Diversification	E	3.31
29. R&D Expenditures	D	3.26
47. Independence of the Board of Directors	F	3.24
55. ESOP Plans	G	3.19
76. CAPEX and Comparatives	I	3.17
23. Sales Per Employee	C	3.07
64. Industry Structure	I	3.04
34. Market Share	E	2.98
51. Equal Employment Opportunity (EEO)	G	2.96
9. Quality of Accounting Policies	A	2.94
39. Strategic Alliances	E	2.91
27. Age of Plant and Equipment	C	2.78
54. Profit Sharing	G	2.76
45. Experience / Reputation of Management	F	2.74
66. Forecasted Variables	I	2.74
16. Litigation	B	2.74
63. Litigation	H	2.74
44. Continuity of Management	F	2.72
69. Barriers to Entry	I	2.70
38. Percent of Sales from Proprietary Products	E	2.69
37. Tariff or Quota Protection	E	2.65
58. Safety Record	G	2.63
40. Infringement / Anti-Trust Litigation	E	2.63
62. Community Involvement	H	2.63
28. Capacity Utilisation	C	2.61
32. Number of New Products	D	2.61
48. Shareholder disputes	F	2.61
36. Potential Competition	E	2.54
42. Customer Diversification	E	2.50
35. Brand Awareness	E	2.48

21. Ability to Customise Products	C	2.48
46. Involvement of the Board of Directors	F	2.43
11. Warranty Claims	B	2.43
52. Employee Involvement	G	2.41
61. Environmental Performance	H	2.41
19. Manufacturing Cycle Time	C	2.39
53. Employee Training	G	2.35
50. Ethical Behaviour of Management	F	2.31
31. Number of New Patents	D	2.31
33. Percent of Sales Due to New Products	D	2.30
18. Product Development Time	C	2.30
20. Order to Delivery Time	C	2.30
30. Percent of Products Protected by Patents	D	2.28
10. Customer Surveys	B	2.26
15. Percent Repeat Sales	B	2.22
17. Defect Rates/Yield Rates	C	2.20
60. Affirmative Action	H	2.19
56. Employee Turnover	G	2.15
59. Labour Market Relations	G	2.15
12. Customer Complaints	B	2.13
14. Service Responsiveness	B	2.00
57. Absentee Rates	G	2.00
13. Percent On-Time Delivery	B	1.98
Median		2.75
Mean		2.99

Appendix Eight: Information GAP Results (rank order)

Questionnaire Analysis and Comparison

Australasian Survey

		A	B	C	D
Measure	**Cat.**	**Predictive Value**	**Ease of Acquisition**	**GAP**	**GAP**
		Mean	**Mean**	**(A-B)A**	**Rank**
69. Barriers to Entry	I	4.56	2.70	8.44	1
36. Potential Competition	E	4.26	2.54	7.34	2
64. Industry Structure	I	4.35	3.04	5.72	3
45. Experience / Reputation of Management	F	4.04	2.74	5.23	4
2. Cash Flow	A	4.72	3.78	4.46	5
50. Ethical Behaviour of Management	F	3.46	2.31	3.98	6
65. DCF Analysis	I	4.28	3.37	3.88	7
38. Percent of Sales from Proprietary Products	E	3.70	2.69	3.77	8
28. Capacity Utilisation	C	3.61	2.61	3.61	9
56. Employee Turnover	G	3.19	2.15	3.30	10
14. Service Responsiveness	B	3.07	2.00	3.30	11
34. Market Share	E	3.81	2.98	3.18	12
30. Percent of Products Protected by Patents	D	3.22	2.28	3.04	13
15. Percent Repeat Sales	B	3.17	2.22	3.00	14
35. Brand Awareness	E	3.37	2.48	3.00	15
71. Implied Growth Rate	I	3.98	3.31	2.65	16
44. Continuity of Management	F	3.48	2.72	2.64	17
42. Customer Diversification	E	3.30	2.50	2.62	18
12. Customer Complaints	B	3.00	2.13	2.61	19
66. Forecasted Variables	I	3.48	2.74	2.58	20
46. Involvement of the Board of Directors	F	3.22	2.43	2.57	21
17. Defect Rates/Yield Rates	C	3.04	2.20	2.53	22
33. Percent of Sales Due to New Products	D	3.06	2.30	2.32	23
18. Product Development Time	C	3.04	2.30	2.25	24
13. Percent On-Time Delivery	B	2.76	1.98	2.15	25
27. Age of Plant and Equipment	C	3.33	2.78	1.85	26
52. Employee Involvement	G	2.98	2.41	1.71	27
39. Strategic Alliances	E	3.39	2.91	1.63	28

31. Number of New Patents	D	2.83	2.31	1.47	29
37. Tariff or Quota Protection	E	3.11	2.65	1.44	30
9. Quality of Accounting Policies	A	3.37	2.94	1.44	31
53. Employee Training	G	2.81	2.35	1.30	32
21. Ability to Customize Products	C	2.91	2.48	1.24	33
32. Number of New Products	D	3.02	2.61	1.23	34
59. Labour Market Relations	G	2.61	2.15	1.21	35
57. Absentee Rates	G	2.46	2.00	1.14	36
10. Customer Surveys	B	2.65	2.26	1.03	37
20. Order to Delivery Time	C	2.68	2.30	1.03	38
26. Capital Investment	C	3.69	3.41	1.02	39
19. Manufacturing Cycle Time	C	2.74	2.39	0.96	40
61. Environmental Performance	H	2.72	2.41	0.86	41
3. Return on Equity	A	4.06	3.85	0.83	42
48. Shareholder disputes	F	2.87	2.61	0.74	43
60. Affirmative Action	H	2.43	2.19	0.58	44
76. CAPEX and Comparatives	I	3.31	3.17	0.49	45
16. Litigation	B	2.91	2.74	0.48	46
22. Operating Costs Per Employee	C	3.43	3.33	0.32	47
58. Safety Record	G	2.72	2.63	0.25	48
4 Return on Assets	A	3.76	3.74	0.07	49
72. EBITDA Margin	I	3.94	3.94	0.00	50
47. Independence of the Board of Directors	F	3.22	3.24	-0.06	51
67. Management / Director Ownership Changes	I	3.63	3.65	-0.07	52
40. Infringement / Anti-Trust Litigation	E	2.59	2.63	-0.10	53
63. Litigation	H	2.70	2.74	-0.10	54
80. Management / Director Ownership Levels	I	3.37	3.43	-0.19	55
11. Warranty Claims	B	2.31	2.43	-0.26	56
54. Profit Sharing	G	2.65	2.76	-0.29	57
43. Product Diversification	E	3.22	3.31	-0.30	58
78. Price Earnings / Growth	I	3.61	3.70	-0.33	59
70. EV / EBITDA	I	3.69	3.80	-0.41	60
5. Sales	A	4.00	4.13	-0.52	61
29. R&D Expenditures	D	3.07	3.26	-0.57	62
41. Geographic Diversification	E	3.07	3.35	-0.85	63
6. Return on Sales	A	3.70	3.96	-0.96	64
79. Normalised Accounting Numbers	I	3.26	3.56	-0.97	65
62. Community Involvement	H	2.19	2.63	-0.97	66
73. Price Earnings Ratio	I	3.83	4.09	-0.99	67

23. Sales Per Employee	C	2.67	3.07	-1.09	68
1. Net Income / Earnings per share	A	3.87	4.19	-1.22	69
55. ESOP Plans	G	2.61	3.19	-1.50	70
68. Gearing Numbers / Ratios	I	3.57	4.06	-1.72	71
51. Equal Employment Opportunity (EEO)	G	2.15	2.96	-1.75	72
7. Sales divided by total Assets	A	3.22	3.93	-2.27	73
24. Cost of Goods Sold divided by Inventory	C	2.74	3.61	-2.39	74
74. Dividend Yield	I	3.44	4.20	-2.62	75
77. EV / Sales	I	3.02	3.89	-2.63	76
8. Equity divided by Total Assets	A	3.28	4.09	-2.67	77
75. Interest Cover	I	3.54	4.33	-2.82	78
49. Dispersion of Ownership	F	2.33	3.56	-2.85	79
25. Accounts Receivable divided by Sales	C	2.93	4.24	-3.85	80
Median		3.22	2.75	0.91	
Mean		3.24	2.99	0.97	

Appendix Nine: Financial vs. Non-Financial Classification

F = Financial

N = Non-financial

B = Financial and non-financial

Australasian Survey

			A	B	C	D
	F/ N	Cat.	Predictive Value	Ease of Acquisition	GAP	GAP
			Mean	Mean	(A-B)A	RANK
Barriers to Entry	N	I	4.56	2.70	8.44	1
Potential Competition	N	E	4.26	2.54	7.34	2
Industry Structure	N	I	4.35	3.04	5.72	3
Experience / Reputation of Management	N	F	4.04	2.74	5.23	4
Cash Flow	F	A	4.72	3.78	4.46	5
Ethical Behaviour of Management	N	F	3.46	2.31	3.98	6
DCF Analysis	B	I	4.28	3.37	3.88	7
Percent of Sales from Proprietary Products	N	E	3.70	2.69	3.77	8
Capacity Utilisation	N	C	3.61	2.61	3.61	9
Employee Turnover	N	G	3.19	2.15	3.30	10
Service Responsiveness	N	B	3.07	2.00	3.30	11
Market Share	N	E	3.81	2.98	3.18	12
Percent of Products Protected by Patents	N	D	3.22	2.28	3.04	13
Percent Repeat Sales	N	B	3.17	2.22	3.00	14
Brand Awareness	N	E	3.37	2.48	3.00	15
Implied Growth Rate	N	I	3.98	3.31	2.65	16
Continuity of Management	N	F	3.48	2.72	2.64	17
Customer Diversification	N	E	3.30	2.50	2.62	18
Customer Complaints	N	B	3.00	2.13	2.61	19
Forecasted Variables	B	I	3.48	2.74	2.58	20
Involvement of the Board of Directors	N	F	3.22	2.43	2.57	21
Defect Rates/Yield Rates	N	C	3.04	2.20	2.53	22
Percent of Sales Due to New Products	B	D	3.06	2.30	2.32	23
Product Development Time	N	C	3.04	2.30	2.25	24
Percent On-Time Delivery	N	B	2.76	1.98	2.15	25
Age of Plant and Equipment	B	C	3.33	2.78	1.85	26
Employee Involvement	N	G	2.98	2.41	1.71	27
Strategic Alliances	N	E	3.39	2.91	1.63	28

Number of New Patents	N	D	2.83	2.31	1.47	29
Tariff or Quota Protection	N	E	3.11	2.65	1.44	30
Quality of Accounting Policies	B	A	3.37	2.94	1.44	31
Employee Training	N	G	2.81	2.35	1.30	32
Ability to Customize Products	N	C	2.91	2.48	1.24	33
Number of New Products	N	D	3.02	2.61	1.23	34
Labour Market Relations	N	G	2.61	2.15	1.21	35
Absentee Rates	N	G	2.46	2.00	1.14	36
Customer Surveys	N	B	2.65	2.26	1.03	37
Order to Delivery Time	N	C	2.68	2.30	1.03	38
Capital Investment	F	C	3.69	3.41	1.02	39
Manufacturing Cycle Time	N	C	2.74	2.39	0.96	40
Environmental Performance	N	H	2.72	2.41	0.86	41
Return on Equity	F	A	4.06	3.85	0.83	42
Shareholder disputes	N	F	2.87	2.61	0.74	43
Affirmative Action	N	H	2.43	2.19	0.58	44
CAPEX and Comparatives	F	I	3.31	3.17	0.49	45
Litigation	N	B	2.91	2.74	0.48	46
Operating Costs Per Employee	F	C	3.43	3.33	0.32	47
Safety Record	N	G	2.72	2.63	0.25	48
Return on Assets	F	A	3.76	3.74	0.07	49
EBITDA Margin	F	I	3.94	3.94	0.00	50
Independence of the Board of Directors	N	F	3.22	3.24	-0.06	51
Management / Director Ownership Changes	N	I	3.63	3.65	-0.07	52
Infringement / Anti-Trust Litigation	N	E	2.59	2.63	-0.10	53
Litigation	N	H	2.70	2.74	-0.10	54
Management / Director Ownership Levels	N	I	3.37	3.43	-0.19	55
Warranty Claims	N	B	2.31	2.43	-0.26	56
Profit Sharing	F	G	2.65	2.76	-0.29	57
Product Diversification	N	E	3.22	3.31	-0.30	58
Price Earnings / Growth	F	I	3.61	3.70	-0.33	59
EV / EBITDA	F	I	3.69	3.80	-0.41	60
Sales	F	A	4.00	4.13	-0.52	61
R&D Expenditures	F	D	3.07	3.26	-0.57	62
Geographic Diversification	N	E	3.07	3.35	-0.85	63
Return on Sales	F	A	3.70	3.96	-0.96	64
Normalised Accounting Numbers	F	I	3.26	3.56	-0.97	65
Community Involvement	N	H	2.19	2.63	-0.97	66
Price Earnings Ratio	F	I	3.83	4.09	-0.99	67

Sales Per Employee	F	C	2.67	3.07	-1.09	68
Net Income / Earnings per share	F	A	3.87	4.19	-1.22	69
ESOP Plans	B	G	2.61	3.19	-1.50	70
Gearing Numbers / Ratios	F	I	3.57	4.06	-1.72	71
Equal Employment Opportunity (EEO)	N	G	2.15	2.96	-1.75	72
Sales divided by total Assets	F	A	3.22	3.93	-2.27	73
Cost of Goods Sold divided by Inventory	F	C	2.74	3.61	-2.39	74
Dividend Yield	F	I	3.44	4.20	-2.62	75
EV / Sales	F	I	3.02	3.89	-2.63	76
Equity divided by Total Assets	F	A	3.28	4.09	-2.67	77
Interest Cover	F	I	3.54	4.33	-2.82	78
Dispersion of Ownership	N	F	2.33	3.56	-2.85	79
Accounts Receivable divided by Sales	F	C	2.93	4.24	-3.85	80
Median			3.22	2.75	0.91	
Mean			3.24	2.99	0.97	

REFERENCES

Aaker, D. A. (1989). Managing assets and skills: the key to a sustainable competitive advantage. *California Management Review*, Winter 1989, 91-106.

Ahmed, Z. (2004). *India Dismisses Outsourcing Fears*. Retrieved December 9, 2006, from BBC Website: http://news.bbc.co.uk/2/hi/business/3472491.stm

Akerlof, G. (1970). The market for lemons: Quality uncertainty and the market mechanism. *Quarterly Journal of Economics* 90, 629-650.

American Accounting Association. (2002). Recommendations on Disclosure of Non-financial Performance Measures. *Accounting Horizons*, 16, 4, 353-362.

Australian Stock Exchange (ASX) (2007). *ASX Listing Rules*. Retrieved February 21, 2007 from the ASX website: http://www.asx.com.au/supervision/rules_guidance/listing_rules1.htm.

Australian Treasury. (2007). *Corporate Governance Framework*. Retrieved February 21, 2007 from the ASX website: http://www.treasury.gov.au/documents/178/RTF/ch4.rtf.

Babbie, E. R. (1973). *Survey Research Methods*. Belmont, CA: Wadsworth Pub. Co., 1973.

Barry, C. B. and Brown, S. J. (1986). Limited information as a source of risk. *The Journal of Portfolio Management*, winter, 66-72.

Bartov, E., and Bodnar, G. (1996). Alternative Accounting Methods, Information Asymmetry and Liquidity: Theory and Evidence. *Accounting Review*, Jul96, Vol. 71 Issue 3, p397-418.

Beneda, N. L. (2003). Estimating free cash flow and valuing a growth company. *Journal of Asset Management*, 4, 4, 247-258.

Bickel, P. J. and K. A. Doksum (1977). *Mathematical Statistics*, Holden-Day: Oakland, CA.

Commerce Commission. (2006). *Industry Regulation: Telecommunications.* Retrieved January 17, 2007, from the Commerce Commission Website: http://www.comcom.govt.nz/IndustryRegulation/Telecommunications/Overview.aspx

Cooper, R., and Kaplan, R. S. (1999). *The Design of Cost Management Systems*, Upper Saddle River, New Jersey: Prentice Hall.

Coy, D. and Dixon, K. (2004). The public accountability index: Crafting a parametric disclosure index for annual reports. *The British Accounting Review*, 36, 79-106.

Coy, D., Fischer, M. and Gordon, T. (2001). Public accountability: A new paradigm for college and university annual reports. *Critical Perspectives on Accounting*, 12, 1-31.

Dempsey, S. J., Gatti, J.F., Grinnell, D. J. and Cats-Baril, W. L. (1997). The use of strategic performance variables as leading indicators in financial analysts' forecasts. *Journal of Financial Statement Analysis*, 2,4, 61-79.

Ernst & Young. (2000). *Increase Shareholder value through clear communication.* Retrieved March 24, 2006 from the FCR website: http://www.fcr.com.au/newsletter/07-2004.htm

Euro NCAP. (2007). *Tests*. Retrieved February 21, 2007 from the Euro NCAP website: http://www.euroncap.com/tests.aspx

FCR. (2004). *2004 FCR Report*. Retrieved May 17, 2006 from the FCR website: http://www.fcr.com.au/newsletter/07-2004.htm

Financial Accounting Standards Boards (FASB) (1980). *Objectives of Financial Reporting by Non-business Organisations*. Statement of Financial Accounting Concepts (SFAC No. 4). Norwalk, CT: FASB.

Frigo, M. L. (2002a). Non-financial Performance Measures and Strategy Execution. *Strategic Management*, Aug 2002, 6-9.

Frigo, M. L. (2002b). Strategy and the Balanced Scorecard. *Strategic Management*, Nov 2002, 6-9.

Frost, C. A., Gordon E. A., and Hayes, A. F. (2006). Stock Exchange Disclosure and Market Development: An Analysis of 50 International Exchanges. *Journal of Accounting Research*, 44 (3), 437–483.

Gomes, C. F., Yasin, M. M., Lisboa, J. V. (2004) An examination of manufacturing organisations' performance evaluation. *International Journal of Operations & Production Management*, 24, 5, 488-513.

Graham, J., (1999). *FEI Survey*. Retrieved May 24, 2005 from the world wide web: http://www.duke.edu/~jgraham.

Graham, J., Campbell, H. (2002). How Do CFOs Make Capital Budgeting and Capital Structure Decisions. *Journal of Applied Corporate Finance*, 16,1,8-23.

Hair, J. F., Babin, B., Money, A. H. and Samouel, P. (2003). *Essentials of Business Research Methods*. USA: Leyh Publishing, LLC.

Harrabin, R. (2007). *Hard bargaining produces climate deal.* Retrieved February 21, 2007 from the BBC Website: http://news.bbc.co.uk/1/hi/sci/tech/6367265.stm

Healy, P. M. and Palepu, K. (2001). Information Asymmetry, Corporate Disclosure and the Capital Markets: A Review of the Empirical Disclosure Literature. *Journal of Accounting and Economics,* 31, pp. 405-440.

Hodgson, V. L. (2004). *Linking Marketing to Shareholder Value in Listed and Non-Listed Markets*. Retrieved November 13, 2006 from the Australian Digital Thesis Program Website:
http://www4.gu.edu.au:8080/adt-root/public/adt-QGU20040116.094444/index.html

Horngren, C. T., Foster, G., and Datar, S. M. (2000). *Cost Accounting – A Managerial Emphasis* (10th ed.). New Jersey: Prentice Hall.

Institute of Management Accountants. (1999). Counting More, Counting Less. *The 1999 Practice Analysis of Management Accounting*, August 1999, 1-24.

Investor words. (2006). *Information Asymmetry Definition*. Retrieved November 13, 2006 from the Investor Words Website:
http://www.investorwords.com/2461/information_asymmetry.html

Ittner, C. D., and Larcker, D. F. (2003). Coming up Short on Non-financial Measurement. *Harvard Business Review*, 88-95.

Ittner, C. D., and Larcker, D. F., Randall, T. (2003). Performance implications of strategic performance measurement in financial services firms. *Organisations & Society*, 28, 7/8, 715-742.

Kaplan, R. (1998). The Evolution of Management Accounting. *The Accounting Review*, Vol LIX, No 3.

Kaplan, R. S., and Atkinson, A. A. (1998). *Advanced Management Accounting* (3rd ed.). New Jersey: Prentice Hall.

Kaplan, R. S., and Norton, D. P. (2000). *The Strategy Focused Organisation*. Boston: Harvard Business School Press.

Kaplan, R. S. and Norton, D. P. (1992). The Balanced Scorecard as a Strategy Management System, *Harvard Business Review*, January-February, 61-66.

Kaplan, R. S. and Norton, D. P. (1996). *The Balanced Scorecard-Translating Strategy into Action, Boston*, Harvard Business School Press.

Labate, J. (2004). Liquidity is Only the First Benefit of a Good Forecast. *Treasury & Risk Management*, March 2004, 30-33.

McCormick, F. (1999). Fewer and Fewer Beans. *CFO, Magazine for senior financial executives*, 18.

New Zealand Stock Exchange (NZSX) (2007). *Regulation Update*. Retrieved February 21, 2007 from the NZSX Website: http://www.nzx.com/regulation.

Norreklit, H. (2000). The Balance on the Balanced Scorecard – a critical analysis of some of its assumptions. *Management Accounting Research*, 11, 55-88.

Oliverio M. E. (2007). *Promoting Audit Quality: U.K. Financial Reporting Council Discussion Paper*. The CPA Journal Feb 2007. Retrieved April 12, 2007, from the CPA website: www.nysscpa.org/cpajournal/2007/207/perspectives/p12.htm

Penno, M. (1985). Informational Issues in the Financial Reporting Process. *Journal of Accounting Research*, Spring85, Vol. 23 Issue 1, p240-255.

Perea, S., Harrison, G., and Poole, M. (1997). Customer focused manufacturing strategy and the use of operations-based non-financial performance measures: a research note. *Accounting Organisations and Society,* 22, 6, 557-572.

PriceWaterhouseCoopers (PWC) (2002). Drilling deeper: Managing value and reporting in the petroleum industry. London: PWC.

Ross, Thompson, Christensen, Westerfield, Jordan. (2004). *Fundamentals of Corporate Finance*. NSW: McGraw-Hill Australia Pty Limited.

Said, A. A., HassabElnaby, H. R. and Wier, B. (2003). An Empirical Investigation of the performance consequences of non-financial measures, *Journal of Management Accounting Research,* 15, 193-223.

Shapiro, A. C. (1990). *Modern Corporate Finance*. New York: Macmillan Publishing Company.

Sharplin, A. (1974). A Challenge to Shareholder Supremacy in the Public Firm. *Business & Society Review* (1974), Summer2003, 108, 2, p225-235.

Simons, R. (1987). Accounting control systems and business strategy: An empirical analysis. *Accounting Organisations and Society*, 12, 4, 357-374.

Treasury (Australia). (2007). *Financial reporting requirements and accounting standards*. Retrieved April 17, 2007, from the Australian Treasury website: http://www.treasury.gov.au/documents/178/RTF/ch5.rtf. 2007.