

**CAN EVA[™] CREATE VALUE?
A DYNAMIC LONGITUDINAL
INVESTIGATION OF
THREE NEW ZEALAND COMPANIES**

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Abstract

When Economic Value Added (EVA[™]) was first promoted by the patent-holders, Stern Stewart and Company, it was hailed as an innovation in management accounting. The suggestion was that this measure could be used as the basis for the management control system within the firm, covering planning, control, investment decision making and remuneration determination. Many firms introduced the EVA system. New Zealand, in particular, was exposed to the EVA methodology through the publication in 1996 of a Value-Based Reporting Protocol that was recommended for state-owned enterprises.

This study adopts a longitudinal perspective to examine the experience of three large companies in New Zealand, who implemented EVA in the late 1990s. These companies are ex-nationalised firms; two are state-owned enterprises and one is listed. The firms implemented EVA in the late 1990s and continued to use it as the management control system for a period of 10-15 years. The evidence is gathered from a questionnaire conducted in 1999, interviews conducted in 2001 and 2011, and supporting documentary evidence. It covers the entire 'life cycle' of EVA, from initial implementation, through its evolution to the eventual decline.

Three different theoretical frameworks are developed from three academic disciplines and applied in an original context to analyse this EVA evidence. The first is the discovery theory framework, drawing from the economics literature base. This framework is used to consider whether EVA can be regarded as a discovery process within the organisation, to discover the source of value that is known to exist in these ex-nationalised firms. The second, from the management literature, is used to investigate whether EVA can be viewed as a management model in the firm. Finally, contingency theory as applied in management accounting is extended to a longitudinal perspective to analyse the variables that were important at each stage of the EVA life cycle. A central theme of each framework was the information provided and the incentives created by the measure.

The thesis provides original contributions to the evidence on EVA, including why EVA needed to evolve and why it eventually failed. Further contributions are the suggestions for development and extension of each framework and the synthesising of the frameworks. Finally, implications for practitioners and policy makers are considered.

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List of Abbreviations

ABC	Activity Based Costing
ABM	Activity Based Management
Airways	Airways Corporation of New Zealand
BGM	Birkinshaw and Goddard Management Model
BSC	Balanced Scorecard
BVA	Book Value of Assets
BVS	Business Values Scorecard
CAPM	Capital Asset Pricing Model
CEO	Chief Executive Officer
CFO	Chief Financial Officer
EBIT	Earnings before Interest and Tax
EBITDA	Earnings before Interest, Tax, Depreciation and Amortisation
EVA	Economic Value Added
GAAP	Generally Accepted Accounting Principles
GDP	Gross Domestic Product
MCS	Management Control System

MVA	Market Value Added
MRP	Market Risk Premium
NOPAT	Net Operating Profit after Tax
NZ	New Zealand
Post	New Zealand Post
SCI	Statement of Corporate Intent
SOE	State-Owned Enterprise
Stern Stewart	Stern Stewart and Co. Consultancy Group
Telecom	Telecom Corporation of New Zealand
WACC	Weighted Average Cost of Capital

Chapter 1. Introduction

1.1 Introduction

This chapter sets the scene for the thesis, providing an introduction to the concept of Economic Value Added (EVATM) and a discussion of the literature on EVA, including academic literature and literature from the EVA promoters, Stern Stewart and Company (Stern Stewart).¹ The experience of previous researchers provides valuable knowledge in designing this study. A discussion of their results serves to identify a gap in the literature which provides the justification for the research method and questions addressed in this thesis. The three theoretical frameworks adopted to interpret the evidence are described and explained, together with the anticipated benefits of employing three different frameworks. Finally, the choice of the three case study companies is justified. Overall, the introduction establishes the motivations for the study and a case for its significance.

1.2 The EVA Phenomenon

Economic Value Added became very popular as a financial management system in the 1990s. EVA is defined as net operating profit after tax (NOPAT) less a charge on total capital (debt plus equity capital multiplied by the cost of capital). In other words, EVA is the income earned by a business after deducting a charge on the capital required in order to generate that income. The measure of EVA has its roots in the residual income concept but with EVA it is claimed that the accounting numbers, on being re-formatted, make the construct more economically meaningful, moving accounting towards the ideal of economic income (Stern et al., 2001, p17).² It has been argued that EVA provides an annual measure that is based on 'hard data' rather than projections (Stern et al., 2001, p19). The concepts behind EVA have been around for almost one hundred years, with implementation of an EVA-type system in General Motors in the 1920s, in Matsushita in Japan in the 1930s and General Electric in the 1950s (Young and O'Byrne, 2001, p104).

¹ EVA is a registered trademark of the Stern Stewart and Company Consulting firm. For ease of reading, the trademark symbol is omitted from the remainder of the thesis, although the patent is acknowledged.

² Residual income is defined as net income less a capital charge that reflects the return to equity holders (Solomons, 1965).

Stern Stewart would argue that EVA is much more than simply a measure of ex post performance based on accounting numbers and the cost of capital. The scope of their model and its application to incentives is claimed by them to offer more than residual income. Furthermore, EVA is not measured solely at the overall firm level; it can be drilled down into the organisation and measured at the divisional, process or product level. It is argued by Stern Stewart that EVA can be used as a complete measure within the firm, for planning, investment decision making, control and remuneration determination. In his seminal book, Stewart (1991) argued that EVA is “the bedrock upon which a new and completely integrated financial management system can be created” (Stewart, 1991, p4). Integration is achieved along several dimensions. Firstly, the mapping of EVA to divisional and/or business unit levels achieves vertical linkages within decentralised organisations. Secondly, ex ante EVA can be used for investment decision making, whilst ex post EVA can be used for performance evaluation and reward structures. This potentially solves conflicts of interest that are created through the use of different measures for these key activities. Thirdly, perhaps the key motivation for EVA is that its maximisation throughout the organisation is consistent with the objective of shareholder value maximisation. It therefore directly addresses the moral hazard issue of agency theory (Jensen and Meckling, 1976). By linking rewards to EVA there is an integration of managerial self interest with shareholder objectives. Managers are on the same footing as shareholders as they are rewarded for actions that increase shareholder returns (Stern and Shiely, 2001, p24). This meant that where EVA was fully implemented, it had the potential to become central to the management control system (MCS) for the firm (Otley, 1980, p422). This application led EVA to be described as an ‘innovation’ in management accounting (for example, Sulaiman and Mitchell, 2005; Worthing and West, 2001).

Following much publicity, EVA was implemented by many companies across the world.³ Organisations featured in EVA publications include Coca-Cola, Quaker Oats, Briggs and Stratton and the US Postal Service in the United States of America; Cadbury Schweppes, Lloyds Bank and Tate and Lyle in the United Kingdom; Siemens in Germany and Telecom New Zealand and Airways Corporation of New Zealand in New Zealand (Ehrbar, 1998; Stern and Sheily, 2001).

³ In their book published in 2001, Stern et al. state that more than 300 companies worldwide have adopted EVA (Stern et al. 2001, p16).

1.3 Literature from the EVA Promoters

There is a large body of literature published by Stern Stewart, centred on the premise that EVA can create value. The first major publication is Stewart's seminal book which provides extensive discussion on the merits of EVA, including the statement that EVA is the only performance measure that links directly to a share's intrinsic value. In the book there is step by step information on how to construct EVA from accounting data (Stewart, 1991). Further publications include more general information and applications (for example Ehrbar, 1998 and Stern et al., 2001). Again, these books highlight the advantages of EVA, such as the link to value creation, the alignment of incentives (so that managers can be turned into owners) and objectives (with EVA "taken to the shop floor") (Stern et al., 2001, ch6).

Academic evidence has also been published by the promoters, in the *Journal of Applied Corporate Finance*. Again, this literature is inevitably biased towards the various perceived merits of EVA but arguably it does widen the base of opinion on which the information is drawn. As well as containing articles by Stern, Stewart and other EVA promoters (for example, O'Byrne, 1996; Stewart, 1994), academics contribute to the discussions (for example The EVA Roundtable, 1994) and provide articles in their own right (for example Kleiman, 1999; Zimmerman, 1997).

These publications do tend to concentrate on the benefits of EVA, although there is not always universal agreement about the details of the methodology. For example, on the subject of accounting adjustments, one publication states that there are more than 160 possible adjustments (Ehrbar, 1998, p164), another states that 150 possible adjustments have been identified by EVA consultants, with no more than around 15 necessary within a specific company (Young and O'Byrne, 2001, p267), while a third publication cites 120 possible adjustments with no more than one dozen necessary to make NOPAT realistic (Stern et al., 2001, p20).

Although concentrating on the benefits, there is brief recognition in some publications that EVA may fail (for example Stern et al., 2001; Young and O'Byrne, 2001). Reasons for failure are provided (such as transfer pricing issues) as well as "recipes for success" (including full installation of EVA for measurement, management and incentives,

support from the top (Chief Financial Officer and/or Chief Executive Officer) and full training programmes (Stern et al., 2001, ch10 and ch13).

1.4 Academic Literature

Academic studies on EVA are likely to be more neutral. However, many of the empirical studies using EVA numbers rely on publicly available data, often purchased from Stern Stewart. This data would include calculations for firms that may not be EVA users. Furthermore, the data represented external investigations at the firm level, much of it involving statistical analysis. The objective of this analysis was to test for value creation by examining whether the EVA number was more highly correlated with share price than other measures of performance such as earnings, where an increase in share price was deemed to indicate value creation. The results from these investigations provide mixed conclusions. A greater correlation between EVA and share price was found by some researchers, for example, Chen and Dodd (1997); Kleiman (1999); O'Byrne (1996); Stark and Thomas, (1998); Worthing and West (2001). On the contrary, Biddle et al. (1997) and Lougee et al. (2006) found that the association between returns and earnings was higher (more positive) than it was between returns and EVA.

Researchers have also compared the abnormal returns of EVA adopters to a control group of non-adopters. Griffith (2004) found that his sample of EVA adopters (which comprised underperforming firms) continued to underperform both their peers and the market. He suggested that EVA was not a good indicator of performance and there was no correlation between firms adopting EVA and subsequent shareholder returns. On the contrary, Kleiman (1999) in his study of 71 firms found that EVA firms outperformed the control group. Lougee et al. (2006) found that their sample of 74 Stern Stewart EVA firms earned positive abnormal returns of around 7% for the first two years after EVA implementation but for the next three years the abnormal return was -6.5%, effectively eradicating the initial positive returns.

Other studies have focussed upon the impact of EVA upon a different measure of value, namely accounting operating performance, and whether it is correlated with managerial action choice. These studies looked in particular at the impact upon the use of capital within a company. The reason for this focus is that one of the arguments cited by Stern

Stewart is that the introduction of EVA can lead to a shedding of obsolete capital within the firm (Stewart, 1991). Managers would have an incentive to get rid of such capital, since holding it incurs a capital charge for no benefit. Again, the conclusions from these studies are mixed. There is evidence of greater asset utilisation, smaller net working capital correlated with better operating performance, Wallace (1997); evidence that EVA adopters outperform non-adopters for up to five years, Ehrbar (1999); while other studies claimed that improvements in the use of capital or the generation of income may not be attributable to EVA, for example Hogan and Lewis (1999); or that there was no relation between EVA adoption and security analysts' forecasts, Cordeiro and Kent (2001). Lougee et al. (2006) hypothesised that initial large improvements from EVA implementation were a result of companies "picking the low hanging fruit" by selling non-performing assets (Lougee et al., 2006, p357). They found that dispositions increased by over 50% in the two years after EVA implementation, but then decreased in the following two year period. They related this result to their finding that EVA initially increased by around 40% in the year following implementation and then the increase in EVA fell to around 9% in subsequent years.

Some earlier studies examined the characteristics of firms adopting EVA, compared to non-adopters. For example, Lovata and Costigan (2002) looked at business strategy, partitioning firms into defender (pursuing a strategy of cost leadership) and prospector (pursuing a differentiation strategy). They concluded that EVA is more suited to defender firms, whilst prospector firms tend to rely on non-financial measures as they adapt to their changing environments. Kleiman (1999) found that capital intensity is positively associated with adoption, as did Riceman et al. (2002), who concluded that EVA may be less effective in service areas.

These weak and inconclusive results on the impact of EVA are perhaps not surprising because some difficult design issues have to be overcome by researchers. The most fundamental difficulty is the partitioning of firms into EVA users and non-users. There are two key problems with this. Firstly, evidence suggests that the term 'EVA user' is not well-defined. For example, an EVA user may fully implement EVA as a completely integrated or holistic system, as recommended by Stern Stewart. Alternatively, selected parts of the EVA 'package' may be adopted, for example EVA for remuneration but not for planning and control. At the other extreme, an EVA user may calculate the EVA results only at the overall corporate level, with these results

having no behavioural impact within the decentralised organisation. In other words there is a continuum from full implementation throughout the company through to almost nothing (Griffith, 2004; Malmi and Ikaheimo, 2003; McLaren, 2004). Secondly, whether a firm is an EVA user is not always publicly known. Again studies may rely on Stern Stewart publications or perhaps on discursive information contained in the annual report and accounts. Since there is no requirement to publish EVA results or even to disclose that a firm is an EVA user, many firms employing the EVA methodology may go undetected. Some studies have not used firms identified as EVA users in their samples because of this identification issue. For example, Wallace (1997) used proxy companies identified by profit sharing arrangements that 'looked' like EVA. If some of the companies are not actually EVA companies, then there is a confounding of EVA and non-EVA companies. Similarly, Stark and Thomas (1998) use a lagged balance sheet variable, book value of equity, in a regression and claimed that this is an EVA construct. This is clearly not a test of the value consequences of an EVA user as there is not even a cost of capital adjustment in the regression; it is just a regression with an additional lagged variable.

Since firms do not tend to disclose their EVA results, any attempt to construct them in order to compare EVA users and non-users is flawed. It is argued that each company needs a tailor-made definition of EVA that balances the trade-off between simplicity and precision (Ehrbar, 1998, p165). 'Basic' EVA, containing no adjustments to the GAAP figures, is not appropriate. Not only are the accounting adjustments advocated by Stern Stewart that move accounting measures to economic measures missing from both NOPAT and capital but also there is often no estimate of the weighted average cost of capital that can be sensibly defended.⁴ 'Disclosed' EVA, where around a dozen standard adjustments are made to accounting data (such as in the EVA results published by Stern Stewart), is also flawed because the adjustments may not be applicable to certain companies.

Further issues over research design depend upon the methodology employed. For example, if the short-run impact on corporate value of the introduction of EVA is analysed with an event study methodology, there are further selection criteria to be

⁴ There are research design issues that have not been discussed because they are not central to the study. These would include sample selection bias (from the incentives of Stern-Stewart) and errors in variables from not using EVA numbers.

established, the event window to define and identify, and a benchmark normal return to be defined. The selection criteria will naturally impose restrictions given by data availability such as a stock market listing. For example SOEs would be excluded, since they are not listed companies. It is usual to define a one day, or two day or three day event window but crucially to examine the impact of EVA introduction, the exact announcement date must be known. Since firms do not tend to publicly announce the exact date of introduction, sample size would be reduced (compared to the size if the announcement dates were all available), raising the prospect of sample selection bias. The benchmark normal return is a standard issue for all event studies and is the subject of considerable controversy because of the disagreement over the appropriate asset pricing model (for example, Brealey, Myers and Allen, 2011).

For long-term impact studies of EVA there is the problem of controlling for all the other variables that influence the dependent variable. Studies involving a ‘benchmark’ control group of non-EVA companies not only have to deal with the lack of definition in EVA companies but also have to cope with the additional problem of defining exactly what it means to be a non-EVA company. Specifically, companies that can be identified as not using the EVA performance measure may still be using other forms of value based management or may be using management accounting tools that look like EVA. For example, the cost of capital may be factored into pricing and investment decision making and managerial rewards may be based on excess profits where this is measured in an equivalent way to EVA. This diversity of practice within the samples of EVA and non-EVA companies implies not only that the sampling distributions of each sample will have high variability – covering both negative and positive outcomes but that they will substantially overlap making the task of finding systematic differences between the two samples very difficult.

While there are research design issues limiting the quality of the EVA outcomes, the objective of most studies has been to go beyond correlation and attempt to establish a cause and effect relationship. However, there has been criticism of this objective. For example, Kleiman, states that:

“When companies consider making EVA their primary performance criterion, they are searching for more than just a better financial metric. They are seeking

a better way to motivate value-adding behaviour throughout the organisation.”
(Kleiman, 1999, p80).

In other words, if the results of the studies are to be of use to managers, the evidence should provide information on *how* value can be created and the objectives should not be confined to just establishing the causal link. But this may be difficult in practice. For example, Jazayeri and Scapens (2008) stated that:

“Unfortunately, it is very difficult to isolate the direct effect of using the BVS (Business Values Scorecard) on the performance of BAE Systems and to separate out the impact of the culture change project from the many other factors which have affected the company’s performance over the years.” (Jazayeri and Scapens, 2008, p67).

In other words, Jazayeri and Scapens (2008) are arguing that the modelling required will inevitably be too complex to produce meaningful results and that it is not possible to isolate a clear cause and effect relationship because so many variables are involved. The implication of this statement for EVA is that (at this time) it cannot be introduced into a company and its effects (say through value drivers) predicted *ex ante*.

1.5 Comments on the Literature

The studies cited above have several limitations which serve to weaken the EVA evidence they have generated:

- In the correlation studies, causation links between EVA and share price are not investigated.
- Even if correlation of a measure (such as EVA or accounting profit) with share prices was found to be low, this does not mean that the construct under investigation is irrelevant for the firm. What it may mean is that an alternative method of analysis is required.
- The EVA numbers used in these studies contain relatively few adjustments, meaning that the numbers do not reflect economic profits and are therefore more a test of residual income.

- Some authors have not even attempted to identify EVA firms, relying instead on a construct of EVA. It is unclear whether these estimated figures are even appropriate (Ittner and Larcker, 2001).
- There are possible problems in the identification of EVA users. For example, identification through remuneration plans does not necessarily indicate that the firm embraces the EVA philosophy.
- Firm-level studies take no account of the fact that there is a whole spectrum of EVA use.
- In these studies there is no consideration of the evolution of EVA use over time. Attention must be paid to the dynamics of the process by which EVA is used and this has been neglected by researchers (Otley, 2003).

1.6 Implications for Research

1.6.1 *Research Method*

The issues described above suggest that there are various levels at which studies on EVA can be conducted. In order to obtain comprehensive evidence on the use of EVA and the experience of working with EVA, it may be appropriate to conduct research at the level of the individual firm. Therefore, the case study method may be the most suitable, rather than the ‘veranda’ model adopted by many studies, where the researcher examines from a distance.⁵ The case study method may be particularly apposite if the case study is exploratory or explanatory and the researcher is adopting a management accounting perspective. In their book on research methods and methodology in finance and accounting, Ryan et al. stated:

“Case studies offer us the possibility of understanding the nature of accounting in practice; both in terms of the techniques, procedures, systems, etc. which are used and the way in which they are used.” (Ryan et al., 2002, p143).

In addition, Otley (1999) suggested the use of the case study to investigate new management accounting practices, including EVA. Through the case study, a detailed

⁵ The veranda model is described by Burgess (1984).

picture of EVA use can be established which will enable the development of explanations.

1.6.2 The Longitudinal Perspective

It is important to recognise that the implementation and use of EVA can develop and evolve within firms. A more complete picture of how and why it is designed and used will be obtained if the research adopts a long-term perspective, rather than if the evidence is taken from a snapshot in time. Explanations of how management accounting systems change “require longitudinal studies that look at the relationship over long periods of time” (Ryan et al, 2002, p84). When considering a man-made phenomenon such as EVA, it is important to recognise that it is assumed that such constructs are developed over time through human experience, grounded in the experiences of managers. They undergo evolution as a result of human interaction. This can be detected through the longitudinal study, if the theoretical frameworks employed to interpret the evidence allow for this evolution.

1.6.3 Interpreting the Evidence

With the aim of building explanations, an interpretive methodology is appropriate. Theories can be used to explain the dynamic process of EVA use and how it changes over time. Such research does not have the explicit aim of testing the theories, rather it uses theoretical frameworks to provide a way of thinking about the observations and helping to explain and understand them. However, as well as the theoretical frameworks providing inputs to the building of explanations, they are also the outputs. This is because the interpretation of the evidence using the frameworks provides conclusions for the frameworks themselves. In this way, the frameworks may be developed and extended over time. The choice of the theoretical frameworks employed is important and will depend upon the specific research questions to be addressed.

1.6.4 Criticisms of the Management Accounting Perspective

Zimmerman (2001) criticised the progress made in empirical managerial accounting research. A central criticism is the fact that much published research in management

accounting concentrates on describing practice and the frameworks adopted may be driven by consultants (a view which was motivated in response to Ittner and Larcker's value-based management perspective view of managerial accounting research (Ittner and Larcker, 2001).) Zimmerman argued that management accounting researchers should develop and test economics-based theoretical hypotheses. He argued that a failure to do so retards empirical managerial accounting research. Furthermore, managerial accounting data is heterogeneous and complex and not reliable and consistent, leading to the use of weak theory, or no theory and badly designed research methods. Therefore, studies (such as field and case studies) may lack validity.

Zimmerman's article led to a response from accounting researchers. For example, Hopwood (2002) agreed with some of Zimmerman's criticisms (particularly regarding Ittner and Larcker's framework) but he did not agree that economic theories were the answer to the lack of an underlying theoretical framework in managerial accounting. Similarly, Luft and Shields (2002) argued that empirical management accounting research goes beyond describing practice, since many social science theories are adopted by researchers. They also refuted Zimmerman's assertion that economics-based theories should be employed, commenting on the fact that many neo-classical economics assumptions (such as rationality and equilibrium) do not hold in practice and therefore can impede observation and understanding, particularly when investigating management accounting change. They concluded that improvements in empirical management accounting research will arise from the use of a variety of theories.

1.6.5 Using a Variety of Theories

Despite Zimmerman's criticisms, it appears that the complex and heterogeneous nature of EVA use within organisations suggests that the case study is an appropriate research method to employ. Without going into the organisations, it would be impossible to build up a picture of the reasons why EVA is introduced (origins and influences), and how it is used in the firm (design and evolution). However, through a careful choice of theoretical frameworks to interpret the evidence, heed may be paid Zimmerman's suggestion to employ economics-based theories (Zimmerman, 2001) and Luft and Shield's response that a variety of theories should be used (Luft and Shields, 2002).

1.7 The Research Questions and the Theoretical Frameworks Employed

In respect of case study information on the experience of EVA users, there appears to be a gap in the literature, since there is not much research evidence available. Exceptions are Malmi and Ikaheimo (2003) who considered the experiences of users in Finland and McLaren (2004) who considered EVA users in New Zealand (in a preliminary study to this PhD thesis). However, neither of these studies provided a holistic picture of EVA use over a sustained period of time.

1.7.1 *Research Questions*

The aim of the PhD is to investigate whether EVA can create value, with a specific focus on three organisations in New Zealand. The overall focus is to appraise the usefulness of EVA with the central theme being the information provided and the incentives created by the EVA system, over the whole life cycle of EVA use.

Specifically, three major research questions are addressed:

1. Can the implementation and use of EVA lead to the discovery of value within the organisation?
2. Can EVA be viewed as a management model to ensure corporate objectives are met?
3. What were the key factors driving implementation, use and decline of EVA?

The first question addresses the major reasons for the origins of EVA and how it is designed and used within the case study firms. The second question focuses, in particular, on how EVA is used within the firms. The final question concentrates on the whole EVA life cycle, with the aim of identifying factors that drove each phase of the cycle.

1.7.2 *Gathering the Evidence*

Longitudinal evidence will be analysed, covering the entire period or life cycle of EVA use in the companies, from implementation, through evolution, to its eventual decline, in order to fully capture the dynamic process. The chain of evidence for each company is collected from questionnaires distributed in 1999 (a blank questionnaire is provided

in Appendix A) and 21 semi-structured interviews conducted with key staff members in each company in 2001 and 2011. The interview evidence was triangulated by documents that were referred to and discussed in the interviews, including internal corporate documents and documents from advisors to the companies. Such a chain of evidence serves to enhance calibration and construct validity (Brownell, 1995, p65).

Prior to the first set of interviews in 2001, the researcher specified to interviewees the broad areas to be covered. This was an attempt to achieve a well-defined research focus and consistency across the case studies. Interviews in 2001 covered the spectrum of EVA use, from initial introduction through to its measurement and use for planning, investment decision making, control and remuneration determination. These areas mirror the framework suggested by Otley (1999) with the additional consideration of the evolution with EVA since its initial implementation. Otley stated that his objective was to “develop a framework which can provide a structure for examining extant practice in a more holistic way than has previously been the case” (Otley, 1999, p377). The 2011 interviews covered the time period since the 2001 visit and so examined the factors driving both the evolution and the decline in the measure.

Respondents held a range of positions within the companies, from Board and Director level to Business Unit managers, team members and staff from central functions. All had direct experience of implementing and/or working with EVA. This meant that the perspective obtained on EVA was wider than simply the experience of management accountants. In 2001, the EVA ‘owner’ was one of the respondents interviewed in each company. Within two companies the same respondent was interviewed in 2001 and 2011, thus helping to ensure continuity over time.

1.7.3 The Theoretical Frameworks

In addressing the research questions three different theoretical frameworks are employed to interpret the evidence. The theoretical frameworks are developed and used to organise the analysis and explain and understand the empirics. Each of the frameworks explicitly allows for evolution in EVA over time. The frameworks are not employed to bias the research questions in a particular direction or directions.

The theoretical frameworks are as follows:

1. Discovery Process – developed from Nelson and Winter’s evolutionary theory (Nelson and Winter, 1982).
2. Management Model – developed from Birkinshaw and Goddard’s management model framework (Birkinshaw and Goddard, 2009).
3. Dynamic Contingency Theory – using a dynamic perspective developed from the contingency theory literature in management accounting (including Chenhall, 2003; Fisher, 1995).

This study presents a new application of each of the frameworks. The first two frameworks are from different disciplines (economics and management, respectively) and their use to analyse an accounting based construct (the EVA MCS) is something new. The final framework, whilst developed from contingency theory in management accounting, extends the model to a dynamic, longitudinal perspective. Further details on each of the frameworks are now provided.

Discovery Process

The discovery process framework is developed to interpret the evidence in order to address the first research question; Can the implementation and use of EVA can be used to discover value within the organisations? The framework is based on evolutionary theory in economics, which states that organisations are dynamic and they evolve over time. The evolution represents a change in the routines of a firm. It is a process that is path-dependent, arising as a result of a shift in product demand or supply conditions or from innovation by firms (Nelson and Winter, 1982, p3). Whilst innovation may most commonly be regarded as technical innovation, Nelson and Winter state that evolutionary theory can treat organizational innovation just as it treats technical innovation (Nelson and Winter, 1982, p38). Evolution occurs through the dynamic search and selection process (Nelson and Winter, 1982, p19). In this context, for the firms, there are two major evolutions. First of all and common across the firms will be the change in routines brought about by the introduction of EVA. Secondly, further evolution takes place as EVA is modified and developed through the dynamic learning

(search and selection) process. This evolution will be path-dependent for the firms, occurring as a result of individual reactions to the EVA systems.

Whilst evolutionary theory explicitly allows for the consideration of responses of individuals to information provided by the innovation during the dynamic learning process, the impact of incentives is absent from the Nelson and Winter model. It has been argued that an understanding of the impact, persistence and change of non-technological features requires the consideration of incentives (Grief, 2006, p7). Since incentives are an important feature of the EVA system as they are the mechanism for an alignment with shareholder objectives (and Stern Stewart were originally remuneration consultants), it is preferable they are considered. The notion of extrinsic versus intrinsic incentives is employed, as discussed by Layard (2003). In his lecture, Layard was specifically referring to performance related pay in the public sector which is relevant to all three firms in this study, since they were originally nationalised organisations.

In order to assess whether EVA can help with the discovery of value, the question is, how would one know? An examination of outcomes before and after EVA introduction, such as share prices or profit levels, does not help when the counterfactual is unknown. An alternative methodology is not to focus on corporate performance but to focus upon the key influences (activities and processes) that would be expected to arise in a specific setting for EVA to be value adding. Of course, such an approach does not guarantee that EVA will be successful. However, what can be concluded is that if these factors are not in place then it is very unlikely that EVA will be successful as a tool for creating value. These key influences are derived from Stern Stewart's recommendations for the EVA system. They include the proper measurement of EVA (with adjustments to accounting numbers and the measure pushed down through the decentralised organisation to business units) in order to provide the right information and the alignment of incentives, to ensure goal congruence (Stewart, 1991). As well as the key influences, it is also important to consider the factors that may inhibit EVA as a discovery process. These include transactions costs (which may mean that the whole system is not worthwhile) and inertia (the reluctance of managers to change their existing routines).

Management Model

The management model framework is developed and used to investigate the second research question focusing on the use of EVA; Can EVA be viewed as a management model within the firms, to ensure that the corporate objective can be met? The notion of management models has been recognised as a key recent innovation by leading management academics (for example Birkinshaw, 2010; Birkinshaw and Goddard, 2009; Hamel, 2007; Mintzberg, 2009). It is argued that the management model is essential to help the manager evaluate how to do business, running alongside the business model and leadership. The management model is defined by Birkinshaw and Goddard (2009) as:

“The choices made by a company’s top executives regarding how they define objectives, motivate effort, coordinate activities and allocate resources; in other words, how they define the work of management” (Birkinshaw and Goddard, 2009, p82).

The Birkinshaw and Goddard model is chosen over two alternative models, Mintzberg, (2009) and Hamel, (2007), as it is a model derived from factor analysis drawn from many theoretical models. Thus there is a theoretical underpinning for the model. Birkinshaw and Goddard state that through their analysis of the management literature, they have provided a “framework for dimensionalizing management”, based on a:

“150 year analysis of the evolution of management models, studies of recent cases of management models, studies of recent cases of management innovation and a theoretical investigation of the underlying principles of management” (Birkinshaw and Goddard, 2009, p83).

In the model, management activity is grouped into four core sets or dimensions: managing objectives, motivating individuals, coordinating activities and making decisions. The research aims to see investigate whether EVA in the three firms can be interpreted as a management model, by considering its role within the four theoretical dimensions.

Dynamic Contingency Theory

The final theoretical framework, dynamic contingency theory, is employed to address the third research question; What are the key factors driving EVA implementation, use and decline? This framework draws on the entire evidence gathered, spanning the three broad stages in the life cycle sequence of the EVA MCS, i.e. implementation, evolution in the measure and eventual decline. The basic premise of contingency theory in management accounting is that there is no 'best' way to structure the MCS and consequently it is not possible to identify a universally appropriate management accounting system that will apply in all circumstances (Otley, 1980). Many studies have been conducted that attempt to identify the impact of one or more contingency variables on the MCS or on an outcome, such as profit (for a review of such studies, see Chenhall, 2003; Fisher, 1995). These studies tend to be cross-sectional statistical studies which use data from one point in time. A weakness with these studies is that relevant variables may be omitted and causations unexplored. This suggests a longitudinal approach would complement existing studies and enhance internal validity (Brownell, 1995, p64; Fisher, 1995, p45; Otley, 1980, p424). Such an approach is adopted in this study; where the overall objective is to investigate the contextual variables that were important influences on EVA practice at each phase of the EVA life cycle. The investigation of the decline of EVA within the firms is particularly interesting, as there is very little empirical information on the decline in management accounting techniques (Chanegrih, 2008; Sulaiman and Mitchell, 2005).

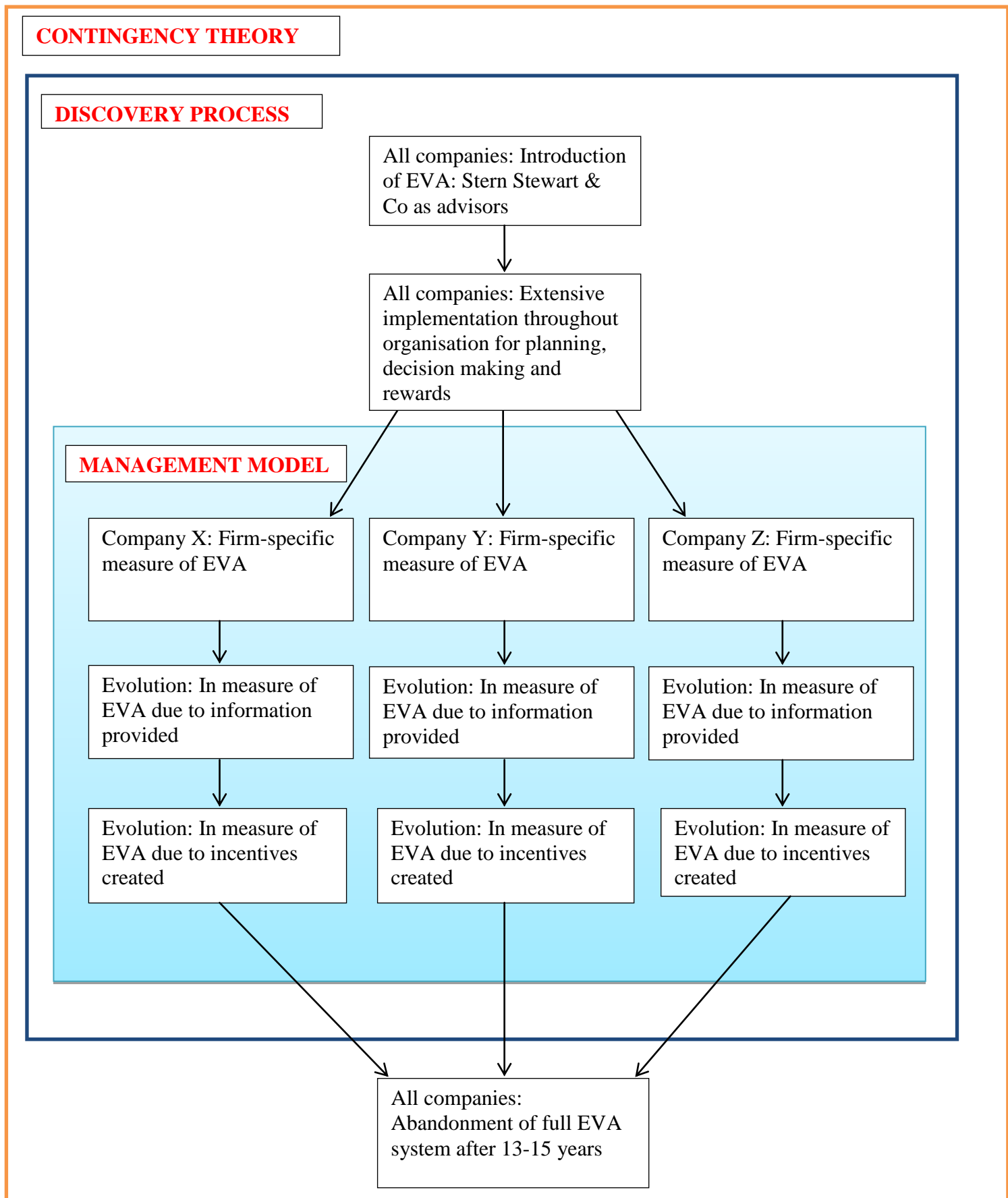
Overall, the three frameworks are summarised in table 1.1, where broad distinctions are drawn between them. They are complementary as the discovery framework is used to interpret the evidence on implementation and use of EVA, the management model framework is used to interpret findings on the use of EVA and the contingency framework provides evidence on the introduction, use and demise of EVA. It is anticipated that the employment of the three frameworks will help to provide a richer picture of the EVA experience within the firms. For example, whilst the contingency theory framework can be used to identify the factors that are relevant at each stage of the EVA life cycle, the discovery theory and management model provide the theoretical underpinnings for the implementation and evolution in the measure. Overall, the central theme within each framework is the information provided and the incentives created by EVA.

Table 1.1 Summary of the three theoretical frameworks

	Discovery Theory	Management Model	Contingency Theory
Literature base	Economics, particularly Nelson and Winter (1982)	Management, particularly Birkinshaw and Goddard (2009)	Accounting, particularly Chenhall (2003) and Fisher (1995)
Aspect considered	Implementation and evolution	Use of EVA, including the evolution	Implementation, evolution and decline
Research question	Can EVA be used as a discovery process?	Can EVA be interpreted as a management model?	What are the key factors that led to EVA implementation, use and decline?
Key themes	Information and incentives	Information and incentives	Information and incentives
Evidence used	Published EVA information, questionnaires (1999), interviews (2001), supporting documentation	Questionnaires (1999), interviews (2001), supporting documentation	Questionnaires (1999), interviews (2001 and 2011), supporting documentation

Overall, the study provides longitudinal evidence on EVA use within the three firms, from three different theoretical perspectives, as depicted in figure 1.1.

Figure 1.1 Schematic representation of the theoretical frameworks used to interpret the EVA evidence



The objective in using the frameworks is to provide different perspectives on EVA rather than to provide a test of whether one framework is ‘better’ than another. Thus the frameworks are not conflicting in any way. Overall, the study is exploratory, with the aim of building explanations through use of the theoretical frameworks. In addition, the application of the frameworks leads to conclusions for the frameworks themselves. In this respect, the research methodology is interpretive, as the theoretical frameworks are both inputs and outputs. A summary of these outputs can be found in the concluding chapter.

1.8 Introduction to the Case Study Companies

The three firms chosen for investigation are;

- Airways Corporation of New Zealand (Airways) – State-owned enterprise (SOE) responsible for air traffic management
- New Zealand Post (Post) – SOE responsible for the postal system (also operates a large bank)
- Telecom Corporation of New Zealand (Telecom) – Publicly listed firm in the telecommunications sector

Each firm implemented EVA in the 1990s at the time when the methodology first became very popular. Stern Stewart consultants were employed to ensure a comprehensive introduction that was phased from the company level and mapped down to business units. As such EVA was ‘properly’ implemented in that it was not simply a performance measure but was used fully throughout each organisation as a central component of the MCS. The full EVA ‘package’ was implemented, so there was an expectation that this American system would be culturally appropriate in the New Zealand environment.

EVA was employed in each of the firms for a period of thirteen-fifteen years. During this time period, Telecom was well-known as an EVA company and cited by Stern Stewart in their publications (for example Ehrbar, 1998, p150; Stern et al. 2001, p206). The SOEs provide an interesting opportunity as they both (voluntarily) publish EVA information. Over the time period under consideration in this study (1998-2010), Airways published (and continues to publish) audited EVA results in the annual report

and accounts, including detailed information on calculations. This was extremely unusual and almost unique for EVA companies and it reflected commitment within the organisation to the EVA methodology.⁶ Similarly, although not in as much detail, Post published its annual EVA results against a five-year trend in the annual report and accounts, together with a commentary on the EVA philosophy adopted. This means that it is possible to analyse the actual results that have been released by the companies, based on their own definition of EVA (which will reflect the adjustments that are deemed to be relevant). There is no need to construct a ‘basic’ EVA (with no adjustments) or to rely on a ‘disclosed’ EVA (with standard adjustments). The ability to analyse actual results is a strength of this research. In addition, the EVA results provide an opportunity to consider hypotheses postulated in the literature concerning business strategy, performance and managerial action choice, thus addressing Zimmerman’s criticism that management accounting research merely describes practice (Zimmerman, 2001). The EVA information and the testing of the hypotheses are discussed in the following chapter.

1.8.1 *Size of the Companies*

The companies are all network firms that were former nationalised entities.⁷ They comprise a significant proportion of the New Zealand economy in terms of their operating revenue to total New Zealand retails sales. For many years, Telecom was the largest listed company in New Zealand. Table 1.2 shows the operating revenue for the companies from 1998 to 2010 together with total retail sales and sales growth, GDP and GDP growth in New Zealand over the same period. Tables 1.3 and 1.4 show the proportion of individual company operating revenue to total retail sales, and the proportion of individual company operating revenue to GDP, respectively.

⁶ The author is only aware of one other company, Transpower New Zealand, that has published audited EVA results, including detailed EVA calculations. However, the company ceased publishing this information in 2004.

⁷ Further contextual information is provided in Chapter 2 and Chapter 5.

Table 1.2 Operating revenue for the companies (NZ\$ million) and New Zealand retail sales (NZ\$ million), sales growth, GDP (NZ\$ million) and GDP growth for the period 1998-2010

Year	Airways Op Rev	Post Op Rev	Telecom Op Rev	Retail Sales	Retail Sales Growth	GDP	GDP Growth
1998	94	707	3398	38456		103004	
1999	99	790	3434	38820	0.95%	104890	1.83%
2000	100	915	4335	41098	5.87%	111202	6.02%
2001	103	982	5648	43145	4.98%	117540	5.70%
2002	110	959	5537	46110	6.87%	126355	7.50%
2003	115	977	5191	49352	7.03%	132848	5.14%
2004	124	1051	5360	52269	5.91%	142046	6.92%
2005	132	1209	5605	56066	7.26%	152079	7.06%
2006	131	1114	5555	59511	6.14%	160594	5.60%
2007	132	1222	5632	62305	4.69%	168374	4.84%
2008	139	1290	5715	65703	5.45%	183416	8.93%
2009	139	1254	5638	65290	-0.63%	184600	0.65%
2010	144	1204	5271	65589	0.46%	186371	0.96%

Source: Annual Reports and Statistics New Zealand (www.stats.gov.nz)

Table 1.3 Operating revenue as a percentage of New Zealand retail sales for the period 1998-2010

Year	Airways	Post	Telecom	Total
1998	0.24	1.84	8.84	10.92
1999	0.26	2.04	8.85	11.14
2000	0.24	2.23	10.55	13.02
2001	0.24	2.28	13.09	15.61
2002	0.24	2.08	12.01	14.33
2003	0.23	1.98	10.52	12.73
2004	0.24	2.01	10.25	12.50
2005	0.24	2.16	10.00	12.39
2006	0.22	1.87	9.33	11.42
2007	0.21	1.96	9.04	11.21
2008	0.21	1.96	8.70	10.87
2009	0.21	1.92	8.63	10.76
2010	0.22	1.83	8.03	10.08

Table 1.4 Operating revenue as a percentage of New Zealand GDP for the period 1998-2010

Year	Airways	Post	Telecom	Total
1998	0.09	0.69	3.30	4.08
1999	0.09	0.75	3.27	4.12
2000	0.09	0.82	3.90	4.81
2001	0.09	0.84	4.81	5.73
2002	0.09	0.76	4.38	5.23
2003	0.09	0.74	3.91	4.73
2004	0.09	0.74	3.77	4.60
2005	0.09	0.79	3.69	4.57
2006	0.08	0.69	3.46	4.23
2007	0.08	0.73	3.34	4.15
2008	0.08	0.70	3.12	3.89
2009	0.08	0.68	3.05	3.81
2010	0.08	0.65	2.83	3.55

From table 1.2 it is apparent that Airways is the smallest company and the only one to maintain growth in operating revenue over the 1998-2010 time periods. Post, the middle-sized company, has shown slightly more variation in operating revenue. Telecom, by far the largest company, has also shown variation in operating revenue.⁸ New Zealand retail sales have grown each year over 1998-2010, with the exception of the year 2009. From tables 1.3 and 1.4, the magnitude of the companies in the New Zealand economy is apparent. Whilst these may be fairly crude measures, they do provide some idea of the importance of the companies in the New Zealand economy. Over the time period 1998-2010, the operating revenue for the companies was maintained at least ten per cent of New Zealand retail sales (rising at its peak to over fifteen per cent), with an average of 12.1%. Operating revenue for the companies as a percentage of GDP ranged from 3.55% to 5.73%, with an average of 4.4%. For many years, these ratios were maintained, even as the economy was growing. This evidence demonstrates that a sizeable portion of the New Zealand economy was subject to the EVA methodology. Creation of value within these companies makes a significant contribution to value creation for the whole economy.

⁸ Telecom underwent a structural split in March 2008, which will reduce the percentage its operating revenue comprises of total New Zealand retail sales. Further information is provided in Chapter 2.

1.9 Summary

For the following reasons, the approach adopted in this thesis is a beneficial way of studying EVA:

- The case study method enables a detailed analysis of how EVA is used as a management control system with the firm. It allows investigation of whether EVA can create value. The use of questionnaires, semi-structured interviews and supporting documentation has the potential to reveal linkages and aspects that would not be possible with a large scale statistical model. It can also provide evidence on EVA that cannot be discerned when looking at the aggregate level. The inclusion of respondents from a variety of roles provides the opportunity to obtain a perspective wider than simply management accounting.
- The longitudinal investigation will enable an understanding of the life cycle of EVA within the firms, from initial implementation through to evolution and eventual decline. This will enable a holistic picture of EVA to be established.
- The three theoretical frameworks used to interpret the evidence are drawn from different academic disciplines and the study will provide an original application of these frameworks, with the opportunity to develop and extend the frameworks.
- The frameworks are employed to address different research questions, thus providing the opportunity to build a richer picture of EVA use. It is anticipated that there will be synergistic gains through the use of the three frameworks.
- The case study companies are important users of EVA. Taken together the operating revenue of the companies comprises a significant portion of the New Zealand retail sales and GDP over the time period studied, meaning that the companies' EVA decisions had the potential to impact upon the whole economy.
- The case companies chosen have the potential to offer interesting insights into EVA. All three are known to have fully implemented and used EVA as their management control system for a period of thirteen-fifteen years.
- Since the two SOEs publish their EVA results, there is an opportunity to evaluate empirical hypotheses postulated in the literature using the 'correct'

EVA results, as verified and published by the firms, rather than having to rely on a constructed measure which may in fact be meaningless.

1.10 Structure of the Thesis

The economic and accounting context for the case companies is presented in chapter two. In this chapter the EVA results for the SOEs are also presented and discussed, including the detailed breakdown of the calculation of EVA for Airways. It is this information that is used to test hypotheses concerning EVA performance and managerial action choices following implementation. The detailed analysis of the case study evidence using the three theoretical frameworks is considered in three separate chapters; chapters three, four and five. Chapter six provides the overall conclusions, synthesising the evidence that has been gathered and the contributions that have been made.

Chapter 2. Economic and Accounting Context

2.1 Introduction

This chapter provides a description of the economic and accounting context for the three case study companies. In order to understand the economic environment faced by the firms, the New Zealand regulatory context is outlined in the first instance.

EVA in New Zealand SOEs has two unique features. Firstly, an explicit link between regulation and EVA was established through the publication in 1996 of a ‘Protocol’ recommending the reporting of EVA by SOEs. This made EVA central to the regulatory environment. Secondly, around this time, two New Zealand SOEs began publishing detailed EVA information in their annual report and accounts. The author is unaware of any other companies publishing such information. One of the SOEs in this study, Airways, provides comprehensive EVA results, including a break-down of the calculations, EVA for two broad business units and reconciliation to operating profit.⁹ The other SOE in this study, Post, publishes annual EVA results and EVA trend but no information on the methods used to calculate EVA.

The accounting context for the case companies is provided through a consideration of industry and organisational structure. This discussion provides an opportunity to evaluate empirical findings that have been developed in the literature relating to firm characteristics. Also presented are the management accounting issues that each company may face. These issues will form a central aspect of the research evidence that is gathered.

The published EVA results for the two SOEs are then presented and discussed. These results provide an opportunity to examine Lougee et al.’s empirical hypothesis that initially large improvements in EVA can be seen as companies pick the “low hanging fruit”. Once picked, these rates of improvement cannot be sustained (Lougee et al., 2006).

⁹ The second SOE that published detailed information was Transpower. This company published full EVA information until 2004. Although part of the initial questionnaire survey, this company was not followed up as a case study since it employed EVA at the board level for reporting purposes only.

2.2 The Regulatory Environment in New Zealand

2.2.1 The Commerce Commission

In New Zealand, The Commerce Commission is the regulatory agency that oversees corporate behaviour. It is an independent Crown entity established in 1986. The Commerce Commission's purpose is to achieve "the best possible outcomes in competitive and regulated markets for the long-term benefit of New Zealanders" (Commerce Commission web site, accessed February 2012).

All companies are governed by the Commerce Act 1986. The aim of the Commerce Act is to promote competition in markets within New Zealand. The Act:

"Prohibits conduct that restricts competition (restrictive trade practices) and the purchase of a business's shares or assets if that purchase leads to a substantial lessening of competition in the market." (Commerce Commission web site, accessed February 2012).

Through the Commerce Act, the Commerce Commission promotes competition without the use of separate regulatory bodies (unlike the UK). Originally, regulation was 'light touch', with some specific actions prohibited. Disputes between companies as to what constituted competitive and anti-competitive behaviour were resolved through the court system. An example of such a dispute arose between Telecom and Clear Communications over access pricing. This was resolved via the courts in the 1990s, after being heard in the High Court (which found in favour of Telecom) and the Court of Appeal (which overturned the original decision and found in favour of Clear Communications). More recently, regulation by The Commerce Commission has become prescriptive, with the appointment of industry regulatory commissioners.

2.2.2 The State-Owned Enterprises Act

In addition to the Commerce Act, State-Owned Enterprises are governed by the State-Owned Enterprises (SOE) Act 1986. Part 1 of the Act begins with Principles and states

that the “principal objective of every State enterprise shall be to operate as a successful business and to this end, to be:

- (a) As profitable and efficient as comparable businesses that are not owned by the Crown; and
- (b) A good employer; and
- (c) An organisation that exhibits a sense of social responsibility by having regard to the interests of the community in which it operates and by endeavouring to accommodate or encourage these when able to do so.”

These objectives suggest that a stakeholder approach should be adopted by the SOEs – there is a requirement to maximise value for the shareholders (the Minister for State-Owned Enterprises and the Minister of Finance, who act on behalf of the Government), and to be responsible to employees and the community. This means that SOEs are restricted in their actions and scope for out and out value creation.

The SOE Act contains additional acts which require a Deed of Understanding and an annual Statement of Corporate Intent (SCI) to be published by the firms. The Deed of Understanding, which is specific to each company, defines the social obligations that must be satisfied. It can be viewed as a determination of the rules for competition. These rules may be seen as ‘unfair’, as they require certain actions from the companies and/or restrict other actions. The argument for unfairness arises because these rules are not imposed on potential competitors. For example, New Zealand Post has a universal service obligation, which means that it must deliver mail to all New Zealand addresses, regardless of how remote (some homes can only be reached by plane). Competitors can choose to enter the market but just deliver in high density locations, or can pay New Zealand Post to access their network.

The SCI is written by the companies and agreed with the Shareholding Minister. It outlines the strategies, the nature and scope of the business including its organisational design. The SCI also contains performance targets and measures with clearly defined accounting policies. This information together with the financial statements is tabled annually in the New Zealand Parliament. The focus is on conventional accounting measures of performance.

2.2.3 The Crown Ownership Monitoring Unit (COMU)

The New Zealand Treasury's Crown Ownership Monitoring Unit monitors the Government's investment in companies/entities owned by the Crown, assists with the appointment of directors, and provides performance and governance advice to Ministers. COMU can require the SOEs to provide whatever information it requests, including EVA information, if desired.

In 1996, representatives from the Crown Company Monitoring and Auditing Unit (the former name for COMU) were members of the Value-Based Reporting Steering Committee which published a document entitled 'A Value-Based Reporting Protocol – For the Presentation by State-Owned Enterprises of Value-Based Reports to Shareholding Ministries'.¹⁰ The Protocol stated that:

“Shareholding ministries encourage SOEs to move to VBR (Value-Based Reporting) as they consider it advances the objectives of the SOE Act” (p1).

Furthermore the Protocol recommended that for value-based reporting the SOEs should report a 'Statement of Economic Performance' which was exactly EVA. The calculation was at the overall firm level and not drilled down to business units. However, despite the assertion that there was a belief that VBR advanced the objectives of the SOE Act, the Protocol failed to explain the link between EVA and the objectives. Therefore it was not clear how EVA would advance these objectives.

Although the Protocol was never formally adopted, it did provide some motivation for the consideration of EVA as a reporting measure, with several firms in New Zealand implementing EVA as a result of the Protocol (including SOEs such as TVNZ (television company) and Transpower (power distribution)). In this respect, the dovetailing of EVA with regulation may have been unique at the time. It has not been repeated in New Zealand, although at a meeting with the author and The New Zealand Treasury in February 2011, representatives indicated that they were considering the introduction of a new requirement for SOEs to report EVA results. A more recent

¹⁰ The Value-Based Reporting Steering Committee comprised representatives from the Crown Company Monitoring and Auditing Unit, Chief Financial Officers from two SOEs and an academic consultant.

example of the requirement for SOEs to publish EVA results can be seen in China, where the State-owned Assets Supervision and Administration Commission (SASAC) announced that the commission will focus on the economic value added (EVA) measure to assess the performance of the 129 State-owned enterprises affiliated to the central government (China Daily, January 2010).

2.2.4 The Accounting Standards Review Board

The New Zealand Accounting Standards Review Board announced in 2002 that New Zealand entities should adopt international financial reporting standards (IFRS) on or after 1 January 2007, with the option to apply the standards from 1 January 2005 (van Zijl and Bradbury, 2005, p2). The case study companies implemented IFRS in the 2007 reporting year.

2.3 Contextual Information on the Case Study Companies

In this section, contextual information on the case study companies is provided. It is designed to provide the contextual detail that will facilitate an introduction to the management accounting issues to be explored in chapters 3, 4 and 5. However, while the three case study companies have been identified here, the precise identification of each company is not made in the detailed discussion of the research evidence that follows in later chapters. This is because the respondents agreed to take part in the research on the grounds that they would not be explicitly identified.

2.3.1 Airways Corporation of New Zealand (Airways) - SOE

Airways was established as a SOE in 1987. It is a highly capital intensive service business, with responsibility for the air traffic control network within the New Zealand airspace and well as the management of air traffic control towers and radar centres. The New Zealand flight information region (the airspace) covers over 30 million square kilometres, one of the largest in the world. Every year, Airways manages over one million flights in and around New Zealand (source of information: Airways.co.nz).

Airways is the world's first commercial air navigation service provider. In other words, the business is not funded by the government. Within New Zealand, Airways is a

monopoly provider and the industry is fairly stable and predictable, with few opportunities for growth within New Zealand and with little scope for competitors to enter.¹¹ There are a number of factors that determine whether the airlines, its customers, operate in New Zealand; consequently revenue can be variable. The price charged by the company would not be a key factor. However, the price is not totally inelastic and the company could not decide to charge an infinite price for the service as it must adopt the industry-standard pricing structure. International alliances and consultancy services, where the company manages or advises on the provision of the service in other countries, are becoming more important for the company as a means of achieving growth. At the time of the interviews, these alliances comprised a relatively small, but increasing, percentage of overall revenue.

The company adopts a functional form based around four customer-specific delivery units. The customers are mainly network businesses and there is sometimes an overlap in their network across the units (for three of the units) leading to a sharing of assets and technology to deliver the service. Supporting these units are technology and corporate units. Therefore, an allocation system for the sharing of corporate costs and operational costs must be agreed. In addition, as mentioned above, there are international and consulting functions which are treated as separate units.

Cost cutting to drive efficiency is an important means of increasing profitability and EVA within the organisation. In addition, new ventures provide possible opportunities for growth. Within the airline industry, other factors are also important. For example, the company must ensure that it meets targets relating to safety and carbon emissions, as laid down by the Civil Aviation Authority of New Zealand.

2.3.2 *New Zealand Post (Post) - SOE*

New Zealand Post was established as a SOE in 1987 as the universal postal service for all New Zealanders. In 1998, the Postal Services Act was passed, which deregulated the market, opening it up to competition. The Act removed the monopoly on the delivery of a standard letter, resulting in full competition for postal services. Any company can now process and deliver mail, subject to registration with the Ministry of Economic

¹¹ The area identified by respondents where competition could feasibly enter concerns air traffic control at the regional airports.

Development. This means that competitors have entered to ‘cherry pick’ or ‘cream skim’ service provision in certain pockets of the business, whilst Post is still required to provide a universal service.

The company operates as a profitable integrated network business providing a chain of services to its customers. The company has maintained its well known brand and it attracts a certain amount of loyalty from customers. Service performance is vital for the company in order to retain this loyalty. Adaptability and innovation are also important in order to respond to customers’ changing needs. This is partly as a result of competition and partly due the core business being in its ‘sunset’ years, though opportunities exist and continue to be developed to stimulate growth in new and value added products. Diversification into banking, through the Kiwibank venture (announced in 2001 and launched in 2002), has been very successful for the organisation and has helped to maintain brand loyalty. The company has a global competitive advantage so it has been able to sell some of its services internationally. These international alliances involve the management of service provision and also the supply of equipment necessary to deliver the service. Such ventures are becoming more important for the company.

The company adopts a functional organisation structure with business units reflecting the different services that it provides to its customers. These units are supported by corporate units, such as finance and human resources. Overall the services provided are interdependent which means that the company comprises a huge matrix of inter-relationships and transfer pricing between units is perceived by the units as being very important. Structure is not fixed, in that reorganisation of the business takes place to reflect changing priorities and new business ventures.

2.3.3 Telecom Corporation of New Zealand (Telecom) – Listed Company

Along with the Airways and Post, Telecom was established as a SOE in 1987. In 1990, Telecom became one of the first telecommunications companies in the world to be fully privatised. For many years it was the largest listed company in New Zealand, based on market value. Telecom is a highly capital intensive service business which operates in a dynamic industry. This dynamism is brought about by advances in technology required

to deliver the service, as well as increasing numbers of competitors and price pressure, together with regulatory changes.

At the time of the 2001 interviews, Telecom was organised in a functional organisational structure around seven business units with corporate units, including Human Resources, Finance and Communications. Some of the business units were effectively stand-alone units and others were very dependent on each other. The interdependencies related to service provision, meaning that transfer pricing between units was very important.

The company has been subject to regulatory changes since 2001. The Telecommunications Act published in December 2001 required the separation of Telecom into at least three business units, including access, wholesale and one or more retail business units. These units were required to supply certain relevant services to both external and internal customers on a non-discriminatory and equivalent basis. On 31 March 2008, a business unit to supply access services, Chorus, and a wholesale unit to supply various wholesale services, Telecom Wholesale, were established as part of the Separation Undertakings. However, further changes took place in December 2011, after Telecom New Zealand shareholders had voted to structurally separate Telecom from its access network business Chorus, creating separate stock listings. Under the demerger agreement, Telecom moved its existing copper and fibre assets, the majority of the telephone exchanges, and network electronics into New Chorus, which became New Zealand's primary fixed access wholesale provider. Telecom retained its mobile assets and retail business. This move was generated in order to enable New Chorus to compete in the tender for the Government's Ultra Fast Broadband Initiative.

2.3.4 Management Accounting Issues

Overall, several potential management accounting issues can be discerned from the information on the companies. These issues relate to the fact that the companies are decentralised organisations and they will impact upon the ability of EVA to create value. They include:

- The allocation of corporate costs
- The allocation of shared costs
- The allocation of capital between business units and the transactions costs associated with restructuring or re-aligning business units
- Transfer pricing (or inter-charge) between units
- The split of shared assets
- Assessment of risk for different business units
- Company restructuring (to reflect changes in the environment such as regulatory or technological changes)

These factors all have the potential to impact upon the information provided and the incentives created by the EVA system. Successful use of EVA as a management control system by the case study companies over a sustained period suggests that EVA is able to deal with these factors. If this were not the case, problems over coordination could arise in the decentralised organisation, meaning that the system would have the potential to be value-destroying, rather than value-creating for the firm.

2.3.5 Empirical Hypotheses Relating to Business Strategy

As previously outlined in section 1.4, empirical results from academic studies have been used by researchers to develop hypotheses relating to the characteristics of firms adopting EVA, compared to non-adopters. The hypotheses are as follows:

- EVA is more suited to defender firms who pursue a strategy of cost leadership. Prospector firms tend to use non-financial measures (Lovata and Costigan, 2002).
- EVA is more suited to more capital intensive firms (Kleiman, 1999, Riceman et al., 2002).
- EVA is less effective for firms in service areas (Riceman et al., 2002).

For the three case firms in this study, it is apparent that the split between defender and prospector strategies may not be so simple. Airways would be the most closely aligned to a defender approach but the expansion to international activities suggests elements of the prospector characteristic. Both Post and Telecom would be classified as prospector firms as they continually respond to new opportunities in response to changes in the

environment and in the technology required. Since EVA was employed in the case firms for an extended period of time, it can be concluded that the system can be used by prospector firms.

Each of the three firms could be described as capital intensive service organisations, requiring investment in equipment, technology and other assets, in order to deliver the service. Therefore, it is not possible to reject the findings of Kleiman (1999) and Riceman et al. (2002) relating to capital intensity. However, the firms provide evidence that EVA can be used as the MCS by companies in service areas. Although this does not constitute evidence to reject the hypothesis by Riceman et al. (2002), the continued use of EVA provides evidence that it is a system that is suited to service sector firms.

2.4 Accounting Context

2.4.1 *Commitment to the EVA Philosophy*

There is explicit reference to shareholder value in the annual reports for the companies that were published in the earlier years of this study. For example, the CEO of Airways, Craig Sinclair, stated in 1999 that:

“Any monopoly can maximise profit. The real issue is, how effectively did that business apply its resources to create value for the customer and the shareholder?” (Craig Sinclair, Airways annual report, 1999, p13)

This comment demonstrates the importance of value creation for the shareholder but importantly it also demonstrates that the customer focus is of equal priority. The customer referred to is the airline companies.

In Post, a commitment to shareholder value is made explicit in the 1999 annual report, where the following is one of five business principles:

“Making investment and business decisions which protect and add shareholder value.” (Post annual report, 1999, p9)

Again, this is clear evidence of the commitment to shareholder value. In addition, in the 1999 annual report, there is a full page devoted to the use of EVA in New Zealand Post (Post annual report 1999, p31). This page, which is presented in Appendix B, contains information on when EVA was introduced and the fact that Post followed the recommendations contained in the Value-Based Reporting Protocol. There is a commentary on what is included in the capital base and the adjustments that are made to accounting profits but there is no detail of the calculations, nor is there information on the cost of capital that is employed. A graph showing EVA results for the previous nine years is presented but not discussed in any detail. Finally, there are statements confirming that EVA will be devolved through the organisation to business units and will be implemented as a major component in the management incentive compensation. Overall, this is strong evidence of a full commitment to EVA as the MCS within the firm.

Telecom does not explicitly mention EVA in its annual report and accounts and there is no mission statement provided in the annual reports from the 1990s. However, in the 1998 report, the commentary by Roderick Deane (Chief Executive and Managing Director) finished with the sentence:

“We know that providing cost-effective, innovative, reliable services and products for our customers is the key to continued growth in the value of Telecom for our shareholders.” (Telecom annual report, 1998, p11)

In 1999, Roderick Deane stepped down as Chief Executive and took up the post of Chairman. In the 1999 annual report, the outgoing Chairman stated that:

“Roderick has generated a wonderful sense of purpose and direction for Telecom. The strong shareholder focus that he has instilled in all Telecom managers underpins the strong performance history outlined in the highlights section of this report.” (Telecom annual report, 1999, p8)

Roderick Deane was regarded as a key driver of EVA success in Telecom. In fact, he was well known at the time for being a strong advocate of EVA and he worked closely with representatives from Stern Stewart. Telecom and Roderick Deane were cited as

success stories in a number of Stern Stewart publications, for example, Ehrbar (1998, p150-153) and Stern and Shiely (2001, p206).

An examination of the annual reports for the companies showed that by 2010, shareholder value was not promoted so strongly. In fact, while it is assumed that a commitment to shareholder value must lie behind the companies' strategy, this is not stated explicitly. In the 2010 report for Airways, the company mission made reference to the customers and growing value but the shareholder was not mentioned directly:

“We work with our customers to get aircraft and their passengers where they want to go safely and efficiently. We draw on our teamwork and expertise to grow the value of the business.” (Mission statement, Airways annual report, 2010, p6)

Similarly in Post, the annual report for 2010 makes no mention of shareholder value. The Chief Executive outlines the four foundations to the strategy for the company (including having a sustainable business model, driving international growth and growth in Kiwibank and actively managing the portfolio). The overall theme is sustainability and there is no mention of an underlying objective of shareholder value. However, the trend in EVA results was still published as part of the financial highlights.

The 2010 annual report for Telecom makes reference to the mission that was published in 2008, to become number one in broadband, mobile and ICT in New Zealand. It is explained that to achieve this mission, they must deliver a turn around in EBITDA (earnings before interest, taxation, depreciation and amortisation). There is no explicit reference to the maximisation of shareholder value.

Overall, by 2010, while the companies may have retained an objective of shareholder value maximisation, this goal is not stated in the accounts. Instead, the focus is more of a stakeholder approach, with customers, employees and the environment all mentioned in the commentaries.

2.4.2 The Publication of EVA Results

Both the SOEs publish the annual EVA results (and EVA trend) in their annual report and accounts. This information is clearly provided on a voluntary basis. Airways publishes detailed information on the calculation of EVA, running to several pages in the accounts. This information, which is audited, is discussed in the following section.

Table 2.1 shows the published EVA results over the period 1998 to 2010.

Table 2.1 Published EVA for the Period 1998-2010 (NZ\$000)

Year	Airways	Post
	Year end 30 June	Year end 30 June
1998	-1599	-11000
1999	-3518	-18000
2000	1390	2500
2001	1980	-4800
2002	2574	-3400
2003	2522	2700
2004	2986	10300
2005	3307	19700
2006	2375	25400
2007	1993	28100
2008	1137	33900
2009	-1521	8600
2010	1588	-25000

Source: Annual report and accounts

For Airways, the annual EVA results shown in table 2.1 are net of customer rebates and abnormal items (if applicable). There was negative EVA performance for Airways in 1998 and 1999. From 2001 there was an overall trend of increasing EVA until 2006, when there was a 28% fall in EVA. This decline continued, with EVA going negative in 2009, before a return to positive EVA in 2010.

For Post, the results are more volatile. As with Airways, 1998 and 1999 EVA results were negative. The year 2000 showed a positive EVA result which then became negative in 2001 and 2002.¹² From 2003 until 2008 the company demonstrated strong EVA growth before this decreased in 2009. According to the annual report for 2010, a one-off expense of \$72.3 million had a significant impact on net operating profit for the year. This expense resulted from tax changes to depreciation, and fair value adjustments on international business, domestic assets and a joint venture (annual report and accounts 2010, p13). Given a degree of market power embedded somewhere within the firms it might be expected that the EVA would be positive or certainly non-negative. One reason for the move from the public sector to the private sector is to improve incentives within the organisations and remove a legacy of underachievement in the public sector. However, making the change may just take time.

The EVA results shown in table 2.1 refute the ‘low hanging fruit’ hypothesis postulated by Lougee et al. (2006). From the initial negative EVAs in the early years shown, EVA then increases for six (Airways) or seven (Post) years. This clearly counters the assertion that large improvements, once picked, cannot be sustained.

2.4.3 The Components of EVA for Airways

An example of the published EVA information for Airways is provided in Appendix C, which presents the EVA statements published in the 1999 annual report. It is possible to see the extensive detail that is provided, including the breakdown of the EVA calculation (NOPAT, capital and adjustments) and specific information on how to calculate the cost of capital. The audited information must have been costly to produce and to publish and this is further evidence of the commitment within the firm to the EVA philosophy. The publication of this information continued throughout the period of this study.¹³

Table 2.2 shows for Airways the breakdown of EVA into its component parts of net operating profit after tax (NOPAT), the weighted average cost of capital (WACC) and

¹² Post changed its accounting year end to 30 June in 2000. For each year in table 2.1, the full year’s figures (from the annual report and accounts) are given.

¹³ By 2011, the EVA information provided in the annual report had been reduced to one page.

capital. Value is created by increases in NOPAT and decreases in the WACC and capital.¹⁴

Table 2.2 NOPAT (NZ\$000), WACC and capital (NZ\$000) for Airways for the Period 1998-2010

Year	Airways		
	NOPAT	WACC	Capital
1998	6478	8.28%	101490
1999	3512	7.70%	92987
2000	7379	6.92%	91693
2001	8846	7.18%	96010
2002	9593	6.89%	107304
2003	10225	6.89%	112402
2004	12172	5.91%	108326
2005	14390	6.73%	106114
2006	13029	6.57%	111488
2007	10123	6.93%	131351
2008	12603	7.27%	139207
2009	7548	6.21%	144621
2010	10865	6.28%	147622

Source: Annual Reports `

¹⁴ It is not necessarily possible to use the information in table 2.2 to obtain the EVA results presented in table 2.1. This is because the published EVA results are net of any customer rebates and abnormal items. Also, in the calculation of EVA, Airways uses average capital for the year.

NOPAT and Capital

One question that arises in the EVA literature is which if any of the components of EVA is the primary driver of EVA; is value largely to be found in NOPAT or is it capital or both? Table 2.2 shows that for Airways changes in EVA are largely a result of changes in NOPAT.¹⁵ Perhaps the incentive properties are clear. A unit increase in NOPAT feeds straight through to the bottom-line EVA, unlike capital where a unit decrease is weighted by the WACC and hence the bottom-line impact is the WACC.

The information on the amount of capital in the company provides further support for the refutation of the low hanging fruit hypothesis (Lougee et al., 2006). There is no evidence to suggest that dispositions have increased as a result of EVA, since levels of capital employed actually increase over the time period shown. Consequently, there is no evidence that the firm sold its non-performing assets. A company such as Airways must have a regular programme of capital investment, to ensure that passenger safety is not compromised.

The WACC

An initial question when considering the WACC is whether financial structure matters in the determination of the WACC, which will depend upon the theory of capital structure that is adopted. For example, a standard static trade-off theory of Modigliani and Miller (Modigliani and Miller, 1958 and 1963) shows that under specific capital market assumptions financial structure does matter while under other assumptions it does not matter (Miller, 1977). For Airways their published method for the calculation of WACC demonstrates that it is assumed that financial structure does not matter. Furthermore, two costs of capital are employed, one for the domestic business and another for the international business.

For Airways, WACC is calculated as follows:

$$r^* = rf^*(1-T_c) + MRP^*Bu \quad (2.1)$$

¹⁵ For the time period shown, the correlation between EVA and NOPAT for Airways is 83.2%. The correlation between EVA and capital is 3.5%. Of course, the latter relationship is more complex; an increase in capital increases the capital charge (*ceteris paribus*) but ideally it should also lead to an increase in NOPAT.

Where:

rf	=	Before tax risk-free rate of interest (calculated from 5 year Government stock)
Tc	=	Corporate tax rate
MRP	=	Market risk premium
Bu	=	Unlevered beta

The evidence in table 2.2 shows that the WACC is fairly volatile over the time period. This volatility is largely the result of the change in interest rates, which is evident in table 2.3, where a breakdown of the WACC calculation for Airways is provided, as published in the annual report and accounts. The correlation between the risk-free rate and the WACC over the time period is 93.5%.

Table 2.3 WACC calculations for Airways (1998-2010)

	rf	MRP	Tc	Bu	Be	re	WACC
1998	8.20%	9%	33%	0.31	0.54	10.35%	8.28%
1999	7.19%	9%	33%	0.32	0.52	9.50%	7.70%
2000	6.17%	9%	33%	0.31	0.47	8.36%	6.92%
2001	6.90%	8%	33%	0.32	0.48	8.46%	7.18%
2002	6.46%	8%	33%	0.32	0.51	8.41%	6.89%
2003	6.47%	8%	33%	0.32	0.51	8.41%	6.89%
2004	5.00%	8%	33%	0.32	0.42	6.71%	5.91%
2005	6.10%	8%	33%	0.33	0.40	7.29%	6.73%
2006	5.87%	8%	33%	0.33	0.39	7.05%	6.57%
2007	6.41%	8%	33%	0.33	0.43	7.77%	6.93%
2008	6.92%	8%	33%	0.33	0.45	8.23%	7.27%
2009	5.10%	8%	30%	0.33	0.44	7.09%	6.21%
2010	5.08%	8%	30%	0.34	0.40	6.76%	6.28%

Key: rf = risk free rate; MRP = Market Risk Premium; Tc = Corporate Tax Rate; Bu = unlevered or asset beta; Be = levered equity beta; re = cost of equity capital and WACC = Weighted Average Cost of Capital

Source: Annual report and accounts

The formal calculation of WACC is transparent, with the full methodology explained in the annual reports. Airways follows the guidance issued by the New Zealand Treasury which advises the use of a modified capital asset pricing model (CAPM) where leverage does not matter (as described in Brennan, 1970). The WACC is effectively an unlevered cost of equity, representing a Miller-type environment. In using the CAPM the company must choose values for three parameters, the market risk premium (MRP), the risk free rate and beta; and the tax rate. According to the CAPM theory the MRP and the risk free rate should be identical across all companies. However, the MRP is not uncontroversial – while most of the international evidence points to a value in the range of 6-9% there is a view that it should be much lower and around 4% (Dimson et al., 2002). If companies go to the top end of the range of acceptable MRP, clearly there is no motivation to minimise the cost of capital. For the risk-free rate, Airways adheres to the New Zealand Treasury recommended five year rate at the beginning of the reporting period (NZ Treasury, 1997). Beta should be the most difficult variable to measure for SOEs since these companies are not traded in the New Zealand capital market. There are standard methods for computing a company's beta, such as the use of the market model, which rely on companies being traded. The New Zealand Treasury guidance suggests the use of an average beta from a set of comparator firms that are traded. These comparator firms may well be from overseas.

2.5 Conclusions

The continued use of EVA by the case study firms over an extended time period demonstrates that the EVA system could be used successfully by firms facing different economic environments, with different organisational structures and pursuing different strategies. EVA can be used as the MCS by prospector firms (Post and Telecom) as well as firms that are largely defender but with elements of prospector characteristics (Airways). EVA is also suited to firms in the service sector, which is counter to the findings of Riceman et al. (2002). This demonstrates the flexibility of the EVA system. Notwithstanding the management accounting issues identified, the EVA system worked.

Zimmerman has criticised management accounting for merely providing a description of practice, with a failure to test hypotheses (Zimmerman, 2001). In this research, an examination of the published EVA results for the two SOEs and the breakdown of the EVA calculation for Airways, led to the rejection of the low hanging fruit hypothesis

(Lougee et al., 2006): There is no evidence to support the hypothesis that initial large improvements in EVA, which, once picked, cannot be sustained. On the contrary, the two SOEs managed to sustain growth in EVA over an extended period of time. Furthermore, there was no evidence of an increase in dispositions (i.e. a reduction in capital); in fact capital expenditure increased for the companies.

Finally, the publication of the EVA information, particularly the detailed calculations provided by Airways, facilitated an opportunity for detailed analysis that is not normally possible. The information on the calculation of the weighted average cost of capital demonstrated that the methodology employed does not minimise the cost of capital, meaning that the capital charge is not minimised. In addition, there is evidence that there are two different betas employed in the business (leading to different costs of capital). It would not be possible to draw such conclusions from a study of firms at the corporate level.

Chapter 3. EVA as a Discovery Process

3.1 Introduction

This chapter explores the implementation and use of Economic Value Added (EVA), by considering whether the EVA performance measurement system can be viewed as a discovery process. The central question is whether or not the implementation and use of EVA can assist with the discovery of value within the organisation. In other words, does the introduction and use of EVA provide new information that leads to improved value adding managerial decisions? That it can do so is a central claim of its proponents and advocates (Ehrbar, 1998, p2; Stern et al. 2001, p16).

To address the research question, the focus is placed on whether EVA can be viewed as an economic process for economic decision making. A framework for the discovery of value is developed. This highlights the activities and processes that should be in place for EVA to discover value (the key influences) and the inhibiting factors that may prevent value discovery. The framework draws on the ideas of Nelson and Winter's evolutionary theory (Nelson and Winter, 1982) to examine the factors developed from Stern Stewart's specification of the EVA model. In their book, Nelson and Winter employed the idea of natural selection, stating that organisations are dynamic and they evolve over time. The evolution represents a change in their routines. It is a process that is path-dependent, depending on a shift in product demand or supply conditions or from innovation by firms (Nelson and Winter, 1982, p3). Whilst innovation may most commonly refer to technical innovation, Nelson and Winter state that evolutionary theory can treat organizational innovation just as it treats technical innovation (Nelson and Winter, 1982, p38).

In the literature, EVA has been considered as an innovation in the management control system (for example, Sulaiman and Mitchell, 2005; Worthing and West, 2001), i.e. an organisational innovation. When it is introduced into an organisation, it leads to a change in routines. Evolution occurs through the dynamic search and selection processes that precede action choices (Nelson and Winter, 1982, p19). With the EVA system, the search and selection relates to the objective of the discovery of value.

In introducing EVA, it is recognised that there are certain aspects that must be put in place in order for the process to work. Stern Stewart argues that first of all, EVA should be measured correctly, with adjustments to accounting numbers to make them more economically meaningful (Stewart, 1991). The calculation and use of EVA should be pushed down through the organisation to business units (and possibly beyond to processes and products), in order to provide the right information to managers. Finally, incentives must be aligned with EVA (Stewart, 1991). Therefore in order for EVA to help in value discovery, these features must be present. In addition, factors that inhibit the discovery of value must be absent or insignificant.

The evidence used to address the research question is taken from questionnaire results and interviews conducted in the companies in 2001, as well as supporting documentation. This generated evidence on whether EVA can be implemented and used to discover value within the case study firms, with a focus on the information provided and the incentives created by EVA.

The analysis makes two main contributions to the understanding of EVA. First of all, it provides detailed evidence on the experiences of EVA implementation and use. This evidence should be of interest to other EVA users and to parties with an interest in EVA results of organisations, for example Government regulators.¹⁶ Secondly, it develops a framework for explaining and understanding the evolution of an organisational innovation within the firm.

The chapter is organised as follows. In the following sub-section the framework for analysis is developed. Section 3.3 discusses the Stern Stewart methodology, including the measurement of EVA and the impact of incentives. Section 3.4 outlines the key influences, with section 3.5 outlining the case for the balanced scorecard (BSC) as a complementary system. Inhibiting factors are discussed in section 3.6, with the empirical results presented in section 3.7. Section 3.8 provides the discussion and conclusions.

¹⁶ The New Zealand Treasury indicated the possibility of requiring EVA results in a meeting with the researcher in February 2011.

3.2 Framework for Evolution

This study is not designed to be a formal test of evolutionary theory; rather the ideas are used to inform analysis and explain the findings. Nelson and Winter noted that:

“When economists are undertaking applied work that is of interest for policy reasons or are explaining to an audience that is interested in that question per se why certain economic events happened, theoretical ideas tend to be used less formally and more as a means of organising the analysis. Theory can be bent to fit the problem.” (Nelson and Winter, 1982, p46)

Whilst Zimmerman (2001) may take exception to this approach, since there is no scientific testing of hypotheses developed from theory, the economics perspective adopted here is the approach to managerial accounting research that Zimmerman advocated. Furthermore, the employment of the framework leads to suggestions for its development. Thus, the research offers an explanation of practice and ideas for theory advancement.

3.2.1 *Evolutionary Theory*

Evolutionary theory can be contrasted to the more ‘orthodox’ neo-classical economic theory of profit maximisation (Nelson and Winter, 1982). Neo-classical economic theory takes as its core assumptions rationality and equilibrium (Dobbs, 2000, p3).¹⁷ In evolutionary theory, it is assumed that the organisation is motivated by profit but the actions of managers are not assumed to be profit maximising (Nelson and Winter, 1982, p4). It is dynamic and evolution is a process that arises due to changes occurring over time. These changes can arise as a result of an external change (for example a change in product demand or supply conditions) or an internal change (for example technical or organisational innovation). The focus in this chapter is on the process that arises through internal change, the introduction and use of EVA.

When the change occurs, it is predicted that it will cause a modification in the rules and routines of the organisation due to deliberate problem-solving efforts and random events

¹⁷ Dobbs recognises that neo-classical economics can be extended to include other schools of thought (Dobbs, 2000, p4).

(Nelson and Winter, 1982, p4). Rules and routines have been discussed extensively in the economics and accounting literature (for example Cyert and March, 1992; Polanyi, 1967; Nelson and Winter, 1982; Burns and Scapens, 2000; Lam, 2000). Recently, there has been much discussion on the differences between rules and routines (for example Quinn, 2011; van der Steen, 2011). Whilst not central to this discussion, it is useful to have a working understanding of the concepts, since the notion of routines in the firm suggests on-going action or activity that constitutes a process. To follow Burns and Scapens (2000), rules tend to be conceptualised as the formalised statements of procedures, whilst routines are the procedures habitually in use (Burns and Scapens, 2000, p10). Rules may be described as formal or informal (North, 1990, p3). Routines may be considered at the organisation or the individual level. Routines at the organisational level have been described as a governance or control device (Becker, 2004) and the building blocks providing the ability to respond to changes in the environment (Nelson and Winter, 1982). To distinguish organisational from individual routines, Lam (2000) describes ‘embedded knowledge’ (individual level) in contrast to ‘embodied knowledge’ (firm level). It is argued that explicit and tacit knowledge is stored in routines. Explicit knowledge is generally held by all individuals whilst tacit knowledge results from the learning processes that cannot be pulled from the individuals and their social context (Polanyi, 1967).¹⁸ In other words, there is a collective and local character to knowledge; the firm is a knowledge processor (Amin and Cohendet, 2004). This localised knowledge arises through dynamic interaction (i.e. a process) and it is context specific (Becker, 2004). This view is supported by van der Steen, who describes recurrent interaction patterns in the firm, suggesting processual sequences of action (van der Steen, 2011).

Taken together, the ideas on rules, routines, knowledge and processes suggest that even when there is a known change to the routines, the end point cannot be predicted. It is path-dependent, arising from localised knowledge and the response of individuals to the process of evolution. Whilst the firm may be profit maximising, the fact that individuals are coordinating the learning process leads to the possibility of heterogeneity in firms, even in the same industry. This would not be possible in neo-classical economics as firms would need to be homogeneous in order to compete and to reach equilibrium.

¹⁸ Feldman and Pentland describe tacit routines as ‘ostensive’, in contrast to ‘performative’ routines (Feldman and Pentland, 2003).

Whilst evolutionary theory explicitly allows for the consideration of responses of individuals to information provided by the innovation during the dynamic learning process, one shortcoming is that the impact of incentives is absent from the Nelson and Winter model. It has been argued that an understanding of the impact, persistence and change of non-technological features requires the consideration of incentives (Grief, 2006, p7). Incentives are a key feature of the EVA system (after all, Stern Stewart were originally remuneration consultants). Therefore, in order to understand EVA and whether it can be used to discover value, incentives must be considered.

3.2.2 Consequences of the Evolutionary Process

The path-dependent dynamic process of evolution arises from a sequence in decision making (see for example, Simon, 1982; van der Steen, 2011). This has consequences both for the firms themselves and for analysts and researchers investigating them. The consequence for firms implementing a system like EVA is that whilst they may have the same starting point (a change to the rules and routines through the introduction of EVA using the Stern Stewart methodology), the benefits and costs of EVA cannot be predicted ex ante. Any evaluation of the prospects for EVA at the time of introduction depends on the information available at the time of evaluation and this may be very limited. Moreover, as more information comes to light there will be an element of experimentation within the EVA measure itself so that over time its use will evolve as part of the learning process. Experience may lead to changes in both the rules and the routines. Therefore, there is no such thing as a perfect EVA measure. How it will be used will depend upon the specific context.

For analysts and researchers looking at the share price impact of EVA introduction in public limited companies, an absence of a capital market response may be found. This is because the value consequences of EVA cannot be predicted at the time of introduction. With the capital market uncertain about what is uncertain, the likelihood of an event, however great in payoff terms, will have such a small probability that there is no measurable market reaction. But a lack of correlation between share price and the introduction of EVA does not imply that EVA is an irrelevant proposition for a

company. What it does mean, however, is that the standard event study methodology to assess the value implications is not applicable in the case of EVA.¹⁹

An alternative, to ask managers within EVA companies if they *believed* it was successful in identifying and capturing value is not in itself strong evidence. However, Jazayeri and Scapens (2008) suggest otherwise in their study of the business values scorecard (BVS) at BAE Systems:

“Nevertheless, the BVS is generally regarded as a success story by the management of BAE Systems, as it provides a complete view of the business and highlights where there are problems, and these can be traced directly to specific projects. A manager commented: I think the major benefit for us is that it captures the complete view of the business very, very simply” (Jazayeri and Scapens, 2008, p67).

This is not compelling evidence, as it is difficult to understand the notion of a ‘complete view’ in a large multinational decentralised business. Why was the previous MCS not highlighting and tracing problems? How representative is one manager’s view of the success of BVS?

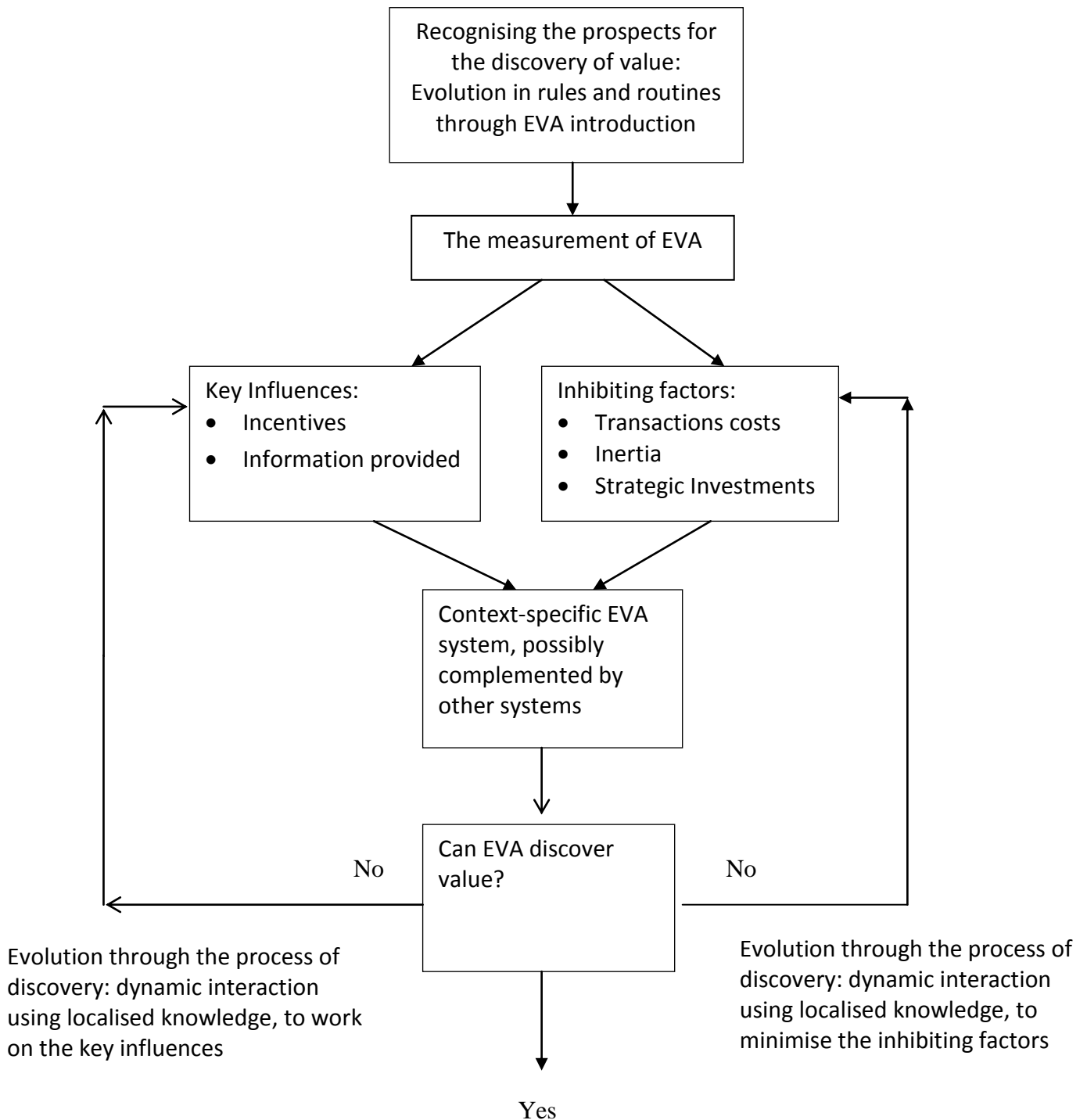
An alternative methodology to investigate the impact of an innovation is not to focus on corporate performance but to focus upon the activities and processes that would be expected to arise in a specific setting for EVA to be value adding. In other words, rather than focus upon the outcome, focus upon the *process* required to discover and create value. Initially, and notwithstanding the inability to assess costs and benefits *ex ante* and the inability to learn from others, it is possible to hypothesise that the EVA system would be introduced with the aim of discovering value. As the firm moves through the evolutionary process, managers will respond to the EVA system depending upon their localised knowledge. This dynamic interaction will in turn lead to further evolution in its measurement and use. It is proposed that this is a process of discovery that is path-dependent, so will not lead to the same end point for the firms.

¹⁹ There is an increasing literature on these high consequence-low probability events – which Taleb refers to as Black Swans – which argues that the standard framework of firstly determining expected values and secondly allocating resources is irrelevant. Taleb argues very strongly for flexibility of response to what are very uncertain events (Taleb, 2007).

Of course, the dynamic process does not guarantee that EVA will be able to discover value. However, what can be concluded is that if certain factors are not in place then it is very unlikely that EVA will be successful as a tool for creating value. In particular, key influences are the information provided and the incentives created by the EVA system. Both the information and incentives must be appropriate so that they give managers the impetus to discover value.²⁰ In addition to the key influences, there are other factors that may inhibit the discovery of value. Together these lead to a framework for a consideration of the process of the discovery of value with EVA, as depicted in figure 3.1. A discussion of the Stern Stewart methodology can assist with an understanding of the key influences and inhibiting factors. This discussion follows in section 3.3.

²⁰ The idea of complementarity is well understood in economics with the notion of economies of scope on the supply side and product bundles on the demand side. It is a key concept for organisation design (Roberts, 2004, ch.2).

Figure 3.1 Framework for the process of the discovery of value through the introduction of EVA



3.3 The Stern Stewart Methodology

3.3.1 *The Measurement of EVA*

The Stern Stewart general definition of EVA for a time period is as follows:

$$\text{EVA} = \text{NOPAT} - (\text{Capital} * \text{WACC}) \quad (3.1)$$

Where:

NOPAT	=	Net operating profit after tax
Capital	=	Book value of capital (opening or average capital)
WACC	=	Weighted average cost of capital

Since decision making and control relies heavily on accounting information that substantially records historic or past transactions and contracts, a major justification for EVA over other measures, in addition to the alignment of incentives, is that the adjustments made to the accounting measures make them more like economic measures. It has already been noted in Chapter 1 that EVA promoters suggest 120-160 possible adjustments, although it is recognised that many of these adjustments will be firm-specific and that 10-12 adjustments may be appropriate (Young and O'Byrne, 2001, p267). For example, EVA proponents argue that operating leases are part of debt capital, and research and development spend should be capitalised (and subsequently amortised) as equity capital. While these changes have the potential to move EVA in the direction of economic values and indeed in certain cases towards opportunity cost, not least the opportunity cost of capital, it is still a measure rooted in the past because what is being valued is something similar to that which already exists.²¹ The key difference between EVA and other performance measures is the capital charge; WACC multiplied by the capital base. What this may do is create a focus upon risk within the business and the business units, since the capital cost is a risk-adjusted benchmark return, and hence a focus upon value and risk. It may not matter that EVA is no more than NOPAT computed under traditional financial accounting rules (less the capital charge) for the change in focus may be sufficient to enable the process of discovery.

²¹ Following the notion of economic income, EVA would be for a period of time the change in value after compensation to all capital providers but where value is defined as the present value of future cash flows.

3.3.2 The Theoretical Case for EVA as a Value-Adding Metric

Given the path-dependent nature of EVA discussed above, the promoter of an EVA system would be unlikely to promote EVA as a discovery process, as it would be difficult to convince clients of its merits, since the benefits are not immediately tangible, there is no clear and simple cause and effect relationship and where the case can only be made on the basis that EVA will bring forward new unexpected information but the consequences are uncertain. Therefore, it is not surprising that the idea of discovery has not been used by Stern Stewart. Instead, they justify EVA using two linked empirical hypotheses. It is also possible to show a justification for EVA using the abnormal earnings model. Both of these are now discussed.

Empirical Hypotheses

In the EVA literature it is generally understood that the notion of value to be created is that of shareholder value (for example Ehrbar, 1998; Stern and Shiely, 2001; Young and O'Byrne, 2001). With shareholder value as the 'end', the case for EVA as the 'means' to the 'end' can be reduced to a process showing how the managerial interest is aligned with the shareholder interest; for example see Stewart in Ehrbar (1998, p198). This process shows that the case for EVA as a value adding metric or measurement system for a company is made up of two important but linked empirical hypotheses:

1. Financial or extrinsic incentives will influence decision making and motivate performance. If the incentives are based on EVA then, in general, managers will be influenced to make decisions on this basis. There is considerable discussion in the EVA literature around the specific design of incentives. Young and Byrne (2001), for example, discuss traditional incentives versus bonus bank type incentives (pp135-139) and how far to extend EVA down the organisation (p115), it is assumed that the general point holds true – incentives work.
2. With incentives working then the case for EVA is made on the simple premise that EVA is more highly correlated with shareholder value than any other financial metric. Since shareholder value maximisation is the assumed goal of the organisation, the justification for EVA is provided. It is argued that EVA is better than alternative measures that may be available (see for example Young

and Byrne (2001) for EVA over Cash Flow Return over Investment or Ehrbar (1998) for EVA over Return on Equity and Return on Assets). Furthermore, the correlation between EVA and shareholder value improves if specific accounting adjustments are made to traditional accounting measures (Ehrbar ch 11).

Thus, the proponents of EVA have claimed that there is an explanation for EVA and value creation based on the linking of two empirical hypotheses. However, as discussed in Chapter 1, evidence on correlation with share price is mixed. On incentives, there is new evidence that questions the empirical foundation of the first hypothesis.

Specifically this simple link between managers being motivated solely by their own pay and effort has been questioned. In particular it is now understood that preferences change over time, that an individual's 'utility' is not solely determined from within (so notions of fairness and altruism matter) and importantly, that extrinsic incentives do not simply add to existing intrinsic motivation and moreover can drive out internal or intrinsic motivation (Layard, 2003).²²

Abnormal Earnings

Whilst not explicitly promoted by Stern Stewart, a theoretical justification for EVA can be provided using another of their concepts, market value added (MVA). MVA links directly to the abnormal earnings valuation model.²³ MVA at a point in time (for example time period 0) can be defined as follows:

$$MVA_0 = MV_0 - BVA_0 \quad (3.2)$$

MVA_0 = Market value added at time 0

MV_0 = Market value of debt plus equity at time 0

BVA_0 = Book value of debt plus equity at time 0

Whilst equation (3.2) is stated at the overall firm level, it could also be written at the equity level. Debt holders do not share in any positive net present value (since debt

²² The Layard reference is particularly apposite here since it refers to performance related pay in the public services which is exactly that of the New Zealand companies now being considered. This may be the case if one of the intrinsic rewards was a feeling of contributing to society.

²³ For a description of the abnormal earnings valuation model, see for example, Palepu et al. (2010, p344), Barker (2001, p168) and O'Hanlon and Peasnell (1998).

returns are contractually fixed, all gains accrue to shareholders). Therefore, the MVA accrues entirely to equity.

Equation (3.2) can be rearranged, as follows:

$$MV_0 = BVA_0 + MVA_0 \quad (3.3)$$

MVA equals abnormal earnings in the abnormal earnings valuation model (see Palepu, p344):

$$MV_0 = BVA_0 + \frac{NOPAT_1 - WACC * BVA_0}{(1+WACC)} + \frac{NOPAT_2 - WACC * BVA_1}{(1+WACC)^2} + \dots \quad (3.4)$$

From equations 3.2 and 3.4 it is apparent that MVA is the present value of future EVAs (see Ehrbar, 1998, ch3; Stern et al; 2001, ch2; Young and O'Byrne, 2001, ch2). It is argued that future EVAs come from two sources: a continuation of the performance levels already achieved and EVA improvement, with the capitalised value of EVA improvement known as future growth value (Young and O'Byrne, 2001, p36). Some listed companies advised by Stern Stewart have adopted the concept of future growth value and expected EVA improvement as additional measures.

According to Young and O'Byrne, (2001, p34), the justification for the focus on EVA as a measure is that it:

- Can be calculated at the divisional level, unlike MVA (so it provides 'line of sight' for divisional managers);
- Is a flow measure (so it can give an indication of the creation of wealth over time, rather than a stock measure (such as MVA) that provides a snapshot at a point in time);
- It promotes the creation of shareholder wealth.

However, as will be discussed in the following section, the incentives created by EVA and the information provided must be carefully worked through in order for there to be any prospects for value discovery.

3.4 Key influences for the discovery of value

Key influences for the discovery of value centre around the information provided and incentives created by the EVA system. These influences are drawn from the key aspects of the Stern Stewart EVA system, together with an understanding of possible management accounting issues that may arise in the decentralised organisations, as highlighted for the case study firms in section 2.3.4.

3.4.1 *Incentives*

Incentives are a key component of the EVA system, where the motivation for employees to pursue the objective of EVA creation is provided via the reward mechanism (indeed the Stern Stewart organisation was originally a remuneration consultant). Stern Stewart argues that managerial incentives must be based on the measured EVA performance and that EVA will not deliver the increases in value without significant or highly levered EVA based incentives. Ehrbar makes the position clear. He stated that:

“The real key to the success of the EVA framework lies in using improvements in EVA in a unique type of incentive compensation plan that fires the imagination and initiative of managers and workers... EVA bonus plans effectively give managers an ownership interest in performance improvements by paying bonuses that are a fixed percentage of all changes in EVA. They give managers the opportunity to earn an unlimited upside bonus in exchange for facing genuine downside risk. The absence of bonus caps is made possible by holding back part of the bonus earned in very good years and making it subject to loss if EVA subsequently falls. This banking feature – genuinely having something at risk – is what transforms managers into owners.” (Ehrbar, 1998, p93)

This statement has several important assumptions. First of all, it implicitly assumes that extrinsic incentives, in particular EVA based bonuses, are the key to motivating employees to operate in the best interests of shareholders, rather than intrinsic rewards such as the opportunity to contribute to society, a feeling of achievement, or recognition by colleagues of a job well done. Secondly, it is assumed that when managers are

‘transformed’ into owners, EVA is perfectly aligned with increases in shareholder wealth. Thirdly, it assumes that managers clearly understand the measure that they are working with and there are no issues of understandability or complexity to resolve. A further assumption is that managers perfectly understand the lack of a bonus cap, the associated ‘banking’ feature and in particular the exposure to downside risk, and that it does not create any form of disincentive or damage the ability to pay competitive rewards. Finally, it assumes that such a system, with unlimited upside and downside risk, will be suitable in the organisation.

Given the importance of incentives in the EVA model, all these features need to be explored within the companies concerned to establish the facts. While the aspects above appear plausible, it may be that these extrinsic incentives do not work as prescribed. There is an area of debate surrounding extrinsic incentives and in particular the role of cognition – how managers understand the meaning of things. Layard (2003) notes that in the standard agency model of incentives, managers as agents are assumed to have constant preferences. Their utility is determined only by monetary reward and effort – in other words utility is determined purely from within and additional extrinsic incentives add to the manager’s existing intrinsic motivation. He argues that all three of these assumptions are the subject of debate and as a result there are important consequences for the design of reward structures. He argues that “people must be comparing their income with some norm” and that over time this norm is moving up and that this:

“is coming from two sources – first habituation and second rivalry. First, I compare what I have with what I have become used to (through a process of habituation). As I ratchet up my standards, this reduces the enjoyment I get from any given standard of living. Second, I compare what I have with what other people have (through a process of rivalry).” (Layard, 2003, p4-5)

This suggests that reward structures should constantly be under review because habituation changes the impact of rewards over time – this is a challenge to constant preferences - and rivalry changes the impact of rewards across managers; it is a challenge to the idea that utility comes purely from within. In addition Layard (2003), drawing on the psychology literature, emphasises the impact of extrinsic incentives upon intrinsic incentives and in particular argues that extrinsic can drive out intrinsic

incentives. In other words, there is a ‘crowding-out’ of intrinsic incentives so that extrinsic incentives do not add to intrinsic incentives. This argument is different from the extant argument that extrinsic incentives may be a better form of motivation than intrinsic incentives (Atkinson et. al., 2007). Thus although standard agency theory is in place to align agent and principal objectives by resolving asymmetric information issues, there is a trade-off in the loss of intrinsic incentive which serves to reduce the effectiveness of an extrinsic incentive. While much of this discussion of managerial motivation may be seen to apply to all firms, Layard makes the point that the ‘crowding-out’ argument may be more relevant to firms that have been ‘public services’. He commented:

“In the light of this it seems that British governments over the last 20 years had made serious errors in their approach to the reform of public services. They have stressed ever more the need to reward individual performance, rather than providing an adequate general level of pay and stressing the importance of the job and the promotion of professional norms and professional competence.”
(Layard, 2003, p15).

This view can also be applied in the context of the three companies in this study. If Layard is right then it may be that EVA can fail but this would not be the fault of the measure of EVA per se, but rather the role of extrinsic incentives that is inextricably part of the EVA ethos.

The proponents of EVA assume that managers clearly understand and are motivated by EVA, and moreover that the capital market also understands EVA and how it correlates with shareholder value. Furthermore, within the decentralised firm there is the potential for business units to have very low reported EVA, notwithstanding the fact that the managers and other employees are doing a professional job. How are managers motivated when business unit EVA is very small? What if the EVA that is being generated occurs in a different business unit? It is probable that for business units with poor EVA prospects there will be little performance incentive when they have little investment incentive.

Finally, in designing any extrinsic incentive scheme the problem of short-termism in decision making has to be addressed. Most managerial reward schemes will feature

both a short-term and a long-term incentive scheme where the latter will usually feature the reward of shares or share options. The bonus bank is another form of long-term solution but is not exclusively part of an EVA based incentive. It involves holding back some of the current bonus and paying it out in later years providing it has not been eroded through subsequent EVA losses. There are possible variations in this bonus bank scheme where the current bonus that is held back is used to buy shares in the company (assuming that the company is listed), which may be matched with the award of additional shares providing the managers earn subsequent positive EVA. Of course, such a scheme is not available to SOEs. There is an issue when the managers face the downside risk from seeing the bonus disappear or even go negative. Furthermore, this loss of bonus may occur when the companies are facing difficult trading conditions and are therefore not in a position to improve the current reward structure. Again, it is not at all clear that the bonus bank will work in the way intended, that is, to recruit and retain good people who will be instrumental in the discovery process.

3.4.2 The Information Provided by the EVA System

Whilst some proponents of EVA may gloss over the specific difficulties in the application of EVA down the organisation (for example, Ehrbar, 1998), others recognise that there can be practical problems, particularly in an integrated decentralised organisation (for example, Stern et al., 2001). If EVA is pushed to the business unit level, measurement issues to be addressed include transfer pricing, cost allocation, the cost of capital and risk shifting. If challenges are created within these areas, then value may be destroyed, rather than discovered, within the organisation.

Transfer Pricing

With decentralised firms, internal trading through the network is usually an important feature. For value to be correctly identified then there should be a strong central focus upon transfer pricing and a restriction of the opportunity to establish prices from incongruent behaviour. While it is generally understood that there is no such thing as an optimal transfer price in a decentralised company, it is clear that controls need to be in place to minimise the loss of value through its appropriation by those units playing a

transfer pricing game.²⁴ If managers are responding to business unit EVA incentives where their rewards are based on unit performance then it is predicted that supplying units would overstate costs in order to obtain a higher price and the buying units would understate the value of the transferred goods in order to reduce the price. The result is that either too little or too much internal trading will take place.

While there may be operational losses from non-economic transfer prices, it is important to emphasise that such actions will crucially impact upon investment. Investments cannot create value if the prices used in their calculation are not value relevant. In other words, the discovery of value in the various sub-units of the company is seriously at risk without a strong managerial lead on the setting of transfer prices. This is recognised by the Stern Stewart promoters (for example, Young and O'Byrne, 2001, p102).

Cost Allocation

The appropriate allocation of central costs (for example human resource and finance costs) and the allocation of shared costs (for example operational costs that apply to one or more business units) is a key feature of the ability of EVA to discover value. This suggests that the EVA system needs to be accompanied by sophisticated costing systems, for example Activity Based Costing (ABC) and indeed Activity Based Management (ABM). The need for such systems is recognised by Stern Stewart (for example, Young and O'Byrne, 2001, p103). However, even these methods cannot avoid cost allocation and they inevitably have some inherent arbitrariness.

Cost of Capital

Given the central importance of the cost of capital to the EVA construct, it is conceivable that there will be incentives to manipulate the cost of capital at both the corporate and business unit level. The cost of capital differs from many costs in that it is not directly observable either ex ante or ex post and needs to be estimated. This creates an opportunity to introduce bias into the estimation process. Just like transfer

²⁴ If there is a competitive market for the product or service being transferred then the appropriate transfer price is the competitive market price. However, in the absence of competition, there is no market based competitive price.

prices, it is to be expected that there will be a formal corporate estimation process that produces the 'best' estimates of the cost of capital. Importantly, the cost of capital should be seen to correlate with general market rates. Secondly, there should be some *consistency* across firms in both the way that the cost of capital is estimated and the parameters that are applied. Thirdly, to facilitate the discovery of value process, the cost of capital should reflect the risks of the business units of the company. This is emphasised by the Stern Stewart promoters (see for example, Ehrbar, 1998, p180 and an explanation provided by Bowens and Specklé, writing in Hopper et al., 2002, p254). If, say, a company was to introduce a corporate wide cost of capital across all business units when it was recognised that the business units were in different risk classes, this would compromise the discovery of value through EVA.

Risk Shifting

One way to create the illusion of value is to shift risks across the internal boundaries of the company to both reduce the cost of capital and the capital requirement. For example, if a network business was structured so as to comprise wholesaling and retailing units, all the risk from the final customer would fall on the retailing unit. This perhaps requires a further investment in working capital and so may destroy EVA. As a result, the retailing unit may have incentives to adopt internal pricing and working capital strategies to shift some of that risk 'upstream' to the wholesaling unit and thereby reduce its own working capital investment. Behaviour such as this is consistent with rewards based on business unit EVA which would be substantially lessened if capital was not part of the performance measure of a unit. Given these business unit incentives, one way of reducing this incongruent effect would be to have a strong central focus on capital measures at the unit level.

3.5 Complementary Systems: the Balanced Scorecard as Part of the Process

It has been noted that in the evolutionary process it is difficult to forecast what information will be discovered and when it will be discovered. However, the sequence of discovery may be important. There may be some key pivotal discoveries that are best made first. It is natural to assume that EVA and the balanced scorecard (BSC) are

competing alternatives in the field of value based management.²⁵ This may not be the case and they may in fact be complementary. Their complementarity may, in part, be due to the delivering of an appropriate sequence of decision making. The BSC has evolved to encompass a strategy map that “translates the strategy into a plan of action that identifies specific objectives and performance drivers to help determine if the organisation is moving in the right direction” (Zimmerman, 2009, p672). A key feature of the strategy map is the recognition of a sequence in decision making with the Learning and Growth objectives as the “foundation for any strategy” (Atkinson et al., 2007, p401). However, the BSC may do more than identify a sequence of decision making. For example, another feature claimed for the scorecard is that it can balance both short and long term performance indicators, creating incentives for managers to discover value in long-term projects that are going to reduce short term performance. This is useful, since EVA is sometimes criticised as promoting a short-term focus (see 3.6 below). Furthermore, the value drivers developed within a BSC framework may be pivotal in discovering value. EVA and the BSC could together generate a system of complementary changes which develops its own evolutionary momentum making both even more effective at creating value.

3.6 Factors Inhibiting EVA as a Discovery Process

Transaction Costs

Transaction costs are a key component to understanding whether an institution will lead to good economic performance (North, 1990). EVA as a benchmark/performance measure may inhibit EVA as a discovery process because it may create transaction costs for the company. In particular, the calculation of EVA can become very complicated if the boundaries of the firm are re-drawn over time, as both the capital costs and accumulated EVA balances of the business units will need to be continually reassigned. Therefore, although there is a case to be made for finding value, in the redefining of internal boundaries the realisation may well be difficult.²⁶

²⁵ For references on the balanced scorecard, see Kaplan and Norton (1992, 1993, 1996a, 1996b, 2001a and 2001b).

²⁶ If the company cannot deal with these transaction cost difficulties, then rather than EVA as a discovery process, it may well be that it is external competition that reveals what the internal boundaries of the company should be in order for the company to compete properly.

Inertia

Although the firm commits to an EVA methodology, inertia may mean that it is not easily implemented throughout the whole firm. Managers may be reluctant to give up their previous routines and will indeed retain them even in the presence of the new initiative. This applies to the information aspect of EVA (for planning, decision making and control) and also to incentives (for an example of the impact on incentives, see Stern et al., 2001, p200). If EVA is simply an additional criterion to be satisfied and is indeed, not the principal criterion, then it is expected that EVA would have a much diminished role within the firms as a result of the loose-coupling of the system.

Strategic Investments

One difficulty with EVA concerns the incentive to invest. Whilst the focus on capital and the cost of capital is a central feature of EVA, it is not desirable for the system to encourage managers to reject profitable investments. However, they may have the incentive to do so if they believe that their EVA will suffer. This can arise if an investment is made (and thus the capital charge increases) but the future positive cash flows are expected in the medium to long-term future. In other words, the opportunity represents a real investment option, or strategic investment, that managers may reject. The Stern Stewart promoters recognise this aspect of EVA and recommend that investment costs relating to such investments are placed in a 'suspense account', so that they have no impact on the EVA calculation. The capital charge on these investments also accrues in the suspense account. The balance in the account is brought back gradually into the EVA calculation (via that capital charge) when the investment begins to contribute to NOPAT (Ehrbar, 1998, p170; Young and O'Byrne, 2001, p94).

Summary

The above discussion outlines the framework for an evaluation of EVA as a discovery process, highlighting key aspects of EVA that must be addressed in order to best place the company in a position to discover value. This framework will be used to structure the analysis of the research evidence, which is presented in the following section.

3.7 The Research Evidence

3.7.1 The Research Method

The research method comprised a four step process involving a questionnaire (reproduced in Appendix A), semi-structured interviews, primary evidence from internal company documents and regulatory bodies and further e-mail communication. The design had several objectives to achieve:

- The respondents and interviewees were representatives of their companies and not selected through the researchers' personal connections. This was to ensure independence and eliminate, as much as is possible, bias in responses.
- The respondents and interviewees were 'well informed' and involved with the use of EVA within the company. This was to ensure that meaningful evidence was gathered.
- The evidence should be collected from throughout all levels of the company. This was to ensure triangulation of responses.
- The evidence could be collected that was systematic across all the EVA companies or systematic within a company or specific to part of a company. In other words, the evidence had to be collected in a consistent manner.
- Expectations were not raised about the idea of EVA as a discovery process. That is, the respondents and interviewees were 'blind' to the discovery idea. Questions were framed in such a way that respondents and interviewees were not led in a particular direction.

Within the firms, a lead person was identified who was previously unknown to the researcher. This person completed the questionnaire and also distributed copies to a range of colleagues working with EVA at different levels of the organisation. The same questionnaire went to all firms and individuals. In total, 11 completed questionnaires were returned.²⁷

The questionnaire results helped to establish areas for further investigation through semi-structured interviews which were conducted in New Zealand within the three companies. Again, within each firm contact was established with a new previously

²⁷ These questionnaires were part of a larger survey of EVA companies in New Zealand. Eleven of the questionnaires relate to the case firms, with a fairly even split across the three.

unknown lead person who organised a number of interviews. Prior to visiting the firms, the researcher specified the broad areas to be covered and suggested the number of people to interview. This was to obtain consistency across the interviews so that comparative analysis could be undertaken. The broad areas covered the spectrum of EVA use, from implementation through to its measurement and use for planning, investment decision making, control, remuneration determination and evolution within the firm. Within each company, the number of interviews and the choice of interviewees were at the discretion of the lead person. However, within each organisation the current EVA 'owner' was interviewed and all the other interviewees had experience of working with EVA at different levels of the company. In total 13 interviews took place as follows: six in Company X, four in Company Y and three in Company Z.²⁸ Participants held financial or non-financial managerial positions within the firms at the time of the interviews, including one Chief Executive, Group Managers, Human Resources Managers, Group Controllers, Strategic Managers, Corporate Finance Managers and accountants. There was some overlap in the questions discussed in the interviews, in an attempt to ensure triangulation of results. Each interview lasted between 2-3 hours, with each interview recorded and subsequently transcribed. Within each firm the lead person checked all transcripts and the preliminary analysis of the results. In addition, they all had an opportunity to verify the summary results (and make factual corrections if necessary) for their business prior to the use of the evidence. Each lead person approved the use of the transcripts for research purposes. In other words, whilst respondents and interviewees may have provided their independent personal opinions on EVA nevertheless the lead person was happy for those opinions to go forward.

At this stage the questionnaire and interview evidence was supported by further primary evidence in the form of internal company documents and checked against annual reports. Further documentary evidence was also employed, for example Commerce Commission publications. This triangulation of the evidence helped to ensure independent and consistency. Finally where clarification was needed further e-mail communication with the company participants was conducted.

²⁸ To preserve anonymity this order does not correspond with the alphabetic order. This was a constraint but necessary for the research.

3.7.2 Empirical Evidence

In the presentation of the case study evidence quotes from participants are recorded and discussed within the framework established in section 3.2.2 above. To avoid excessive quotation not all evidence from each company is presented. However, it is made clear whether the quotes are either firm specific or more systematic.

Recognising the Prospects for Value Discovery

Interviewees unanimously supported the idea that there is value to be created within these companies but that this value is constrained by the institutional framework of government regulation. The following remark from the Chief Executive of Company Z is representative of the two SOEs where he commented on the impact of the Deed of Understanding (explained in section 2.2.2):

“Those social obligations have a dampening effect on what we can do in terms of starting to create value. We could exercise some market power for example, work against the Deed and we’d create any amount of value that you want. We’re not doing that because the Deed defines the long term strategic direction.”
(Chief Executive, Company Z)

The notion of EVA as a process for discovering value was not directly discussed with the participants (so as not to lead them). However, some indirectly recognised the role. For example, in Company Z the Corporate Finance Manager stated:

“EVA actually regardless of whether or not it’s a success or failure in (Company Z), you can say that it’s instilled a *whole different way of thinking* around acting on a commercial basis and improving resource allocation.” (Corporate Finance Manager, Company Z. Italics added for emphasis)

In Company Y the Group Manager, Human Resources remarked:

“In my understanding, it did focus everybody much better to what is the real return to the shareholder and thinking about the cost of capital and so on. So I think that certainly probably helped the mind shift towards thinking about what

delivers true value...It does focus attention on what is happening but it also removes the attitude from just thinking about cost accounting if you like. It moves the focus onto how else can we generate profit at the end of the day as opposed to just driving down my costs.” (Group Manager, Human Resources, Company Y)

Documentation from Company Y also indicated that EVA was introduced to cement customer relations and demonstrate that the company could be as efficient as possible for everybody’s benefit. EVA was implemented as a means of discovering value that could then be shared.

Therefore, in terms of the prospects for value creation, there was evidence that these opportunities are recognised and that EVA could be used to find this value. EVA appeared to be a mechanism for focusing managers in the ‘right’ way to ensure value can be created, including thinking on a more commercial basis, the returns to shareholders and the cost of capital. The regulatory constraints imposed in the Deed of Understanding prevented the SOEs from having free rein and thus these constraints inhibited the prospects for value creation, even though these prospects were recognised within the firms (see Chapter 2 for more information on the Deed of Understanding).

The Definition of EVA and Accounting Adjustments

It has been argued that one reason for choosing EVA over other performance measures is that after adjustments to both the asset base and the liability base of the business, it may offer better information for *economic* decision making and control. This was recognised by respondents in the companies. For example the Corporate Finance Manager of Company Z stated:

“We’re converting accounting information, from accounting to economics.”
(Corporate Finance Manager, Company Z)

It is normal for EVA to be generated from conventional accounting systems but Company Y was unusual in that its accounting system was run on an EVA basis with adjustments made to obtain conventional accounting information. The Group Manager Finance stated that:

“We’re an EVA company so all our accounting systems are basically designed to do EVA. All our costing of the budgets, cash flows, unlike other companies our internal accounting and internal reporting is EVA. When we’re expected to do half year accounts or annual accounts we actually convert them to conventional. Most companies have conventional and convert them to EVA.”
(Group Manager, Finance, Company Y)

Since all the companies had been advised by Stern Stewart it was therefore expected that (at least) some of the major adjustments would be in place. For Company Y this would involve reversing the adjustments to obtain conventional financial statements. The other companies at implementation did start with adjustments that were recommended by Stern Stewart. There are three points to make about this. Firstly, as noted by Young and O’Byrne (2001, p267), the actual adjustments were specific to the companies. One respondent noted:

“At the end of the day everyone will be using different EVA adjustments so you couldn’t really compare the EVA of (Company X) with us. People’s interpretation and how they want to apply EVA is different.” (Manager, Human Resources, Company Z)

Secondly, and again as noted by Young and O’Byrne (2001, p267), to make EVA work, the number of EVA adjustments had to be decreased. This happened over a relatively short period of time in the firms. For example:

“We kept simplifying it and truthfully they (the Board) preferred the accounting numbers and they didn’t want differences between the accounting numbers and EVA numbers because they didn’t understand all the adjustments. And today we effectively make no adjustments... We looked at it and actually decided ourselves that none of the adjustments themselves made enough impact to make it worth the complexity that they added on. So truthfully when you say we’ve got EVA, purists would argue, in fact most people would argue that we only kind of do.” (Human Resource Manager, Company X)

Similarly, a respondent in Company Z stated:

“After two years, what we’ve concluded is that by having ten adjustments, that’s too many. I’ve talked to many organisations in Wellington, the major corporates, and all of them who have introduced EVA have gone more complex than us on introduction and have gone vastly simplified. Now this goes against what Stern Stewart says but so what if they are the trademark of EVA... People just don’t understand them. It’s too complicated. People get bogged down in the cost of capital, their capital allocation, there’s just too many issues... there’s a proposed simplified EVA and there’s going to be three main adjustments.”
(Corporate Finance Manager, Company Z)

These quotes highlight issues over complexity in the measure and the lack of decision influence of the specific adjustments. However, Company Z also made the measurement of EVA more complicated by having two EVA calculations, distinguishing the number of adjustments made internally from the number made for the calculation of the disclosed EVA result. Perversely, there were more adjustments made for the disclosed figure, suggesting that the additional adjustments could not help with the discovery of value. The Corporate Finance Manager stated:

“You can see there’s 10 for internal. For external there’s 5 on top of that, you can see it’s getting pretty complicated... We each eventually decided that we’d have two EVA numbers - an internal number whereby we’d have a figure based on information that we could gather at the business unit level. We’d have an external number which was probably more accurate but that was only done at a total company level, so we didn’t need all that information at lower levels... We’re pretty comfortable with it, in terms of the way we’re simplifying EVA.”
(Corporate Finance Manager, Company Z)

Consequently, it appeared that there was a trade-off between the desire to move to more economically relevant information and the need for simplicity and understanding. It was the latter that dominated. Moreover, the last quotation demonstrated that one of the Stern Stewart claims that EVA can be aggregated throughout the organisation to

accumulate to corporate EVA was not of value for all firms, certainly not in the detail that was proposed. Furthermore, the measurement of EVA had undergone a process of evolution, with a simplification of the rules of measurement as a result of the learning process.

Understandability of the Measure

Respondents revealed in interviews that EVA was not a well understood concept either outside of the company or different levels within the business. This lack of understandability suggested that for some companies EVA will not provide a strong extrinsic incentive. For example, the Corporate Finance Manager of Company Z stated:

“Obviously in the annual report profit is the only measure that’s audited, that’s the one that (the Chief Executive) is managed to. While we may use EVA, our shareholders may not care for it to the same extent. Certainly the public looking at us may not know or understand so we’ve still got to manage accounting profit so that’s a challenge that all EVA companies will have. We know that EVA is important but when we go to the market, it’s ‘what’s your profit?’”. (Corporate Finance Manager, Company Z)

Similarly, the Group Manager, Technology and Support of Company Y commented:

“One of the problems with EVA, it even happens at the Board level at times, is that as soon as they see something like EVA or a small EVA figure, people start thinking in their minds back to more conventional profit approach and say that’s too low. We record both but you’ll find that some of the business press reporters were still getting mixed up and they’ll be quoting your EVA as if it was a profit” (Group Manager, Technology and Support, Company Y).

Key Influences for EVA as a Discovery Process

Incentives

In the discussions with interviewees on the subject of incentives, there were two key areas that emerged. First of all, sharp extrinsic incentives were created through the use of EVA for rewards. Secondly, intrinsic incentives were crowded out.

Extrinsic Incentives

Extrinsic rewards were based on EVA for all business unit managers and above, for all the companies. However, there was no universally agreed reward scheme for incentivising managers:

- Company X based rewards on annual corporate EVA results for its integrated businesses. An extract from a training presentation to employees on the EVA scheme is presented in Appendix D. This extract demonstrates the use of EVA for incentive purposes.²⁹
- Company Y had a scheme whereby all employees shared equally in the annual corporate EVA above a specific threshold.
- Company Z based rewards on a combination of business unit and corporate annual EVA results (for business unit managers) and 100% EVA for employees in the corporate team. A long term reward scheme was available for only the top thirty managers. An extract from the Annual Incentive Plan Guidebook is presented in Appendix E.³⁰

Company Z is closest to the Stern Stewart recommended practice of business unit EVA in the reward scheme. However, as discussed below, this company operated an annual scheme, with no bonus bank or other links to future performance. The schemes reflected the different ethos of each company. For example, the aim in Company X was to foster co-operation between business units and to encourage managers to adopt a company perspective, as indicated by the Human Resources manager:

²⁹ Some of the pages have been omitted where they were either not provided or where it was deemed prudent to omit them due to the sensitivity of the contents.

³⁰ Again, some pages have been omitted for the same reason highlighted in the previous footnote. The company name has been removed from any text.

“Basically having separate EVA results would seem as not really part of the co-operation... it is as much as a reward as an incentive. It’s as much about saying, we’re successful, we’ll share some of it as opposed to truly incenting individuals.” (Human Resources Manager, Company X)

In contrast, in Company Y the aim was to reward all the stakeholders in the business in addition to building teamwork. The Human Resources manager remarked:

“We operate on a triangle that has the shareholder at one point, our customers at another point and employees at another point... Plus it tries to reinforce some of the company values that we’ve got in terms of teamwork and everybody contributes so the nature of that reward isn’t broken down into any individual performance assessment it’s just a common payment across the board.” (Group Manager, Human Resources Company Y)

This situation was not always the case; there was an evolution in reward mechanisms that led to changes in the rules regarding incentives. For example in Company X there was a move away from uncapped bonuses and business unit rewards because they generated rivalry that was viewed as damaging for the company. This constitutes evidence of the Layard (2003) position on incentives. The Manager for Strategy and Architecture stated:

“Regardless of EVA incentives for the company, line managers were more concerned with EVAs for their own units... in order to have business unit results you have to have a transfer pricing mechanism. Basically (they) fought over it constantly, it was a major distraction.” (Manager, Strategy and Architecture, Company X)

While the Group Controller stated:

“What it was causing was a lot of divide between the business units. They spent a lot of their time fighting internally, that’s what there EVA was driven off. In

the end... the Chief Executive said no I don't want this to continue, I want much more collaborative relationships between my executives and that should flow all the way down. Therefore we'll have one EVA for the company." (Group Controller, Company X)

A further problem highlighted by Layard (2003) is the trade-off between extrinsic and intrinsic incentives which he argues is particularly appropriate in businesses that were previously state controlled. There is evidence for this from Company Y. While Company Y has, like the others, focused upon extrinsic incentives for the reward and recruitment of staff, there have been concerns expressed about general pay and the maintenance of professional standards. For example, the Group Manager, Human Resources commented:

"It's quite interesting when talking with employees, they always question why there's the shareholder, well they always question why they only get 25% of the target and why they don't get more. I think part of that question comes from the fact that in the past we were a public service department. We were an arm of government under the Ministry. People almost think it's not quite like a community service but it's an essential industry that needs to be done. The fact is that we have such a huge focus on safety but that we also try and run the business at a profit. I think that there are individuals within the organisation that struggle with that concept." (Group Manager, Human Resources, Company Y)

This last sentence emphasises the difficulties created by the trade-off or conflict of extrinsic and intrinsic incentives for employees of the business.

The Bonus Bank

Only the listed company operated a bonus bank but even here it was not operated in the way suggested by Stern Stewart with unlimited caps on the bonus (Ehrbar, 1998, ch7; Stern et al., 2001, ch9). The arguments for the bonus bank are twofold – first to resolve the problem of short-termism and second to better align managers with shareholders.

Short-termism was created for many employees because rewards were linked to annual EVA results. Although the company had implemented the Stern Stewart concepts of expected improvements in EVA and future growth value and used these for corporate planning purposes, (as discussed in section 3.3.2 above), there was no longer term perspective created. In fact, quite perverse incentives resulted, as one respondent commented:

“My incentive is almost to have a low share price and a high EVA because the calibration (split of expected EVA improvements by planning year) is set on share price, well share price is one part, but my bonus is measured on actual EVA.” (Financial Management Advisor)

In other words, the respondent could be better off if the share price was low, so that expected future improvements were lower, which meant that targets would be lower, and so more easily met. Current EVA needed to be as high as possible, to maximise the bonus. Clearly this had the potential to damage shareholder wealth.

The bonus bank employed did not solve the short-termism problem. The features of the scheme meant that when the company was successful there was a continual build up of bonus in the bank that would be forever in the future. This created resentment amongst employees and it was viewed as a ‘death in service’ reward. Furthermore the alignment of managers with shareholders was substantially curtailed because there were caps and floors in the scheme and no negative multipliers. For example, another respondent commented:

“One of the reasons we got rid of negative multipliers was the impact on recruitment and retention. If you’ve got so far as your bonus bank was negative, you could see that you needed two good years to get any money out of it. We could see that that was never going to be any good. You can’t recruit people in that situation. You can’t retain people in that situation. I guess we’ve moderated it down so it’s never that bad.” (Human Resource Manager)

This view is an example of Layard's habituation feature showing that incentives do not necessarily work as intended (Layard, 2003).

The SOEs did not operate a bonus bank because it was viewed as not politically acceptable. In addition there were caps on the maximum bonus that can be paid as part of remuneration. One manager commented:

“We have capped it because we are an SOE, we don't have a bonus bank whereby there could be unlimited profits and unlimited losses.” (Corporate Finance Manager, Company Z)

Overall, within each of the firms, the reward schemes in place did not provide managers with the incentive to discover value. The Stern Stewart approach to rewards had been modified and diluted to ensure that co-ordination and communication between business units could continue so that value was not destroyed. Furthermore, the short-term focus on annual EVA meant that incentives to discover longer-term value were severely restricted.

Information Provided by the EVA Measure

It has been argued that for EVA to serve as a discovery process it should be computed at the business unit level with appropriate market and internal prices, cost allocation and externalities formally dealt with. It has been seen that transfer prices were a concern in these network businesses, so much so that business unit EVA had been abandoned as part of the incentive scheme for one of the firms. However, there was further evidence suggesting that where business unit EVA is calculated it was of very little significance. For example, the Manager, Corporate Finance of Company Z stated:

“Well actually we don't pay a lot of attention in Corporate to the way a lot of business units calculate their EVA. We encourage them to do it because we're an EVA company and that's the basis of our performance management system

but when we do EVA, we consolidate the results first and then do EVA. Basically consolidate first, you get a set of group accounts and from there you calculate your EVA.” (Corporate Finance Manager, Company Z)

Recall that this company perversely provides rewards based on both corporate and business unit EVA.

Transfer Pricing

In network firms where there is interdependence, it is expected that transfer pricing would be a key challenge. This was the case in the firms, where in Company X, one unit was able to manipulate prices to another unit, too boost their EVA. Within Company Y the transfer pricing (or ‘inter-charge’ as it was called) policy was set to ensure that there is no EVA gained through internal trade. This is possible where there are no external transactions that are squeezed out by internal transactions (for example, if there is no external market). On the other hand, within Company Z, where an external market exists, transfer prices are set on a commercial basis. The Corporate Finance Manager stated:

“We have a lot of discussions and conflicts about transfer pricing. What we are trying to say is that transfer pricing must be on commercial basis, it must be open and transparent. We don’t say to people you can go out and use an external provider. If you say to me that I’ve got to buy my IT services from the IT part of the company - but I can see that I can get it for a cheaper price and same quality outside, then I should tell the internal supplier and he might agree to cut a deal.” (Corporate Finance Manager, Company Z)

This quote highlights the fact that transfer pricing is an issue. He went on to say:

“We’re going to have a transfer pricing regime where both parties are happy. Now we are still working towards that.” (Corporate Finance Manager, Company Z)

This suggests that there are tensions created within the firm and that they wish to resolve them to ensure that the managers of different business units are happy with the decisions made. Furthermore, it has been noted above that for Company X, transfer pricing issues led to changes in the way extrinsic incentives are designed.

Of course there could be real consequences to a transfer pricing dispute in terms of either too much or too little output and perhaps, more importantly, an incorrect signal for investment decisions. But there was an upside to this pricing dispute in that the companies became more focused upon their business unit direct costs with the creation of cost models.

Cost Allocation

As expected cost allocation for a network business is a complex and difficult activity. Activity-based costing (ABC) is often recommended as a system for providing finer cost information in the quest for value creation. However, it has been noted that incentives were not information based; rather they were focussed upon both simplicity and fairness. In terms of cost allocation, Company Y decided not to implement cost allocation at the 'micro level.' Instead the company chose simplicity over accuracy and therefore reduced the opportunity to discover value. One respondent commented:

“We do a bit of activity-based costing but we don't want to get into micro level inter-charging. For some companies you see this happening and you end up with a huge financial tracking system and we decided that just wasn't on. I think we've actually got a reasonable level of simple inter charge system which is based on the cost agreed for the year divided by 12 for the cost per month and then every quarter we review and we make some adjustments.” (Group Manager, Technology and Support, Company Y)

In contrast, Company Z allocated all non-corporate costs using an ABC system to determine product profitability. For those products making a profit at the company

level they then set transfer prices in order to ensure that the overall profit margin was shared between the business units. This sharing of the overall profit margin was to avoid internal disputes. Within Company X, such disputes were still an issue.

Although an ABC system was employed, there was explicit recognition of the fact that some costs were not generated by activities, that some of the cost allocation was arbitrary and that cost allocation was causing “lots of arguments” (Manager for Strategy and Architecture).

Overall the evidence suggests that cost allocation of both revenue and capital costs is a difficult issue which together with actions on transfer prices to share margin means that there was no internal signal on costs which could be relevant for both pricing and investment strategies. Together they reduce the ability of EVA to discover value.

The Cost of Capital

There is a formal and transparent approach to the calculation of the WACC at the corporate level. However, at least two questions arose concerning its use within the companies. First, was this corporate rate formally decomposed at the business unit level to reflect different risk return characteristics of the units and second was the rate used for EVA calculation the same as for investment decisions? These questions were put to the interviewees and on the questionnaire. The evidence was clear cut. First, as previously noted, with the exception of Airways there was no attempt to formally calculate a business unit cost of capital in any of the companies.³¹ The response from one questionnaire participant was representative:

“They’re the same because our risk return is not calculated down to business units. The company cost of capital is used for all our business cases as well.”
(Questionnaire response)

However, there was some evidence of an informal recognition of different risks at the business unit level where the units were seen as more stand-alone. For example, one respondent commented:

³¹ In this sub-section, company initials and job titles are not attributed to the quotes provided, as this would be too revealing, given that it has already been noted that Airways publishes business unit costs of capital.

“What we are saying if we make investment decisions we want to look at it from the company return perspective. We also want to look at it from the business unit perspective to say if our property people have a lower cost of capital rate they could be making, bringing forward to the Board and SMT (Senior Management Team) proposals that are very good in their market, that is the property market. We say we need to have an account of how good a return that is in your business environment.”

The rate used for the EVA calculation was not always the rate used in investment decision making. Again there was an informal recognition of increased risk for some planned activities. For example, one respondent, when asked about the use of the corporate cost of capital for planning in a particular area, replied:

“So we are going to have to lift that. Add on a premium like another 1%.”

The general evidence was, therefore, that the companies did not disaggregate in a formal sense the corporate cost of capital for investment decision making or necessarily use the rate used for the EVA calculation in their investment decision making. Given the earlier evidence that transfer prices were set to ‘fairly’ allocate profitability across the company, this result was not surprising. It would be difficult to defend within the company the use of different costs of capital. The consequence is that these procedures would not help in the discovery of positive net present value projects.

Risk Shifting

Interestingly, the evidence for risk shifting was not through the internal boundaries of the firm. Instead, two of the companies looked to reduce the capital base through outsourcing. It is normally understood that managers have an incentive through the EVA measure to reduce the capital base in order to reduce the capital charge. However, while the positive correlation between introducing EVA and the (perceived) reduction in capital may be observed, the reason for it is more subtle. The following quote from the Chief Executive of Company Z illustrated this, together with his view on the role of EVA within the business:

“I couldn’t say that we wouldn’t have conceived of doing it in the absence of EVA because it has a beneficial impact anyway. It’s less an argument sometimes about reducing your capital base as it is avoiding either future capital needs or an alternative to raising funds in capital shortage situations.” (Chief Executive, Company Z)

With hindsight, this comment was particularly pertinent, given the credit crunch and the volatility of stock markets. It demonstrated a more sophisticated understanding of the nature of credit and capital markets.

Complementary Systems: EVA and the Balanced Scorecard

All three companies were operating EVA together with the BSC. They were not seen as competing value management tools. However, the BSC was not introduced after the introduction of EVA. Indeed some participants took the view that EVA improved the BSC with the latter being the more fundamental value management tool. This was perhaps not surprising in former state owned businesses, where non-financial measures such as safety, on-time delivery and customer satisfaction would have been paramount. For example, the General Manager of Human Resources of Company Z stated:

“The balanced scorecard approach had been very strongly inculcated in the business culture for years so nothing really new. It (EVA) was seen as a further evolutionary step about getting smarter and crisper and sharper around what’s done.” (General Manager, Human Resources, Company Z)

Therefore EVA was seen to improve the BSC and the fact that the BSC has not been withdrawn upon the introduction of EVA suggests that there was some synergy in the other direction as well. The application of the BSC in the incentive scheme is apparent in the weightings for organisational performance measures presented in Appendix D. These weightings demonstrate the importance of the different performance areas, where EVA is central to the making money area.

There was also evidence that the companies were well aware of the idea of a strategy map. However, like other aspects, the strategy map idea has evolved, in one case from a

formal to an informal mechanism. For example, a member of the Finance Team at Company X commented:

“In the very early stages a strategy map was done. It’s a little bit away from that now; there is an informal map that goes with our scorecard.” (Finance Team member, Company X)

Furthermore, respondents in the companies understood that there was a sequence of decisions to be taken even though they were uncertain about what they would discover. For example, when discussing the modelling of EVA drivers, the Manager of Corporate Finance in Company Z stated:

“That’s going to drive our strategy. It’s going to drive our projections and value creation at a company level. We have actually done that modelling also at the XXX business unit level because that as I have mentioned is the key business. That’s what creates all the value.” (Corporate Finance Manager, Company Z)

While it is costly to formalise the EVA drivers, model the process and determine the strategy there are at times substantial benefits to be gained. For example, in Company X this type of analysis revealed that there was an omission in the strategic objectives of the company whereby the major source of value creation was not included in the BSC; meaning that the strategy would never be implemented. It took managers some time to realise this, and to revise the strategy.

Inhibiting Factors to EVA as a discovery process

Transaction Costs

The difficulties of operating EVA at the business unit level have already been noted. However, the extent to which the EVA system itself becomes costly to use as both an information and incentive institution for the businesses was also investigated. If EVA was working effectively, it would be expected that an evolution would occur in the structure of the firm as it discovered where the value in the business was to be created. However, it appeared that EVA made the evolution more difficult. For example, the Human Resources Manager of Company X commented:

“One of the things we never really realised and have never really grasped is that we’ve been slicing and dicing our business units. When this first scheme started we had what was called an operations business unit but that then got split about three ways but it wasn’t a clean split. The next year following the split we had no history for the EVA based on growth. So there was about 8 months and then these people just said we can’t do it.” (Human Resources Manager, Company X)

This comment demonstrates that for a network business there were problems with the allocation of revenue, costs and capital costs when an operations unit was split but also, and more pertinent here, that the history of EVA needs to be reallocated to provide information on EVA growth.

With any restructuring there is always the prospect of changing the manager at the same time. This leads to questions about what to do with the EVA legacy for the new manager and how it may impact upon incentives. For example, the Group Manager Finance for Company Y commented:

“With a new guy coming in, we thought from a management incentive perspective, to lump him with all these expensive things from the past, to say you owe us however many dollars through your capital charges, was actually disincentivising. We restructured that business, we wrote it all off and we moved forward.” (Group Manager, Finance, Company Y)

Notwithstanding these operational issues of EVA surrounding the evolution of the business there was a more fundamental business philosophy question to address. The EVA model seeks to organise the business around value drivers rather than say managerial leadership. If the management philosophy of a company is one of leadership then the EVA model itself cannot generate an evolution in organisational design centred on value creation. Any evolution must come from a different source. On this point, the Manager of Corporate Finance of Company Z stated:

“If you were going to introduce pay on EVA drivers at the organisational level in a big way, management would have to be prepared to restructure the business

around the drivers of the business, not around so and so is a really good leader so they can have this group. That's not going to happen."

This is an example of the substantial transaction costs associated with the implementation and use of the EVA mechanism.

Inertia

Another aspect that may inhibit the success of EVA as a discovery mechanism is the reluctance of board members and managers to abandon their previous information systems and indeed their experience of how business works. There was evidence within each of the firms that both board members and managers demonstrate inertia as they continued to use existing routines for planning and control. For example, the Financial Management Advisor of Company X remarked:

"I'm also a strong advocate of never using a single measure in making an investment decision. NPV is never perfect. EVA is never perfect. What they provide you with is a framework to put your management decisions within and think about your management decisions... I guess all the models I've set up, it's more natural for me to set up a free cash flow model using EBITDA and CAPEX rather than EVA." (Financial Management Advisor, Company X)

Similarly, in Company Y the Group Manager of Finance commented:

"When we look at it we'll look at payback and all the rest of it... You don't necessarily need to do others but you can't change all the years of experience you've got in other companies so we still use payback and I still use some sort of discounted cash flow model." (Group Manager, Finance, Company Y)

This is a telling remark. EVA contains implicit assumptions about how capital markets are meant to work. Specifically, that liquidity is never an issue (Young and O'Byrne, 2001, p8). In other words, it is assumed that companies can go to the market at any time and raise capital at the WACC. However, from experience the managers know that capital markets can be illiquid and this leads to a justification of the payback model. It

is also important to emphasize that the managers were not incentivised by EVA to shed capital. Rather they wished to use the capital but in its most liquid form.

The lack of an agreed framework for EVA and the resulting discretion that must be exercised can also lead to inertia. The Chief Executive of Company Z explained:

“There’s the heart of the problem. We’ve never let go of traditional accounting measures. Traditional accounting measures are driven by accounting standards. EVA doesn’t have those. So we are making somewhat arbitrary choices with EVA. So managers really can’t get to grips with it... Managers think oh well, there’s some juggling; I don’t quite understand what it means. So they stop paying any attention to it.” (Chief Executive, Company Z)

The above quotes highlight a real difficulty with EVA. Since there are no accounting standards to justify or support the calculations, this creates arbitrariness, leading to a lack of understanding. In this situation, it is preferable to return to traditional accounting.

Strategic Investments

Respondents in the companies all recognised that strategic investments (or real investment options) are not explicitly encouraged in the EVA model. Within Company X, there was a formal mechanism for dealing with such investments, as explained by the Financial Management Advisor:

“We do also have a framework for dealing with what we call strategic investments under the EVA system. The way that works is that where we go into an investment that’s strong EVA negative, it has to be EVA negative for about three years. It has to be over a certain level of investment. The third rule is that there has to be a Board approved EVA plan. Then we get forgiveness against the EVA losses” (Financial Management Advisor, Company X)

The ‘forgiveness’ is applied through assessing performance based on the EVA plan, rather than on the actual EVA results. In addition, a suspense account of EVA losses was created, called suspended losses, on which a capital charge must be paid. This is a

way of encouraging strategic investments that is not exactly the same as the Stern Stewart recommended practice of 'keeping capital off the books' by creating a suspense account but it has the same purpose: to limit underinvestment that may otherwise occur.

Summary of the Evidence

The summary of the case study evidence by company is presented in table 3.1.

All three companies were network firms that were previously run as government departments. Within each firm it was recognised that there was value to be created by the institutional framework and over time, there was been evolution in the organisational structure as the firms move through the discovery process.

Table 3.1 Summary of the Evidence

	Company X	Company Y	Company Z
Understanding the specific context (See Chapter 2)	<ul style="list-style-type: none"> • State-owned monopoly moving to private sector • Network firm • <i>Evolution</i> in organisational structure and company boundaries 	<ul style="list-style-type: none"> • State-owned monopoly moving to private sector • Network firm • Recognition of stakeholders • <i>Evolution</i> in organisational structure and company boundaries 	<ul style="list-style-type: none"> • State-owned monopoly moving to private sector • Network firm • Explicit recognition of institutional constraint • <i>Evolution</i> in organisational structure and company boundaries
Recognising the prospects for value creation	<ul style="list-style-type: none"> • There is value to be created by the institutional framework 	<ul style="list-style-type: none"> • There is value to be created by the institutional framework 	<ul style="list-style-type: none"> • There is value to be created by the institutional framework
Measurement <ul style="list-style-type: none"> • Adjustments • Understandability 	<ul style="list-style-type: none"> • <i>Evolution</i> from adjustments originally to no adjustments now 	<ul style="list-style-type: none"> • Technically need to adjust to move from EVA accounts to conventional accounting 	<ul style="list-style-type: none"> • Explicitly recognised • Adjustments differ between the internal and external measures of EVA • <i>Evolution</i> in the number of adjustments (substantially reduced)
Key Influences: Incentives <ul style="list-style-type: none"> • Extrinsic incentives • Bonus bank 	<ul style="list-style-type: none"> • Rewards are based on EVA for business unit managers in the ‘integrated’ units • Company EVA • <i>Evolution</i> from business unit to company EVA focus • Bonus bank 	<ul style="list-style-type: none"> • Rewards are based on sharing EVA between all the stakeholders • Company EVA • <i>Evolution</i> from business unit to company EVA focus • No bonus bank 	<ul style="list-style-type: none"> • Rewards are based on EVA for business unit managers • Combination of business unit and company EVA • No bonus bank

Information Provided <ul style="list-style-type: none"> • Transfer pricing • Cost allocation • The cost of capital • Risk Shifting 	<ul style="list-style-type: none"> • Transfer pricing was a key influence on incentives • ABC but cost allocation can cause 'arguments' • One cost of capital • Reorganisation of business units an issue 	<ul style="list-style-type: none"> • Simple inter-charge system • Some ABC. No cost allocation at the 'micro' level • More than one cost of capital • No issues reported 	<ul style="list-style-type: none"> • Transfer pricing as a sharing rule • ABC system for cost allocation • One cost of capital • Outsourcing to protect future capital needs
Complementary Systems: the BSC	<ul style="list-style-type: none"> • EVA and EVA drivers improve the BSC 	<ul style="list-style-type: none"> • EVA improves the BSC 	<ul style="list-style-type: none"> • EVA and EVA drivers improve the BSC
Inhibiting Factors: <ul style="list-style-type: none"> • Transactions costs • Inertia • Strategic Investments 	<ul style="list-style-type: none"> • EVA analysis difficult when there is evolution • Other measures used • Formal system for dealing with strategic investments 	<ul style="list-style-type: none"> • EVA analysis difficult when there is evolution • Other measures used • Recognition of real investment options but no formal system 	<ul style="list-style-type: none"> • EVA cannot generate evolution when other factors such as leadership are important • Other measures used • Recognition of real investment options but no formal system

3.8 Discussion and Conclusions

3.8.1 *Summary by Company*

Within Company X there was recognition that value could be created but after implementation of EVA it was discovered that incentives did not work as predicted. In fact they hampered the discovery process. From a process of rivalry exhibited through transfer pricing and cost allocation disputes, value was being destroyed. This led to an evolution in the measurement and use of EVA within the business. Furthermore there was no attempt to formally calculate the cost of capital at the business unit level. Also there was a formal system for dealing with strategic investments, transaction costs as an inhibiting factor were particularly pronounced because the organisational structure of the company was itself evolving; creating issues over the reassignment of capital and previous EVA losses. These factors together with inertia mean that there was little scope for the institution of EVA to discover value.

For Company Y, it may appear that there was scope for EVA as a discovery process since the structure of the MCS meant that all systems were on an EVA basis. Furthermore, EVA was used as a mechanism for the evolution in the organisational structure and it was used as a means of allocating value between the stakeholders. However, several aspects meant that the scope for EVA was limited. Surprisingly there was evidence of a lack of understanding within the business, transfer prices were based on a simple inter-charge system, there was very little cost allocation at the 'micro' level and the corporate cost of capital was adjusted only informally for particular investment projects. Overall EVA rewards were based on the sharing of EVA at the corporate level meaning that there was no focus on business unit incentives. Furthermore, whilst the institution of EVA may be used to evolve organisation structure, it was recognised that there are significant transaction costs associated with EVA in such an evolution.

Within Company Z it appears that there was greater potential for EVA as a discovery process. Incentives were linked to business unit and company EVA, an ABC system of cost allocation was in place and there was a focus on value drivers at the business unit level. Furthermore there was an understanding of the importance of the sequence of value discoveries in the network and an awareness of the impact of their specific institutional constraints which led to a focus on costs and cost reduction. However,

there were two important influences that significantly reduced the EVA impact. Firstly, transfer prices were set as a sharing rule to reduce internal conflict and therefore were not set to promote the optimal internal exchange within the business. Secondly, the focus for organisational structure was not EVA and value drivers, rather personal qualities such as leadership were much more important.

3.8.2 *EVA as a Discovery Process*

The general framework involved recognising the prospects for value creation and an understanding of the key influences, the inhibiting factors that shape incentives and the role of complementary systems such as the balanced scorecard in the discovery of value. With discovery as the driver for evolution there is naturally a focus upon dynamic change and the mechanisms for that change.

The framework was applied to three New Zealand network companies which had moved from the state sector into one of private enterprise where it was to be expected that shareholder value could be created through the opportunity of exerting market power. The central question investigated was whether the introduction and use of EVA was a discovery process that led to improved value adding decisions. The case study evidence provided support for the existence of a discovery process with the prospects for value discovery recognised by the firms. In implementing the EVA system, a business unit mapping could take place with EVA used for planning, decision making, control and remuneration decisions.

Evolution to the rules and routines took place after the introduction of EVA. There was a major change when EVA was introduced, followed by further evolution as managers learned to work with the system. Furthermore, it was demonstrated that there were some important differences in the pathways of evolution. There also appeared to be no convergence of these pathways to a common end-point. It was therefore a path-dependent process, with a sequence of decision making as managers reacted to the system, employing their localised knowledge. Finally, the impact of incentives was strong, suggesting that it is vital to consider these as part of the evolutionary theory framework.

Despite being able to model the EVA system as a discovery process, within each of the companies EVA failed to discover value. There were limitations in the information provided by the system, due to the complexity of the measure. Furthermore, the system failed in its ability to motivate managers to discover value. The key to understanding this failure concerned incentives, particularly the behavioural assumptions of habituation, rivalry and extrinsic versus intrinsic incentives. As a consequence, through a process of discovery, there was an evolution in the EVA system, both in terms of its measurement and use. When discoveries were made that specific adjustments were not influential, these adjustments were abandoned. When it was discovered that the application of EVA at the business unit level created rivalry, EVA was taken back up the organisation. This evolution can be interpreted as a transition to reduce the transaction costs of EVA. Whilst EVA has not been abandoned by any of the firms, its prospects for value creation have become increasingly diminished.

3.8.3 The Framework Employed

The framework for evaluating EVA as a discovery process, as depicted in figure 3.1, worked very well. The key influences were the factors that needed to be in place for discovery to take place and the inhibiting factors were aspects that could prevent the discovery of value. The categorisation of the key influences as information and incentives was appropriate. Information provided included not only the output of the measure (i.e. the actual results or figures) but also the inputs (how the measure was calculated). The dimensions of transfer pricing, cost allocation, the cost of capital calculation and risk shifting were useful as a means of considering the impact of the EVA information provided and for assessing the ability of EVA to discover value. In addition, some of these dimensions were also relevant for incentives. In particular, transfer pricing arrangements impacted upon the information provided and the incentives created. Therefore information and incentives are not independent (nor would we expect them to be). Incentives are a vital part of the discovery process.

Inhibiting factors included dimensions surrounding the calculation of the EVA measure (such as the calculation of EVA when there is evolution in the structure of the firm and the valuation of strategic investments) and the reluctance to give up using other measures of performance. Again these factors did impact on the ability of EVA to discover value.

This framework could be adapted to evaluate other organisational innovations. The consideration of the implementation and use as a process explicitly allows for evolution (it will evolve over time as managers respond to the information provided and the incentives created). For example, the implementation of the management accounting technique of activity based costing could be modelled in such a way.

For researchers interested in management accounting change, the conclusion is that when investigating the design, introduction and use of a technique it should not be expected that the firms under investigation will necessarily follow the same path concerning that technique. As managers work within firms and learn from their own experiences, the applications evolve so that different firms are likely to be on different paths. These paths may well converge to the same point, for example abandonment of a technique, but the routes to get there may differ.

Chapter 4. Can Accounting Inform Management? Management Accounting and Management Models

4.1 Introduction

Overall, the aim of this chapter is to employ a theoretical framework from the management literature to examine whether the use of EVA can be viewed as a management model to ensure that corporate objectives can be met. Over the years, developments in the management literature have been important for management accounting researchers and practitioners, leading to linkages between the literature bases. One development of this type in recent decades is that of business models and business strategy, i.e. what business the firm is in and how it makes money (Birkinshaw and Goddard, 2009). Ideas from the management literature on the theory of business and business models (for example, Drucker, 1994) can be seen in the management accounting literature in the form of the balanced scorecard (see for example Kaplan and Norton, 1992, 1993, 1996a, 1996b, 2001a and 2001b; Lord in Hopper et al., 2007; Hoque and James, 2000). More recently, linkages have been explored between leadership, a dominant subject in management literature over the last thirty years (Birkinshaw and Goddard, 2009, p.83; Mintzberg, 2009, p1) and the firm's management control system (for example Abernethy et al, 2010), with Kaplan calling for further work in the area of leadership and the balanced scorecard (Kaplan, 2010, p30).

In both the examples of business models and leadership cited above, it is the developments in management that have led the developments in management accounting. Thus there is the potential for there to be a 'gap' between management and management accounting when there has been a development in the management literature and this provides an opportunity for management accounting researchers to respond.³² One possible gap is in the area of *management models*, the understanding of which is recognised as a key recent innovation by leading management academics (for example Birkinshaw, 2010; Birkinshaw and Goddard, 2009; Hamel, 2007; Mintzberg, 2009). It is argued that the management model is essential to help the manager evaluate how to do business, running alongside the business model and leadership. Thus the management model is central to the nature of management. Furthermore, it is argued

³² There may also be a gap between management and management accounting where there is no prospect of cross-disciplinary development. In this situation, there is no need for closure.

that the management model can provide the potential for competitive advantage and distinctiveness that cannot be achieved simply through the business model (Birkinshaw and Goddard, 2009, p81).

There are many management models, and thus, the term has many meanings (for example Guillen, 1994; Hamel, 2007). Because the models are so voluminous and diverse, a synthesis is needed that captures both traditional models and new and experimental models. Provision of such a synthesis has been claimed by Birkinshaw and Goddard (2009) and further developed by Birkinshaw (2010). Birkinshaw and Goddard reviewed management models over the past 150 years, examined new models, and reviewed the academic literature, with the aim of diagnosing the principles that underlie all management (Birkinshaw and Goddard, 2009, p82). Their synthesis led to a definition of the term management model as:

“The choices made by a company’s top executives regarding how they define objectives, motivate effort, coordinate activities and allocate resources; in other words, how they define the work of management’ (Birkinshaw and Goddard, 2009, p82).

These four choices are viewed by Birkinshaw and Goddard as the dimensions which provide a theoretical framework that underpins all existing management models.

The gap between management accounting and management is not only created by the lack of reference to developments in management in the accounting literature. Looking from the other direction, there is scant mention of accounting in the management literature. For example, activity based costing is the only accounting construct in the best-selling book ‘Key management models: the 60+ models that every manager needs to know’ by Van Assen et al., (2009) and in its predecessor ‘Key management models: the management tools and practices that will improve your business’ by Ten Have et al., (2006), where it appears as a tool for solving a tactical problem. This suggests that accounting based measures may not be seen as complete models by management academics. Rather, they are viewed in a more narrow way as tools that may be used as an input to parts of the model.

In this chapter, an investigation is made into whether there is more to the function of management accounting than the supply of information. The research question is addressed in two parts. Firstly can EVA be interpreted as a management model? Secondly, does the analysis of EVA in the framework of management models further enhance the understanding of management models? The overall aim is to establish a link between developments in management accounting (through EVA) and developments in management (through the management model) and to assess whether this link is an example of accounting closing the gap and contributing to the development of management models.

4.2 What is a Management Model?

4.2.1 Understanding the Differences between the Business Model and the Management Model

The term ‘business model’ has been in use for a number of years to describe what business a company is in and what it should do to achieve its objectives. There have been several prominent attempts to define the term. For example Drucker (1994) developed a ‘theory of the business’ or business model that incorporates three aspects: assumptions about the environment, the specific organisational mission and its core competencies. This business model, he argued, can be used to define what an organisation gets paid for, what results it considers meaningful and what it must excel at to maintain its competitive position. In other words, the business model is about the strategy of the business. Conceptually the model draws heavily on ideas from economics, including for example economies of scale and scope, and industry structure and competition (see for example, Porter, 1980). A popular management accounting based application of a business model is the balanced scorecard, developed by Kaplan and Norton (1992, 1993, 1996a, 1996b, 2001a and 2001b).

In the management model, Birkinshaw suggests that it is important to consider how the discrete choices fit together, so that it can support and enrich the company’s strategy (Birkinshaw, 2010, pxi). It is suggested that an understanding of the structure of the business model provides answers to the ‘*what*’ and ‘*why*’ of business and that the management model addresses the ‘*how*’.

4.2.2 *Three Management Models*

Three important but contrasting management models used by prominent contemporary management thinkers are chosen for discussion. The first is that of Mintzberg (2009). Mintzberg has been writing in this area for a number of years, with his seminal book published in 1973 still used as ‘an important reference that informs management research and education despite a number of challenges from academic scholars’ (Tengblad, 2006, p1437). The Mintzberg model is chosen because in this model much of the existing academic research from the twentieth and early twenty-first century is drawn together, alongside empirical evidence. Secondly, the model of Hamel (2007) is discussed. Hamel advocated a change from extant management practices and argued for an innovative approach to the job of management, to reflect the changing nature of companies in the twenty-first century. Finally, the Birkinshaw and Goddard model (2009) is considered. In their paper, Birkinshaw and Goddard synthesised many management models, from the traditional to the latest approaches, in a form of factor analysis to provide a theoretical framework that describes the key roles of management. Different approaches to the dimension of the framework suggest different management models.

In the development of his management model, Mintzberg states that “the overriding purpose of managing is to ensure that the unit serves its basic purpose” (Mintzberg, 2009, p45). He described management as a “practice, learned primarily through experience, and rooted in context” (Mintzberg, 2009, p10). He stated that management is “controlling and doing and dealing and thinking and leading and deciding and more, not added up but blended together” (Mintzberg, 2009, p43). Mintzberg’s management model drew together the results of existing descriptions and research in the form of a diagram that placed the manager at the centre between the unit for which they have responsibility, the rest of the organisation and the outside world relevant to the unit. Within the model, the manager’s role is to frame and schedule, with management taking place along three nested ‘planes’; the information plane (coordinating and communicating), the people plane (leading inside the unit and linking to people outside) and the action plane (doing on the inside and dealing on the outside).

Whilst the discussion by Mintzberg on his management model drew on research evidence from early work in the 1940s to the 2000s and his own empirical evidence (his '29 days' study of 1973), his model comprised a comprehensive description of what managers do, i.e. a job description. The model and the resulting discussion did not form a prescription of 'how' to manage, nor did they explain the different approaches that could be adopted or how the management model may contribute to or support the business model.

In contrast, Hamel (2007) argued that the 'how' of management is vital. Although Hamel argued that the 'what' of the business model is essential, he suggested that the emphasis on the business model imposed a discipline that can stifle initiative, creativity and passion (Hamel, 2007, p136). However, unlike Mintzberg, Hamel proposed that traditional management thinking needs to be abandoned, with innovations to management practice necessary for companies to succeed. He wondered initially whether we have reached the end of management – that 'perhaps we have more or less mastered the science of organizing human beings, allocating resources, defining objectives, laying out plans and minimizing deviations from best practice' (Hamel, 2007, p4). However, he dismissed this initial thought by arguing that the practice of management must change, the future of management must be invented. He provides examples of how management models can lead to value creation (p23) and how the management model can lead to success rather than the business model, using the case study of Google (ch.6). Unlike Mintzberg, Hamel focussed on the approach to management, or the underlying philosophy. He was less concerned with the detailed job descriptions of what managers do. However, his ideas seemed to be aimed at a particular type of company, the new style firms of the twenty-first century.

The final management model considered is that developed by Birkinshaw and Goddard (2009). Through their analysis of the management literature, they provided an explanatory model 'framework for dimensionalizing management'. Their work was based on a "150 year analysis of the evolution of management models, studies of recent cases of management models, studies of recent cases of management innovation and a theoretical investigation of the underlying principles of management" (Birkinshaw and Goddard, 2009, p83). Their work represented a more comprehensive analysis than that of Mintzberg and Hamel.

Their synthesis or factor analysis of the literature suggested that management activity should be grouped into four core sets or dimensions: managing objectives, motivating individuals, coordinating activities and making decisions. This part of the analysis represented a positive approach as it was derived from an explanation of the existing models in the literature.

For each of the dimensions, Birkinshaw and Goddard identified polar points on the spectrum, with different combinations of ‘tight’ and ‘loose’ applications leading to different management models. In his book, Birkinshaw referred to these applications as ‘traditional’ (in use for generations) and ‘alternative’ (just beginning to be adopted, or have been talked about for a long time but are not widely used), (Birkinshaw, 2010, p37). Examples of companies that adopt these different combinations are provided to illustrate their models, with an average mapping for UK firms provided – both for firms today and a conjecture for where (new, innovative) firms may plot five years from now, based on a survey of 70 UK-based organisations. Finally, Birkinshaw and Goddard extended their explanatory model and used it as a predictive or normative model, providing descriptions of the general characteristics of firms that would suit four different management models (with different combinations of traditional and alternative principles), as a means of enabling managers to choose the ‘right’ management model for their company.

Their first dimension is that of managing objectives, concerning the choices made about the company’s objectives. At the traditional end of the spectrum is a direct approach, where each manager has a clear set of targets for their team, comprising of a set of clearly defined short-term objectives. An alternative principle, at the ‘loose’ end of the spectrum, is to set the goals obliquely. The concept of obliquity has been described by Kay, who stated that:

“In obliquity there are no predictable connections between intentions and outcomes... Problem solving is iterative and adaptive, rather than direct” (Kay, 2010, p9).

The second dimension is motivating individuals - a consideration of what motivates employees in a firm with the two polar ends being extrinsic (monetary) rewards and intrinsic (pride, sense of achievement) rewards. Together the first two dimensions were

described by Birkinshaw and Goddard as the ‘ends’ with the ‘means’ being the final two dimensions of coordinating activities and making decisions. The coordinating activities dimension concerns how the firm is organised and how people work together, with bureaucracy the traditional principle and emergence, the ‘spontaneous coordination through self-interested behaviour of independent actors’ being the alternative principle (Birkinshaw and Goddard, 2009, p85). Finally, the making decisions dimension described how decision making takes place in the firm, from a hierarchical approach with managers wielding authority over their subordinates, to collective intelligence, where decisions made by the pooled expertise of many people can be better than those of a small number of experts.

Birkinshaw and Goddard describe four management models, based on the traditional and alternative applications of the principles, as summarised in table 4.1 below.

Table 4.1 Four management models in the Birkinshaw and Goddard framework

	1	2	3	4
Managing Objectives	Goal Setting	Goal Setting	Obliquity	Obliquity
Motivating Individuals	Extrinsic	Extrinsic	Intrinsic	Intrinsic
Coordinating Activities	Bureaucracy	Emergence	Bureaucracy	Emergence
Making Decisions	Hierarchy	Collective Wisdom	Hierarchy	Collective Wisdom
Model:	Planning	Quest	Scientific	Discovery

With these four models, Birkinshaw and Goddard described the characteristics of firms for which these models may be most suited, whilst recognising that these represent extremities in the framework. According to Birkinshaw and Goddard, the planning model is suitable for mature businesses operating in a stable predictable industry, with the quest model suited to established and growing businesses facing dynamic market conditions. The scientific model is for the human capital intensive business such as research and development organisations facing benign market conditions but with plenty of opportunities. Finally, the discovery model with its loose means and ends would suit an early-stage business operating in an uncertain and dynamic environment.

This represents the normative aspect of their analysis, as it contains prescriptions concerning what firms should do.

The Birkinshaw and Goddard model provides a more comprehensively developed framework than the models of Mintzberg and Hamel, since it provides a theoretical framework claimed to underlie all prior management models. It incorporates both traditional theoretical management ideas and models whilst retaining the flexibility for the inclusion of firms that are more 'creative' or 'innovative', using evidence drawn from a variety of firms. In other words, Birkinshaw and Goddard combine the key elements of both the Mintzberg and Hamel models. Furthermore, Birkinshaw and Goddard provide a theoretical framework that can be used to assess whether EVA can be interpreted as a management model. For these reasons, this model is chosen as the framework for analysis.

4.3 Applying the Birkinshaw and Goddard Framework to the Stern Stewart Measure of EVA

Whether EVA can be interpreted as a management model within the firm is now discussed, in the context of the four theoretical dimensions of the management model outlined by Birkinshaw and Goddard (hereafter BGM). Each of the dimensions is discussed in turn, together with a consideration of how the Stern Stewart measure of EVA fits within the dimensions.

4.3.1 Managing Objectives

This dimension concerns the choices made about the nature of the company's objectives. The traditional principle is a direct approach, where each manager has a clear set of targets for their team, comprising of a set of well-defined short-term objectives. An alternative principle is to set the goals obliquely. This oblique approach was described by Kay (2010), who stated that successful companies often pursue a higher order long-term goal rather than profitability per se. Commitment to the higher order goal is designed to lead to an increase in profitability. However, there is no clear cause and effect between the two. In other words, pursuing goal A leads to achievement of goal B in a more successful way than if goal B was the sole objective even if there is no precise mapping from goal A to goal B. Birkinshaw and Goddard (2009) state that

both tight goal setting and obliquity have their places in the modern firm, with the former more suited to a relatively simple organization in a predictable environment. Obliquity may be more suited to firms facing greater uncertainty as careful planning cannot be undertaken due to the rapidly changing environment (Birkinshaw and Goddard, 2009, p84).

The clear objective within the Stern Stewart EVA system is to maximise the value of EVA, as it is claimed that it is consistent with the over-riding objective of shareholder wealth maximisation. The goal of EVA maximisation leads to a focus on its components, NOPAT, capital and the cost of capital. Whilst this objective can be divided into corporate versus business unit, projected (ex ante) EVA for planning and actual (ex post) for control, or short-term and long-term EVA, there is a clear financial goal that is set. Although the implementation of the Stern Stewart EVA model may require the introduction of explicit longer-term incentives, the objective is still clear.³³ Thus the EVA model would be regarded as a traditional goal setting, as opposed to obliquity.

4.3.2 Motivating Individuals

The foundation for this dimension in the BGM is a consideration of what motivates employees in the firm. The two extremes in this dimension are ‘extrinsic’ rewards (placed with the traditional principles) and ‘intrinsic’ rewards (placed with the alternate principles). Extrinsic rewards include material inducements such as salary and bonuses. Intrinsic rewards come from within, such as a sense of achievement for a job well done. The concepts of extrinsic and intrinsic rewards have their original roots in the work of Barnard, who is credited as the first person to define a general theory of incentives in management (Barnard, 1938, also cited in Laffont and Martimort, 2002). Barnard outlined the various types of incentives that may be offered, for example from material and non-material inducements, to desirable physical conditions and the opportunity of enlarged participation. Barnard also stressed the ineffectiveness of material incentives and the need for a delicate balance between the various types of incentives. Importantly, and linked to the third and fourth principles below, Barnard argued that the

³³ Longer term objectives may be achieved through for example share options and the creation of a ‘suspense account’ to encourage investment, where capital is kept ‘off the books’ and so does not enter the EVA calculation, ensuring that no capital charge is incurred. Please see the previous chapter for a more detailed discussion.

incompleteness of contracts and the bounded rationality of members in an organisation require that there should be a distribution of authority along communication channels in order to achieve coordination and promote cooperation (Laffont and Martimort, 2002).

The ideas of Barnard were used by McGregor (1960) who identified principles of human motivation. He stated that individuals require extrinsic rewards to motivate them, in addition to intrinsic rewards. However, as discussed in chapter 3, Layard (2003), emphasised the impact of extrinsic incentives upon intrinsic incentives, arguing that extrinsic can drive out intrinsic incentives. In other words, there is a ‘crowding-out’ of intrinsic incentives – extrinsic do not add to intrinsic incentives. The Layard argument is different from the extant claim in the accounting literature that extrinsic incentives may be a better form of motivation than intrinsic incentives (Atkinson et. al. 2007).

With the EVA model, one of the key selling points is the link to incentives and remuneration (indeed Stern Stewart were originally remuneration consultants). There are clear extrinsic incentives advocated by Stern Stewart, including payment based on actual EVA at the firm and/or business unit level. Stern Stewart advocated the use of levered schemes where the employees are offered bonuses based on EVA results that have no cap or floor. Intrinsic motivation does not feature in the Stern Stewart EVA model; therefore, EVA would be placed at the traditional end of the spectrum. Indeed, one reason suggested for the failure of EVA to become well established in companies from certain countries, for example France and Germany, is the focus by the EVA model on extrinsic incentives where the desired corporate culture is one where intrinsic incentives (such as personal development, recognition and respect of peers, and long-term career position) are important (Stern and Shiely, 2001, p164-166).

4.4.3 *Coordinating Activities*

The dimension of coordinating activities concerns the processes whereby outputs are delivered, with the polar extremes described as bureaucratic or formal processes and informal spontaneous coordination, called emergence.³⁴ In a bureaucratic process, rules and procedures are imposed, with little room for discovery of alternative ways of doing

³⁴ The spontaneous coordination has been described in the management literature as the principle of emergence. See for example, Johnson (2002).

things. At the other end of the spectrum, spontaneous coordination involves no formal forward planning on projects or activities, rather teams are assembled and coordination takes place as the need arises. Although this may appear attractive in theory since 'experts' can be employed for specific activities, the reality of labour laws and staff turnover mean that the application in practice may be more problematic. With informal coordination, there is no forward thinking and continuity in activities.

In the BGM, the process of coordination is described but not the actual means of achieving coordination, nor the different levels of coordination. At the strategic level, the strategy map may be one means to achieve coordination, whilst at the operational level, budgeting may be viewed as one of the formal means of coordinating activities. With budgeting, there could be a top down or bureaucratic approach with targets imposed on managers. Discipline can also be imposed via the transfer pricing system, with the use of market based or arm's length prices wherever possible. Units trading with each other may have formal service level agreements specifying the inter-charge rates that will be employed. Formal systems such as activity based costing may be employed for the allocation of some costs. Thus there are formal mechanisms in the firm for achieving coordination of activities. Clearly these activities need not be solely 'top down' as they may be participatory in nature, or 'bottom' up. In other words, there is interdependence between coordinating activities and making decisions, the fourth dimension.

It is argued that EVA can be used within the decentralised organisation and indeed mapped all the way 'to the shop floor' (Stern and Shiely, 2001, ch.6), which demonstrates that EVA can, in theory, help with the coordination of activities, as there can be one measure for all employees. EVA is part of the formal process for budgeting, target setting and transfer pricing. This means that it is more likely that EVA would be at the bureaucratic end of the spectrum. However, it is conceivable that EVA could also be part of an 'emergence' approach, where EVA is used as a basis for coordination of 'spontaneous activity' as the need arises.

For this dimension, it could be that the structure of the firm determines the approach. Within a vertically integrated firm, a lot of coordination is required, both inter and intra the business units. Firms that are horizontally integrated or conglomerates may place less emphasis on the importance of coordination between the units.

4.3.4 Making Decisions

The final dimension concerns the way that decisions are made within the organisation. At the traditional end of the spectrum, the existence of organisational hierarchies makes managers accountable for the decisions they make. Hierarchy refers to the breakdown of totality into parts in an ordered and structured way (Birkinshaw, 2010, p88) but there is no description of the structure of the firm as centralised or decentralised. The hierarchical approach to decision making can be consistent with the allocation of decision rights in both the centralised and decentralised firm. Decisions such as those concerning strategy and resource allocation are made on behalf of the whole organisation, without recourse to the views of subordinates. Higher level managers are assumed to have the experience and best judgment when faced with difficult decisions. Further down the organisation, managers have certain clear decision rights in a decentralised organisation. At the other end of the spectrum, collective wisdom considers the views and suggestions of a wide range of people, in order to arrive at a consensus decision. Whilst such a philosophy may open up many new ideas that may not have otherwise been generated, there are well documented risks attached (Birkinshaw, 2010, ch.4).

Birkinshaw and Goddard were not prescriptive regarding the types of decisions covered under this dimension. Clearly there are many decisions being made in a firm, for example, strategic decisions, capital investment decisions, operating decisions and supplier decisions. Accounting is implicated in all these decisions but there may be a number of measures that are employed to assist with the decision making. Proponents of the EVA model argue that EVA can be used for all decisions from investment planning (using ex ante EVA), to performance measurement and remuneration determination (using ex post or actual EVA results) – it is the only measure that is required.

There is also prescription for the decision making rights in the decentralised firm, with the principle of “making managers into owners” (for example Ehrbar, 1998, ch7). Managers are given the responsibility for decision making, where all decisions are made on an EVA basis with direct links to EVA incentives. There is a transparent hierarchy of EVA within the firm and a clear designation of where the decision making takes

place. This would place the EVA model at the traditional end of the spectrum. However, in a similar vein to the coordinating activities dimension, it is conceivable that EVA could be employed in the collective wisdom approach to decision making. With this style of decision making, managers can collectively make decisions, with EVA as the basis for these decisions.

4.3.5 Summary

Each of the four dimensions in the BGM can be addressed by the Stern Stewart model of EVA. The dimensions are inter-related. For example, the dimension of decision making impacts upon coordinating activities and also on motivating individuals. Decisions taken within the firm cannot be independent of these other activities.

Overall, the use of the Stern Stewart EVA model indicates the use of traditional principles within the first two dimensions. For the third and fourth dimensions, it is more likely that traditional principles are in use, but it is possible that EVA can fit with the alternative principles, i.e. EVA is flexible in terms of the type of management model it can support. It is predicted that EVA would align most closely with the planning model (outlined in table 4.1) that is suited to large mature firms operating in stable, predictable industries. A fit to the quest model is also feasible; this model is suited to firms in established and growing businesses facing dynamic market conditions.

In the following section evidence on the practical application of EVA is considered for three case study companies, together with the characteristics of these companies.

4.4 Empirical Evidence

Otley suggested three different approaches to the study of management control systems (Otley, 1999, p379). The first involved a longitudinal element (to understand the inter-relationship between different control systems over a period of time). The second comprised a study of a single organisation in some depth (to appreciate the context in which it operates and the reciprocal impact of context and organisation) and the third involved a survey component within a case study of a single organisation. Otley (1999) explicitly discussed EVA (along with budgeting and the balanced scorecard) in the

context of a framework for management control systems research. The methodology employed in this chapter adopts the second and third approach as it involves the in-depth investigation of three organisations, with data gathered by interview and questionnaire (please see Appendix A for a copy of the blank questionnaire).

Using the information from chapter 2 on company characteristics, together with the characteristics specified by Birkinshaw and Goddard for their different management models, the case study firms are described as aligning with the following models:

Company X: Quest

Company Y: Planning (with an element of Quest through the international activities)

Company Z: Quest (with an element of Planning for the core business)

It is apparent that two of the firms don't fit neatly into the Birkinshaw and Goddard descriptions as they operate in environments that fit both models. Therefore, it should be recognised that one model may not fully describe a firm. The research evidence will consider whether this has an impact on the way that the firm positions itself within the four dimensions.

4.4.1 Results from Company X

Managing Objectives

Within Company X the over-arching objective upon introduction of EVA was to maximise the measure for the company with each of the newly created business units having their own EVA objectives. The objectives, which were strategic and operational, were short-term (annual) in nature and clear to all business unit managers. In other words, there was no obliquity.

Annual corporate EVA growth targets for each year were constructed from component (for example business unit) targets over a three year rolling planning horizon, making use of 'bottom up' targets from the corporate plan. Threshold targets for annual corporate EVA were based on improvement from the previous year, with targets set on

a rolling three year basis. The focus each year was only on the current targets. Thus the targets were seen as short-term objectives. However, this led to short-termism. In an attempt to find a solution, the company introduced a new Stern Stewart calibration scheme, based on the fusion of the corporate plan and market expectations to focus on a three year time horizon. Whilst the time horizon had increased, the objectives remained clear.

At the business unit level, managers were initially set objectives for their units that were based on their annual EVA. However, this resulted in some challenges that required modification of the approach. Problems arose in the measurement of EVA at the business unit level as a result of the nature of the business. Firstly, it was difficult to ring-fence assets in order to establish the appropriate capital charge for each unit, since several assets were mapped to more than one unit. Secondly, the dynamic nature of the business meant that units were often being reorganised or:

“...Sliced and diced, so there was no continuity in units, or managers, meaning that establishing objectives for EVA growth became difficult.” (Human Resources Manager, Company X)

Subsequent difficulties with EVA at the business unit level resulted from the incentives that were created through the use of business unit objectives. Managers became driven by their business unit incentives, to the detriment of the corporate goal. This impacted upon coordination of activities within the firm. In other words, in the context of the BGM, this demonstrates interdependence between three of the dimensions; managing objectives, motivating individuals and coordinating activities. These interdependencies are discussed further below.

Motivating Individuals

At the time of EVA implementation, explicit extrinsic incentives were established, with a scheme introduced for business unit managers where the annual bonus was based a split between corporate EVA and business unit EVA performance against target. The scheme was designed to motivate individual accountability through the business unit focus (i.e. controllability) and also for managers to have an incentive to act in the company's best interests (i.e. goal congruence). This formally recognised that what

may be in the best interests of the business unit may not be in the company's best interests. A heavier weighting placed on corporate EVA suggested that goal congruence was of primary importance.

However, as noted above, the incentives created through the business unit objectives and remuneration led to problems within the company, particularly a breakdown in coordination between units. The sharp extrinsic incentives created through EVA at the business unit level impeded collaboration between units. They crowded out any intrinsic incentives to 'do the right thing'. To solve these problems, there was an evolution in the way that EVA was linked to incentives. Although incentives continued to be extrinsic, they were modified so that they were based on corporate EVA for those business units where there was interdependence with other business units. The aim was to achieve a common corporate goal.

Coordinating Activities

The setting of targets and budgets is one way of achieving coordination down the organisation. This may be seen as a formal or bureaucratic approach to coordination, in contrast to informal spontaneous coordination that occurs as the need arises. This was the approach adopted in Company X, although modification was required as a result of the incentives created through business unit EVA. As previously discussed, Company X moved to corporate EVA targets that were designed to achieve goal congruence in a formal (i.e. still bureaucratic) way. At the business unit level, the evolution in the use of EVA meant that business unit EVA targets and budgets were no longer set. Instead, earnings before interest and tax became the focus. This meant that there was no longer a focus on capital and the capital charge at the business unit level. This development was mainly due to the fact that EVA at the business unit level was damaging coordination. The nature and structure of the business and the interdependencies meant that internal trading arrangements were (and continue to be) very important. Setting service level agreements each year and negotiating over costs was devolved to business unit managers and it took up a big part of their time. This may be value adding for the company if trading arrangements are designed appropriately so that incentives are aligned in order to ensure that the company value 'pie' becomes bigger as a result of this trading. However, the danger is that business unit managers may use trading

arrangements to maximise their slice of the pie and in so doing sub-optimize from the overall corporate perspective. This is a common problem of performance management system design.

Because of the impact on business unit EVA, managers became very preoccupied with their trading arrangements. They saw these as a way of increasing their slice of the pie, and this pursuit became more important than increasing the total size of the pie. Managers “fought to the last” (Corporate Finance Team Manager) over these agreements. The evidence from the company was that the actual traded prices depended upon the skill of the units in estimating costs. If the manager of one unit was better skilled at cost estimation and management, then that unit did very well out of the trading arrangements, often to the detriment of other units.³⁵ The introduction of EVA did not therefore help substantially with the coordination of activities. In fact, EVA heightened issues over transfer pricing because of the business unit focus in the remuneration scheme.

Approximately five years after implementation, there was a change of Chief Executive in the firm. The new Chief Executive was unhappy with the issues associated with the use of EVA, particularly over the resulting tensions surrounding internal trading arrangements. The view of the Human Resources Manager was that the Chief Executive viewed EVA as:

“An impediment to collaboration as it was creating conflicts of interest between different business units and the corporate goal.” (Human Resources Manager, Company X)

Given the business unit structure, there has to be interaction between the units.³⁶ Hence there is a motivation for the evolution in EVA for objectives and target setting in order to achieve coordination.

³⁵ Costs are used as a starting point in the setting of the internal traded prices.

³⁶ One possibility is to restructure to integrate the units into a centralised firm. However, this would destroy the advantages that a functional, decentralised structure can bring. Presumably these advantages outweigh the disadvantages.

These problems in achieving coordination with EVA were recognised by Stern and Shiely (2001), who stated that:

“In many organisations, it is difficult to measure EVA deep down in the structure, because of the problems of shared resources and transfer pricing. The resolution of these problems means that only a part of EVA will be measured and rewarded” (Stern and Shiely, 2001, p189-190)

This was certainly the case for Company X. To make it work, the EVA measure had to be taken back up to the corporate level.

Making Decisions

Company X operated a clear hierarchical structure where decisions over investment and asset utilisation were made at the highest level and there was no empowerment of business unit managers to make capital investment decisions.

For investment decision making, business cases are assessed at the Board level, with business units submitting their proposals via the corporate unit. Forecasts of EVA were constructed together with evaluation based on other tools, for example net present value, real options (using the binomial model) and payback. This was partly for the benefit of members of the Board as they did not trust EVA. According to the Financial Management Advisor:

“The Board just didn’t know what was reasonable and whether we were just pulling the wool over their eyes.” (Financial Management Advisor, Company X)

The practice of decision making at the Board level was consistent with the corporate EVA focus adopted in the company. It also demonstrated a direct cause and effect

between decisions, outcomes and returns to capital, with a clear understanding of this within the company. The Human Resources Manager commented:

“I think it’s been important because it drove two key messages. It really drove a look at capital. We’re a capital intensive business and it was highly supportive of that. From that point of view, when worrying about your capital is important, it’s achieved that. The other thing is that it has educated people about shareholders and investors. It’s well understood in this organisation now that we have to deliver shareholder value.” (Human Resource Manager, Company X)

The company had to modify its use of EVA for investment decision making for its stand-alone units when dealing with what are deemed to be ‘strategic investments.’ The model adopted was one of ‘forgiveness’, whereby targets for certain investments were relaxed, if the investments were classed as strategic. For such a classification, there were clear rules for the decision making: investments must be of a certain minimum level and they must be ex ante EVA negative for around the first three years yet overall EVA positive, with approval from the Board for such investments. Once the investment had been made, ex post EVA was evaluated with reference to an approved plan (i.e. against negative targets, rather than with reference to a base of zero). A suspense account of EVA losses was then created from year 1, called suspended losses, on which a capital charge had to be paid. As soon as the EVA was predicted to switch to being positive in a particular year, then the manager was judged against EVA growth. This is not the Stern Stewart approach of ‘keeping capital off the books.’ Indeed, this method increased the capital charge in return for ‘forgiveness’ on the revenue side. However, overall the objective is the same – to provide a direct incentive to invest when using EVA for decision making.

Complementing EVA within Company X is the balanced scorecard as the business model. At the time of the interviews, the corporate finance team were investigating the possibility of installing software that linked the scorecard, strategy map and EVA. A team member commented:

“We’re definitely looking to go to some sort of system like that would formalise the links between measures all the way up to the corporate EVA objective. It would co-ordinate the flow-through.” (Corporate Finance Team Member, Company X)

Overall, the evidence suggests that the company adopted a hierarchical, rather than a collective wisdom, approach to decision making. There was no suggestion that decision rights were not clear, nor that decisions were made on a collective wisdom or consensus basis.

4.4.2 Results from Company Y

Managing Objectives

For Company Y, a target of zero corporate EVA was established initially, over a rolling three year period. The zero EVA target was set because the firm is a state owned enterprise so it was deemed appropriate that positive EVA should not be earned. One Business Unit manager commented that:

“EVA of zero was seen as being an appropriate return for a monopoly over a long run, whatever that might be.” (Business Unit Manager, Company Y)

However, it became difficult for the company to achieve the target of zero EVA. When the target was exceeded, the customers were given a rebate and if the EVA result was below target, then the company appealed to the customers for an increase in prices. It was the latter situation that caused tensions and conflicts. After a large restructure in the late 1990s, the objective was changed to EVA maximisation, but on the understanding that prices should be held or reduced. In other words, in the monopoly business the firm could not achieve EVA maximisation through large increases in prices. The company then implemented a scheme in place for the sharing of positive EVA between the three main stakeholder groups: the employees, the customers and the shareholders. Essentially, once a threshold level of EVA was reached and certain business objectives were met, the employees took the first slice of the EVA surplus, followed by customers and the shareholders. If the threshold was not met, then only the customers and shareholders were entitled to any positive EVA.

Although the company had changed its goal from EVA of zero to the maximisation of annual EVA, the company was consistently operating a direct approach to goal setting. Thus only clear goal setting was apparent and there was no obliquity whatsoever. The clear objective was to maximise annual EVA at the corporate level.

Motivating Individuals

The sharing scheme for stakeholders in the firm was very interesting. It was an extrinsic scheme, with EVA as the financial incentive. One of the motivations for its introduction was to help align objectives with the shareholders (clear objectives) and to foster a sense of teamwork amongst all employees (coordination of activities). Thus Company Y provided an example of the application of the EVA model linking these three dimensions together.

At the individual staff level, some dissatisfaction with the scheme was expressed via the questionnaires and interviews. This dissatisfaction arose largely because some employees took the view that whatever they did in their job, they couldn't influence the EVA result. There was a "removal of action from results" to quote one Business Unit Manager. As a consequence, the Human Resources Manager and their team worked hard to communicate the idea that without a particular individual's contribution the target may not be met, even though the individual's contribution cannot be specifically identified.³⁷ Overall, the approach was an extrinsic approach to motivating individuals.

Coordinating Activities

The sharing scheme, as discussed above, is a key means of achieving coordination both within the firm and between the firm and its outside stakeholders. A minimum threshold level of EVA is set. If the annual EVA result is below the threshold, any positive EVA is shared between the customer and the shareholder (the Government). Beyond the threshold level, the employees have the first slice of the EVA surplus, followed by customers and the shareholders. If the threshold is not met, then only the customers and shareholders are entitled to any positive EVA. An EVA result that is

³⁷ A subsequent review of the scheme showed almost universal report for its retention, according to follow-up communication.

below zero would lead to an investigation of revenues, costs and the capital charge. This is an unusual application of EVA that works well for the company.

Within the company, there was evidence of EVA being used in a formal process of target setting. The Group Manager, Finance, commented:

“We’re one company; we don’t want to stretch or fragment the one company philosophy with the business units. What we try and do at the planning stage at the target setting stage, we pull all the key business unit managers together and we set EVA targets at business unit and global basis that gives us in corporate finance what we need for shareholder requirements, to return our business plan targets.” (Group Manager, Finance, Company Y)

The budgets flowed from the targets, with budgets at the business unit and sub-unit level prepared on an EVA basis. Assets were allocated to business unit and the sub-unit level, so that EVA calculations could be performed. The calculation of EVA was designed to be summative, so that the sub-unit EVA results total the firm result. Where there was some sharing of assets and labour across business units, there were clear agreements in place to determine where the assets and costs lie. Overall, in the BGM, a bureaucratic approach to coordination was adopted, with clear rules and procedures. An emergence approach was not adopted as there was no evidence of spontaneous coordination.

Making Decisions

Company Y used EVA for its entire decision making, from the formalisation of corporate strategy into objectives. For example, the decision to restructure back in the late 1990s was based on EVA, decisions concerning international business ventures and investment decision-making and target setting were also EVA based. There was a clear hierarchical approach to decision making. Much of the capital expenditure planning was top down from the ten year plan, based on life cycle replacements of existing assets. This was formalised into the annual capital expenditure budget via the rolling three year plan. Business unit managers were involved with the setting of annual capital expenditure targets. Based on the plan, they would put proposals for new investments to the Board. There was some evidence of sharing information to inform investment

decision making. However, this was not the same as collective wisdom, as ultimately decisions were made by the Board. The EVA mentality of the company meant that projected EVA was the focus for the analysis. At the Board level, however, additional measures would be evaluated, such as payback and net present value. According to the Group Manager, Finance:

“You can’t change all the years of experience in other companies that use more traditional measures.” (Group Manager, Finance, Company Y)

Within the business units, operational decisions could be taken by the unit managers. These decisions were on an EVA basis. The Group Manager, Technology and Support stated:

“I think that in terms of driving EVA down into the company, it’s a question of just being careful that you’re doing it to enough of a level that’s useful for a business manager to make proper business decisions. But you’ve also got to make sure that you’re looking at it across the whole company. They need to be aware of the overall EVA position.” (Group Manager, Technology and Support, Company Y)

Company Y also made use of the balanced scorecard to help to formalise strategy within the firm. The Group Manager, Technology and Support commented that:

“We’ve tended to go for a balanced scorecard type approach with our managers... on an EVA basis.” (Group Manager, Technology and Support, Company Y)

In other words, the EVA model complemented the balanced scorecard as the business model.

4.4.3 Results from Company Z

Managing Objectives

Initially the company established an EVA methodology at the company level. Subsequently members of the Board decided to implement EVA at the business unit level and to pay incentives based on EVA so the development of the EVA framework was initiated. The separate Business units were to be treated as if they were real businesses, with the aim of “creating some tension between them” (Chief Executive). This runs counter to the one company philosophy and it provided incentives to act in the best interests of the business unit, which may not be the best interests of the company. Clear EVA objectives were established for managers, based, in part, on their business unit performance and in part on organisation performance. In other words, to some extent, the corporate viewpoint was also maintained. Again, this is evidence of clear goal setting, and not an oblique approach to the management of objectives. Given the nature of the company (SOE), EVA could not be construed as being an objective for a higher level aim such as survival.

Motivating Individuals

Company Z made explicit use of extrinsic EVA incentives for its employees. Around 800 employees were on an annual EVA plan with the top 30 senior managers on a rolling three year plan. As illustrated in Appendix E, Corporate groups and the senior management team had incentives linked to the overall EVA result (80% of incentive plan), whilst the incentives for business unit managers were based on company performance (50% of plan) and business unit performance (30%). The remaining 20% for both groups related to revenue and extrinsic non-financial targets such as customer satisfaction, service delivery. The current EVA incentive plan involved more leveraging of the bonuses than was the case with the prior plan (based on earnings before interest and tax). According to the Manager, Corporate Finance, this increase in extrinsic incentives had been beneficial because it:

“Crystallised managers’ thinking around capital and the cost of capital, and it provided a robust and acceptable tool to measure performance and to incentivise managers.”

Coordinating Activities

To manage the interdependence between business units there was a bureaucratic or formal coordination within the firm, rather than informal or spontaneous coordination. With the business unit focus, managers may have the incentive to act in their unit's best interests, to the detriment of other business units, thus inhibiting coordination. This is particularly the case in Company Z, where the EVA system was designed to allow competitive behaviour across the business unit managers. However, participants were of the view that EVA has provided "a goal to focus on when setting transfer prices" (Business Unit Manager) and it had led to a more commercial focus within the units. If ever any tensions arise they are resolved by the senior management team.

Coordination was also achieved through EVA targets and budgets, with the business unit target EVAs designed to sum to the corporate EVA target. Managers were held to account over their targets, again demonstrating the formal approach to coordination. Indeed less formal approaches may be difficult to operationalise in a decentralised organisation.

Making Decisions

Company Z adopted a hierarchical approach to decision making, with clear decision rights assigned. Strategic and major capital investment decisions were made at the Board level, using EVA primarily but with other measures presented for comparative purposes. For example, Net Present Value and payback period would be considered for investment decisions, as well as EVA. Although the ultimate decisions are made at the Board level, there was involvement with the business unit managers and the Corporate team, in drawing up the three year expenditure plan. In the implementation of the plan, business unit managers put forward business cases based on forecasted EVA at the business unit cost of capital. These must be approved before investment can take place. According to the Manager, Corporate Finance:

"EVA has brought a real discipline to business cases that means that decisions are more clearly understood."

The introduction of EVA deepened the hierarchy of decision rights, with managers given more of a free rein to run their units. For example, recently the manager of one unit had taken the decision to outsource an element of the service delivery. This decision was made on an EVA basis – the manager considered the impact on the capital charge (through shedding redundant capital) and more importantly, the saving on the NOPAT side (through savings in the payroll cost). This is interesting as it demonstrates the use of EVA as a model for managing in the business unit. According to the Chief Executive, EVA means that managers are now “thinking in a different light.”

Company Z also makes use of the balanced scorecard as the business model (see Appendix E for details in the incentive plan guidebook for 2000/2001). The company had been using this model for a number of years prior to the introduction of EVA. According to the Manager, Corporate Finance:

“The balanced scorecard approach had been very strongly inculcated in the business culture for years so it was nothing really new. The introduction of EVA was seen as a further evolutionary step about getting smarter and crisper and sharper around what’s done.”

As with Companies X and Y, Company Z provides evidence that the balanced scorecard complements the EVA model. In fact, the EVA model adds to the balanced scorecard model within this company. Overall, this is still a hierarchical approach to decision making.

4.4.4 Summary of the Evidence

The results demonstrate that the EVA model can play a role in all four dimensions. Despite the firm characteristics aligning to both planning and quest descriptions, within the BGM, the companies would locate at the ‘traditional’ end of the spectrum in their use of EVA. The companies demonstrated a similar application of EVA within the dimensions of managing objectives, motivating individuals and making decisions. The firms operated with clear short-term objectives at the corporate level, with extrinsic incentives linked to overall company performance and clear hierarchical decision rights. One company, Company Z also makes use of business unit objectives and incentives, which sit alongside those at the corporate level. Differences arose between the

companies within the dimension of coordinating activities. EVA had either been seen as an impediment to coordination (Company X), or as an aid to coordination (Companies Y and Z). Summary results are presented in table 4.3.

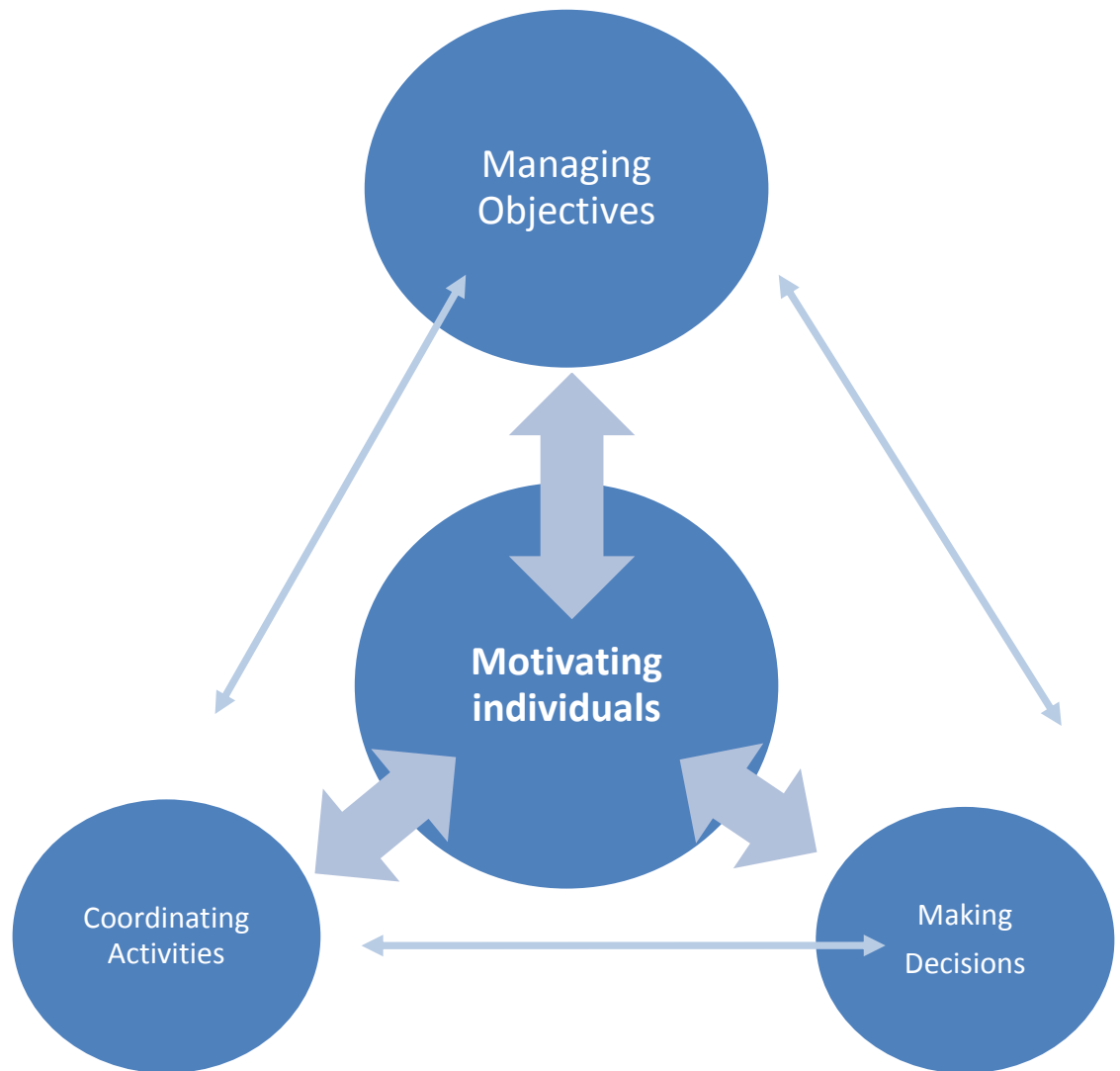
Table 4.3 Summary results for the case companies

	Company X	Company Y	Company Z
Managing Objectives	Clear short-term objectives. Evolution from business unit to focus on corporate EVA	Clear short-term objective of EVA maximisation Focus on corporate EVA	Clear short-term objectives EVA objectives at the corporate and business unit level
Motivating Individuals	Extrinsic incentives Evolution from business unit to focus on corporate EVA	Extrinsic incentives Focus on corporate EVA	Extrinsic incentives Focus on corporate and business unit EVA
Coordinating Activities	Bureaucratic Business unit EVA damaged coordination	Bureaucratic EVA aids coordination	Bureaucratic EVA can promote beneficial competition between business units
Making Decisions	Hierarchical with clear decision rights	Hierarchical with clear decision rights	Hierarchical with clear decision rights
Complementary Balanced Scorecard business model	Yes	Yes	Yes

The evidence from the companies suggests two key points. Firstly, the use of EVA led to interaction between the dimensions, with the extrinsic incentives associated with EVA having an impact on coordination between individuals. This interaction was most apparent in Company X, where the motivating individuals dimension came to dominate the other dimensions. This prompted a change in the extrinsic EVA incentives and objectives in order to achieve coordination. Secondly, the evidence suggests that the dimensions in the BGM should not be regarded as independent. The key dimension is motivating individuals as it drives behaviour which impacts upon the other dimensions.

In figure 4.1 the BGM is modified for the case firms, to show motivating individuals as the central dimension, as well as the interdependence between the dimensions.

Figure 4.1 Diagrammatic representation of the Birkinshaw and Goddard Model for the case study firms



4.5 Discussion and Conclusions

The literature bases in management and in management accounting have the potential to be mutually enhancing when developments in one base can contribute to developments in the other. However, where there are developments in one disciplinary area to which researchers in the other have not responded, then a 'gap' is created. This study focussed on one key development in the management literature, the management model. The management model is one example of a development in management that has preceded developments in management accounting. Thus a gap has been created. This study aimed to close the gap in two ways. From the management perspective, accounting is traditionally viewed as a source of information relevant to decision making. It is considered to be a tool or measure that can be used only in parts of the management model. This chapter investigated whether an accounting based measurement system, EVA, could be interpreted as a management model that supported the achievement of corporate objectives. This involved the establishment of a link between developments in management accounting and developments in management. Accounting, in the form of an EVA system, played the lead in developing the management model. From the management accounting perspective, the use of a management model as a means of analysing the status of an accounting system also helped to close the gap.

Although none of the companies employed EVA in the way that Stern Stewart recommended and there was no systematic application of EVA across the firms, this did not alter the principles within each of the four dimensions. For each of the case firms, EVA involved traditional, rather than alternative, principles indicating that however EVA is applied, it led to a particular management 'style.' There was considerable variation within the dimensions as each of the firms operated EVA differently, suggesting that the definition of the principles as traditional or alternative within the Birkinshaw and Goddard framework is wide. The EVA management model provided flexibility as it worked for firms aligning to both planning and quest style characteristics.

The EVA evidence demonstrated that the structure of the BGM framework needed modifying for the case firms. Firstly, the model is static, describing dimensions for managing but with no recognition that it is a dynamic activity, with learning and evolution playing an important role within the dimensions. Secondly, the specification

of one dimension meant that the other dimensions themselves may be specified indirectly. For example, specification of objectives can impact upon decision rights. Managers in a firm that operates a corporate perspective may find that their decision rights at the business unit level are constrained. In other words, EVA has established that, within the framework, the dimensions are not independent. Furthermore, there is a hierarchy or 'pecking order' in the dimensions, with motivating individuals the key dimension. The incentives given to managers can drive behaviour that impacts adversely upon coordination. For one case company, this led to a change in objectives and a realignment of incentives. The Birkinshaw and Goddard theoretical framework could be adapted to recognise the evolution and interdependencies.

Despite the interdependence between the dimensions and the fact that the Stern Stewart model of EVA was not strictly applied, the case studies demonstrated that each of the three firms used EVA successfully as a management model and continued to do so for a number of years. The biggest challenge was in the dimension of coordinating activities and this required modification to the other dimensions to ensure that the model continued to work. Each of the case companies also operated with the balanced scorecard as the business model, which may have either pre-dated or come after EVA implementation. The case companies demonstrated that the balanced scorecard as a business model complemented EVA as a management model. For these companies, one model did not exist without the other.

Through EVA, management accounting has provided a more comprehensive service and contributed more than a measure that is a component of the management model. It has formed the model itself. For these companies, this demonstrated a revision of the potential significance of accounting for organisational management and a potential to close the gap between the two disciplines. Since these results are taken from three case study companies, further research could be undertaken to widen the perspective. For example, studies could apply the revised management model to assess the central importance of motivating individuals to the role of management. Further investigation of EVA could be undertaken in businesses that are not characterised by the planning and quest models of management explored in this paper. It would also be interesting to investigate EVA as a management model in companies based in different countries, to analyse whether there is a cultural dimension to the application of EVA as a management model.

Chapter 5. A Dynamic Contingency Model of EVA

5.1 Introduction

The purpose of this chapter is to examine EVA using the perspective of a dynamic context-specific analysis. The analysis is dynamic because it investigates the changing nature of the EVA system over a long time period. It is context-specific as it considers the barriers to and forces for EVA adoption, use and abandonment within the context of the three companies in New Zealand. The key focus is on the longer-term experience of EVA within the firms, with evidence covering a time period of fifteen years, spanning three broad stages in the life cycle sequence of the EVA MCS: implementation, evolution in the measure and eventual decline. It has already been noted that within each firm, Stern Stewart consultants were employed to ensure a comprehensive introduction that was phased from the company level and mapped down to business units. As such EVA was ‘properly’ implemented in that it was not simply a performance measure but was used fully throughout each organisation as a central component of the MCS. After implementation, each of the firms found it necessary to modify the measure of EVA, due to issues over both the information provided and the incentives created. The final stage for the firms, the decline in the measure to the extent that there was very little EVA legacy, has not yet been analysed in the thesis.

The chain of evidence for each company and for each of the three stages was collected from questionnaires distributed in 1999 (please see Appendix A), 21 semi-structured interviews conducted with key staff members in each company in 2001 and 2011 and from scrutiny of supporting documentation.

The analysis was conducted using a contingency theory framework. The basic premise of contingency theory is that there is no ‘best’ way to structure the MCS and consequently it is not possible to identify a universally appropriate management accounting system that will apply in all circumstances (Otley, 1980). However, many studies have been conducted that attempt to identify the impact of one or more variables on the MCS and the outcome, such as profit (for a review of such studies, see Chenhall, 2003; and Fisher, 1995). These studies tend to be cross-sectional statistical studies which use data from one point in time. Weaknesses associated with these studies are that they may only focus on one variable and one outcome so that the full complexity of

relationships and causality patterns between the variables is not taken into account (Fisher, 1995). Relevant variables may be omitted and therefore it would be preferable for studies to focus on multiple factors simultaneously and to examine the inter-relationships. This suggests a longitudinal approach would be preferable to enhance internal validity (Brownell, 1995, p64; Fisher, 1995, p45; Otley, 1980, p424). Such an approach is adopted in this study; where the overall objective is to investigate the contextual variables that were important for the companies at each phase of the EVA life cycle, using a dynamic perspective. This approach is advocated by Brignall (1997), who suggested normative research propositions concerning changes in business strategy and accounting controls over the life cycle of a product or service (Brignall, 1997, p341).

The research makes four main contributions to the theoretical and empirical management accounting literature. Firstly, the extension of traditional cross-sectional contingency analysis to a dynamic longitudinal application is a contribution. The study spans many years and covers the life cycle of EVA, from implementation, through to evolution and then finally the eventual decline. This facilitates an understanding of how EVA has persisted and changed over the time period. A second contribution is the identification of the contingencies that were influential at each stage of the cycle. The study is not restricted to particular variables (omitting other potentially relevant variables). It thus examines how contingencies emerge and wax and wane in terms of their influence on EVA use over time. The micro-study approach enables an understanding of the causal relationships between the variables and how they may act collectively to change the EVA MCS over time. Thirdly, the time-series approach suggests the relevance of a new contingency variable, termed dynamic interaction, which occurs as a result of the passage of time. This approach enables an investigation of the dynamic interaction between managers, the EVA MCS and the contingency variables, as they learn and gain experience from working with the EVA system. Finally, the model of technique decline is itself a contribution, as it has been noted that it is difficult to find evidence of the demise of management accounting techniques (Chanegrih, 2008; Sulaiman and Mitchell, 2005.³⁸)

³⁸ Although the study by Ezzamel and Burns (2005) arguably covers implementation and abandonment of EVA in one UK company, the time period between introduction and demise was extremely short (6 months), so it could be argued that EVA was never fully embedded as the financial management system for the firm. Rather, the idea of EVA was adopted but EVA itself was not fully embedded. Furthermore, the introduction and abandonment of EVA took place at the time of the de-merger of the company, so

The chapter is organized as follows. In the following sub-section, the dynamic contingency theory framework is developed. In section 5.3 the EVA MCS is discussed and the research propositions are developed. In section 5.4 the empirical methods are outlined and the evidence is presented. Section 5.5 contains a discussion of the results from which the contingency model for the micro-study companies is developed. Conclusions are presented in section 5.6.

5.2 Developing the Dynamic Contingency Theory Framework

The contingency theory framework for management accounting research stems from work by organisational theorists in the 1960s and 1970s, who proposed that contextual variables influenced an organisation's structure and business (see for example Burns and Stalker, 1961; Lawrence and Lorsch, 1967; Perrow, 1970; Woodward, 1965). The general assumption is that for an organisation to be effective there must be an appropriate fit between structure and context (Fincham and Rhodes, 1999).

Researchers such as Gordon and Miller (1976), Hayes (1977 and 1978); Otley (1980) and Waterhouse and Tiessen (1978) introduced the contingency theory framework to the management accounting literature. Since that time, a number of studies employing contingency theory have been published, together with summary or review articles (for example, Chapman, 1997; Chenhall, 2003; Fisher, 1995; and Langfield-Smith, 1997). These studies have identified a number of contingent variables that are relevant for management control system design. Fisher (1995) illustrated the sequencing in the framework, where initially the firm directly selects contingent variables such as its corporate and business strategy. Given these choices, the firm will also face contingency variables beyond its control, including the environment and national culture.³⁹ In response to these factors, the organisational control package is determined, including the control system, structure, culture, human resource management and other control mechanisms. These factors feed into organisational outcomes which in turn are measured and used for rewards. The system then feeds back into future strategy and operational decisions.

there was a 'confounding event' which calls into question the results. Malmi (1997) looked at perceptions of success and failure of ABC in one firm – again the time period was extremely short (within a matter of months), so the ABC system was never fully embedded.

³⁹ Hambrick and Lei (1985) noted that in the long run, a firm can reposition itself and fundamentally change the contingent variables its faces.

5.2.1 Contingency Variables Identified in the Literature

The most common contingency variables identified in the management accounting literature include strategy, environment, culture, technology, structure and size.⁴⁰ Each of these variables is discussed in turn.

Strategy

Strategy was not initially identified as a contingent variable for accounting (Chapman, 1997; Langfield-Smith, 1997); rather it was described as a means of influencing the other contingency variables (Chenhall, 2003, p150). However, the importance of strategy was recognised in the management organisation literature from an early date.⁴¹ It is clearly important that strategy and the MCS are aligned; the MCS must fit the strategy. It has been argued that firms that achieve this alignment are more likely to effect better control and are therefore likely to enjoy superior performance (Merchant and Van der Stede, 2012, p690).

Strategy has been split into two levels: corporate strategy (the overall business a firm wants to be in – for example related or unrelated diversification) and business strategy (how a firm or business unit wishes to compete), (Merchant and Van der Stede, 2012, p688). Firms pursuing related-diversification need MCSs that exploit synergies such as economies of scope and reflect the communication that must take place between business units. To signal that cooperation is important, related-diversified firms will tend to use incentives for managers that base some element of the reward on a higher level (for example business group or the whole organisation). Important aspects of business strategy are marketing and production; the decisions concerning the markets in which to compete and the location of business units (for example national versus multinational operations), creating a natural link with environment and culture. Taxonomies for strategy have been described including product differentiation (for example related and unrelated diversification)/cost leadership (Porter, 1980); prospectors/analysers/defenders (Miles and Snow, 1978); build/hold/harvest (Gupta and Govindarajan, 1984). In essence, strategies characterised by defender and harvest

⁴⁰ See for example, Chenhall (2003); Langfield-Smith (1997); Otley, (1980); Waterhouse and Tiessen, (1978).

⁴¹ See for example, Chandler (1962) whose study of major US organisations found that managerial organisations developed in response to the corporation's business strategy.

orientations and following cost leadership are associated with formal performance measurement systems (Chenhall, 2003, p151). Controls should be tight and results should emphasise cost reduction and budget achievement. Conversely firms pursuing prospector/differentiation strategies should have more informal control systems and performance related to any number of financial and non-financial indicators, including innovation, customer service and growth (Merchant and Van der Stede, 2012, p690). Such firms may be more likely to adopt innovative techniques (Gosselin, 1997, p108). More recently, an additional organisational strategy, confrontation strategy, has been postulated (for example, Cooper, 1995; Adler, 2011). Cooper (1995) stated that industries whose products and services have reached a mature stage and which feature a high level of competition are likely to experience a shrinking survival zone. Companies in these industries will compete head to head with each other, thus a confrontation strategy ensues. Adler argues that this type of strategy is likely to become more prevalent as competition amongst business intensifies.⁴² He presented an empirical study that suggested the appropriate type of performance management system for these firms, in contrast to the systems already suggested for cost leader and differentiator firms (Adler, 2011, p261).⁴³ For the purposes of this study, Porter's taxonomy is used for strategy, as this reflects the whole business environment and the marketing and production decisions a firm must make. The notion of confrontation strategy is also considered.

External Environment

The overall impact of the environment depends on the level of uncertainty that is generated by it, through for example regulation, competition or innovation. In other words, whether the environment can be stable or whether it is the source of unpredictable change (Fincham and Rhodes, 1999). The proposition is that the more uncertain the environment, the more a firm will need to devote specialised functions to cope with problems and the more resources it will need to devote to managing the interface with the environment. The unpredictability of changes creates the need for

⁴² It is interesting to note that Adler implicitly assumes that firms facing intense competition must be pursuing confrontation strategies. However, firms in this situation may choose to collaborate. For example, airline companies and automobile manufacturers (an industry cited as being confrontational) choose to pursue strategic alliances that have been successful for a number of years.

⁴³ Such a system includes workgroup-inspired work procedures, collective responsibility and naturally coordinating mechanisms, interactive strategic planning, hybrid customer-oriented and tight budget control systems, group-based incentive compensation and the promotion of empowerment, multiskilling, and collective responsibility (Adler, 2011, p261).

‘continuous environmental scanning’ so that costing and performance measurement systems can respond to these changes (Brignall, 1997, p341).

The external environment is a “powerful contextual variable that is at the foundation of contingency based research” (Chenhall, 2003, p137). Chenhall (2003) stated that uncertainty in the environment is the most widely researched aspect and he cites examples of research featuring this variable including Burns and Stalker (1961); Galbraith (1973); Hayes (1977); Lawrence and Lorsch (1967); Tymond et al. (1998). Similarly, in their studies, Innes and Mitchell (1990) and Cobb et al. (2005) found that the external environment was a major influence on management accounting change.

Khandwalla (1977) classified environmental factors as turbulence (risky, unpredictable, fluctuating, ambiguous), hostility (stressful, dominating, restrictive), diversity (variety in product, inputs, customers) and complexity (rapidly changing technologies). Similarly, in her study of ABC at General Motors, Anderson (1995) focussed on uncertainty caused by external turbulence, competition and external communication networks (the role of external experts). She also included heterogeneity of external demands on the organisation as an external factor. As a specific example of external demands, Woods (2009) used the Government as an environmental variable in her study of risk management at Birmingham City Council.

For the purposes of this study, the environmental uncertainty factors discussed above are grouped together as the business cycle (the general state of the economy or the particular industry); competition (number of competitors, ease of entry); innovation in products and processes (complexity due to changes in technology, inputs, outputs); and Government and regulatory impact (changes in the law, for example changes to the rules of competition and reporting requirements, Government regulatory requirements, and uncertainty over regulation).

Culture

Culture may refer to national culture, with the primary idea being that specific countries will have particular cultural characteristics, meaning that individuals from within these cultures will respond in distinctive ways to the MCS (Chenhall, 2003; Merchant and Van der Stede, 2012). Thus an important factor that contributes to the effectiveness of

the MCS is whether the employees perceive it as culturally appropriate (Merchant and Van der Stede, 2012, p691). The most commonly cited taxonomies of culture were developed by Hofstede (1984) who proposed cultural values of power distance, individualism vs. collectivism, uncertainty avoidance, masculinity vs. femininity and finally, from Hofstede and Bond (1988), Confucian dynamism. Personnel mobility may also determine aspects of the MCS. For example, where personnel mobility is low, long-term incentive plans may not be required to motivate managers to think long-term and to stay with the company (for an agency perspective, see Dikolli, 2001; Dutta and Reichelstein, 2003). Personnel mobility may contain a cultural dimension, for example employees in the United States may transfer between organisations more readily than they would in say South Korea, where employees may remain with one employer for their entire working lives. The cultural characteristics identified have been used to conduct comparative studies of MCSs in different countries with the proposition that national culture is associated with the design of the MCS. A finer division of culture beyond the national level is made by applying the variable to the organisational or even business unit level, where the particular culture in place is associated with success or failure of a technique (for example Malmi, 1997 on ABC; and Baird et al., 2004 on activity management practices). National, organisational and business unit cultural factors will be examined in this study.

Technology

Technology refers to the task structure of an organisation (Fincham and Rhodes, 1999, p359). A major part of technology concerns production techniques (for example, the use of batch, mass and process production to turn inputs into outputs (Otley, 1980). Probably the earliest and most famous research on this aspect of technology was conducted by Woodward (1965). Although the initial aim of her research was to confirm the extant management theory that there was one optimal organisational structure for all firms, her empirical evidence led to the opposite conclusion. She found that there was a link between technology, structure and performance, implying that a given technology calls for a particular structure.

Technology can also include interdependence between units producing the product or service, hardware, materials, people, software and knowledge (Chenhall, 2003, p139). These other aspects of technology have been examined within studies of the MCS. For

example, Anderson considered several technological factors influencing ABC introduction (complexity experienced by users, compatibility with existing structures and systems, technical improvement relative to existing practices) as well as task characteristics (task uncertainty, task variety, worker autonomy and responsibility), (Anderson, 1995). Alternatively, one particular aspect of technology may be a contingent variable.⁴⁴ The general proposition is that technologies characterised by standardised and automated processes will give rise to formal controls. The technological factors discussed above will be examined in this study.

Structure

Structure is the established set of relationships, with ordered and regularly occurring activities (Fincham and Rhodes, 1999, p355). Structure includes the organisational hierarchy and delegation of authority. Important aspects of structure are the establishment of decision rights (responsibility centres and action controls), the communication across groups and the coordination of activities, referred to by Lawrence and Lorsch as ‘differentiation and integration’ (Lawrence and Lorsch, 1967). In the literature, structure has been viewed as an ‘intervening’ variable, modifying the effect of the contingent factors upon performance, given the organisational context (Fincham and Rhodes, 1999, p358). Waterhouse and Tiessen (1978) suggested that the structure and activity of complex organisations is subject to the influence of a number of contextual variables. For example, structure is dependent on technology (Woodward, 1965; discussed above). Structure is dynamic and needs to adapt to any changes in contingent variables. Structure has also been viewed as a contingent variable in its own right (for example, Burns and Stalker, 1961; Damanpour, 1991; Gosselin, 1997 and further examples in Chenhall, 2003).

There are many propositions relating to the MCS and organisation structure, depending on the particular aspects of the MCS being examined.⁴⁵ With regard to the adoption and diffusion of an innovation, the mechanistic/organic organisational structure proposed by Burns and Stalker (1961) has been used to examine firms that adopt and implement ABC, with mechanistic structures (where there is a greater emphasis on formal systems,

⁴⁴ For a summary, see Chenhall (2003). For an example of a study focussing on one aspect of technology, see Woods (2009) who considered information technology as a contingency variable.

⁴⁵ For a review of these studies, see Chapman (1997); Chenhall (2003).

rules and procedures) more likely to be associated with ABC implementation and adoption than organic structures (where there are more informal systems in place), (Gosselin, 1997).

Size

Size is usually measured as the number of employees in the organisation, although alternatives exist such as profits, sales volume, assets and share valuation (Chenhall, 2003, p149). Early studies have found that large organisations tend to use more formal control systems (Merchant (1981); Bruns and Waterhouse, 1975). More recent studies have concluded that larger firms have more resources and so are more likely to adopt new techniques (for example Baird et al., 2004 on activity analysis; and Woods, 2009 on risk management techniques). However, there are not many examples of evidence on size as a contingent factor as it is not often included as an explicit contingency variable but rather considered to be a consequence of other variables such as strategy and structure. For example, larger firms may be more likely to adopt the 'M' or matrix form of organisational structure and they may be more likely to pursue a multinational business strategy. Furthermore, contingency studies have tended to concentrate on large firms without considering size variation within larger firms (Chenhall, 2003, p148).

5.2.2 Employing the Contingency Framework

Chapman (1997) noted that contingency theory studies have tended to be large-scale, cross sectional postal questionnaires that examined a limited number of variables (Chapman, 1997, p189). Similarly, Fisher (1995) highlighted the focus on a limited number of variables. In his categorization of contingency studies by complexity, he identified four levels of contingent control analysis:

Level 1: One contingent factor correlates with a control system mechanism

Level 2: The joint effect of one contingent factor and a control system mechanism on outcome variable/s

Level 3: The joint linkage of multiple control mechanisms, one contingent factor and outcome variable/s

Level 4: The joint linkage of multiple control mechanisms, multiple contingent factors and outcome variable/s

Fisher noted that most of the studies tend to be at level 1 and he stated that “much of the work on contingency theory has examined one contingent variable and one control system attribute. This singular approach makes research tractable, but causes difficulty in integrating results into a coherent framework. The relationships and causality among contingent variables are unknown.” (Fisher, 1995, p45). He called for causality analysis and stated that this implies a time-series approach rather than a cross-sectional approach. Fisher also explained the fact that the ultimate goal should be to examine multiple contingent factors simultaneously, with new contingent factors identified and interactions explored.

This study incorporates Fisher’s recommendations by adopting a longitudinal analysis of multiple contingent factors in relation to EVA. Since EVA can be used as a performance management system (not simply as one aspect of the system) and since it is also an outcome variable for the firms, this study could be classed as Level 4 in Fisher’s categorisation. The micro-study methodology with semi-structured interviews means that the scope of the study is not restricted to a set of particular factors identified in advance from the literature by the researchers.

5.3 Developing the Research Propositions

Longitudinal analysis is a means of addressing the problem of maximising internal validity, where a match is sought between trends predicted by theoretical propositions and those observed in the empirical data (Yin, 1989, as cited in Brownell, 1995).

Ideally the focus should be not only on the sequencing of key evidential pieces but also on the varying lapse of time separating them (Brownell, 1995, p64). In this study the life cycle sequence is predicted (implementation, evolution and decline) but the exact interval of time between each phase cannot be predicted. This life cycle sequence is now discussed and the propositions for each phase are developed in the context of contingency theory.

5.3.1 Implementation of the EVA system

Central to the context specific analysis of the institution of EVA is an understanding of the origins of the system. EVA is defined at the overall firm level as the income earned

after the deduction of a charge on the capital required to generate that income. The measure of EVA represents a return to all capital providers, not just shareholders. The basic concept is well established in the management accounting literature as residual income (McLaren, 2004, p6 for EVA; and Solomons, 1965, for residual income). In the Stern Stewart measure of EVA, accounting numbers are used as a starting point, with adjustments made to make the accounting numbers more economically meaningful.⁴⁶ It has already been noted in section 1.3 that the number of possible adjustments is the range of 120-160, with around 10-15 applicable to a particular company. Therefore a potential advantage of EVA on the measurement side was that it could be free of accounting rules and regulations under which financial reporting must operate. Companies can set their own 'rules' for the measurement and 'undo' accounting distortions. In a large organisation, international and regional differences in financial reporting regulations would not matter, if firms adopted the EVA measure for use within the organisation.⁴⁷

Stern Stewart sold their EVA concept as a complete financial management system to meet the overall objective of shareholder value creation. It can be used for planning, decision-making, control and the determination of rewards, (Stewart, 1991, p119). In other words, EVA could form the core of the MCS for a firm, providing information for management and aligning incentives through the reward mechanism. A major selling-point was that the EVA was an integrated system that would eliminate conflicts and confusion that arise with traditional methods, since all business issues could be couched in the context of EVA (Ehrbar, 1998, p134). Furthermore, it was argued that EVA could be mapped through the organisation to business units, so that individual EVA results added back to yield the overall firm EVA. This was seen as a means of achieving vertical linkages or goal congruence within the decentralised organisation. Horizontal linkages between business units could be achieved also, through coordination and communication using the single measure. Inter-temporal integration could be achieved through the use of forward-looking EVA for planning and investment decision making and actual EVA results for performance measurement (Young and O'Byrne, 2001, ch3). Finally, managerial and shareholder objectives could be aligned

⁴⁶ Adjustments include for example the adding back to operating profit of expensed research and development costs, leasing costs and severance costs; with these items included in capital and written down over a specified number of years.

⁴⁷ Of course, currency differences may still be an issue with EVA.

through the reward mechanism, with remuneration based on both business-unit and firm level performance. In other words, it has been argued that the EVA system has the potential to provide a number of benefits in terms of information and incentives. When EVA first became popular, it was described in the literature as an innovation in accounting (for example, Sulaiman and Mitchell, 2005; Worthing and West, 2001). However, many definitions of innovation exist. A system or technique or activity can be regarded as an innovation if it is new to the company adopting it (for example, Hargrave and Van de Ven, 2006; McCabe, 2002; Van de Ven and Poole, 1995; Zaltman et al., 1973; Zbaracki, 1998). Firms innovate when they are successful and so they have slack resources, or when they are unsuccessful and are looking for a new solution to a problem that currently faces the organisation, (Cyert and March, 1992). A more restrictive definition of innovation is provided by Birkinshaw et al. (2008) who state that innovation must be “new to the state of the art” (Birkinshaw et al, 2008, p829). The former definition of innovation will be adopted in this study, as this is the definition that tends to have been adopted in the accounting literature (for example, Bjørnenak, 1997; Daniel et al., 2008; Gosselin, 1997) and it is consistent with the descriptions of EVA noted above.

Complementing the consideration of an innovation is a consideration of the diffusion or translation of the implementation of the system across firms.⁴⁸ For example, Bjørnenak looked at the diffusion of ABC in Norway, describing expansion diffusion as contagious (spread is smooth and continuous through communication networks) or hierarchical (there is a trickle down from large to small firms), (Bjørnenak, 1997, p7). Diffusion was depicted as an ‘S curve’ where the number of adopters rises quickly and then reaches a plateau as saturation point is reached. In other words, firms should adopt the technique within a relatively short space of time. Therefore in this study, it is predicted that, at the time of implementation, EVA was something new for the firms; it was an innovation. Furthermore, since the firms were known to have employed Stern Stewart to assist with the implementation, it is predicted that the firms were convinced that EVA was the best available measure and the decision to implement EVA would be made on the basis of the advertised selling points. In particular, the EVA champion within each organisation must have believed (and convinced others) that the EVA MCS was a good fit for their firm. This fit could be in terms of one or more of the contingency variables

⁴⁸ It was estimated that there were over 300 users of EVA by the 1990s (Lynn, 1995).

relating to the firm: environment, corporate and business strategy, culture, technology, structure and/or size. This leads to the first research proposition:

Proposition 1: The motivations for the implementation of the innovative EVA system concern the perceived benefits in terms of information and incentives that the system could provide and the fit within the firms to one or more of the contingency variables.

5.3.2 Evolution

After a period of time using EVA within the firms, it is anticipated that the system will evolve. This evolution is natural for any system. Whilst the exact path in time is not predicted, a sequence of evolution can be predicted *ex ante*.

Reasons that necessitate evolutionary change in the system include technological issues with the measure itself, due to the information provided and/or the incentives created. Since Stern Stewart specifies that EVA is context driven, there is no ‘right’ way to measure EVA for all firms, or for any single firm over time as circumstances change. It is apparent that subjectivity in the information from the EVA system could be a potential problem. Furthermore, there are no standards for EVA preparation and within each firm a decision must be taken as to the appropriate adjustments. This subjectivity could cause problems both within and outside of the firm, if the measure cannot be defended. Indeed, subjectivity has been cited as a drawback in performance evaluation (Ittner et al., 2003; Prendergast and Topel, 1996).

Once there is understanding and acceptance of the measure, then managers will respond to the incentives created. With the link to rewards, it is well understood that the EVA system has the potential for strong incentives if remuneration and bonuses are pushed to the business unit level (McLaren, 2004). Revision may be required if goal incongruence occurs.

Potential issues with the EVA system are known and have been documented by Stern Stewart representatives themselves (for example Ehrbar, 1998; Stewart, 1991 and 1994; Young and O’Byrne, 2001). These issues include for example the problem with dealing with growth options (where managers who invest now for uncertain growth in the future

find their EVA result depressed by the investment costs and so have little incentive to invest) and the problem with the short-run focus of the measure (where goal incongruence is created if managers take decisions to improve their annual EVA result and these decisions are not in the shareholders' best interests). To solve these issues, refinements to the measure have been suggested by EVA proponents. For example, it is argued that an incentive to invest can be provided by 'keeping capital off the books' for a period of time (so it doesn't form part of the capital charge) and bonus banks and share options may be advocated in order to give managers the incentive to adopt a longer-term view (Stewart, 1991).

Since the EVA measure is specific to each organisation, the exact lapse of time in the sequence from implementation to evolution cannot be predicted. However, it can be predicted that there will be an elapse of time. Firms must implement and work with the EVA system in order to understand its consequences. Over time, managers will learn as they gain experience and understand its impact. Only then can possible improvements to the system be considered. Therefore a new contingency variable is proposed to encapsulate the evolution over time, termed 'dynamic interaction.' Dynamic interaction reflects the fact that, as time passes, managers may need to contemplate adaptation of the system in response to changes in any one or more contingency variables. This variable would not be detected in a cross-sectional study at one point in time.

Proposition 2: Dynamic interaction will lead to evolution in the EVA MCS as managers learn whether there are issues over the information provided and the incentives created, or whether there have been changes in one or more of the contingency variables necessitating a change in the system.

5.3.3 Decline

It is known that each of the micro-study firms employed the EVA MCS for a significant period of time. EVA was not a fad or fashion within the firms, as it continued to form the MCS for ten-fifteen years before its eventual decline. This study provides the opportunity to examine the reasons for this decline. Given the fact that the firms employed the EVA MCS for such a long time and that its use did decline, it is predicted that there must have been a 'shock' or abrupt change in one or more of the contingency variables leading to a temporary or permanent change. This shock could mean that the

institution of EVA was no longer appropriate, either due to the information provided by the EVA system or to the incentives that it created.

Proposition 3: A temporary or permanent shock in one or more contingency variables could mean that the EVA MCS is no longer appropriate, in terms of information and/or incentives, leading to its removal by the firms.

The model of technique decline provides a contribution to the literature on management accounting techniques, which tend to concentrate on implementation. For example, in his S-curve model of the diffusion of the ABC innovation, Bjørnenak illustrated no drop in the diffusion curve, thus implying that there is never a decline in the number of adopters (Bjørnenak, 1997). Similarly, Chanegrih (2008) and Sulaiman and Mitchell (2005) could find no evidence in the reduction of management accounting techniques in their surveys.⁴⁹

5.4 Research Methods and Empirical Evidence

5.4.1 Research Methods

Evidence was obtained from questionnaires issued to company staff in 1999 (please see Appendix A) and 21 semi-structured interviews conducted in February 2001 and February 2011.⁵⁰ The interview evidence was triangulated by documents that were referred to and discussed in the interviews, including internal corporate documents and documents from advisors to the companies. Such a chain of evidence serves to enhance calibration and construct validity (Brownell, 1995, p65). The 2011 interviews covered the time period since the 2001 visit and so examined the factors driving both the evolution and the decline in the measure. For both the 2001 and 2011 interviews, the number and selection of interviewees was at the discretion of the lead person in each firm at the time, who agreed to take part on the understanding that interviewees would remain anonymous. Within both Companies X and Y one of the respondents was

⁴⁹ Reduction or abandonment has been documented as part of a life cycle in the management fashion literature (for example, Abrahamson, 1996; Carson et al., 1999). The usual way that evidence is gathered is via bibliometric counts (for examples, see Daniel et al., 2008). However, management fashions or fads by their definition are short-lived and may not be fully embedded in an organisation. For evidence on the abandonment of the balanced scorecard as a performance measure in a retail bank, see Ittner et al., (2003).

⁵⁰ Questionnaires were originally sent to a number of EVA users. The three companies in this study were selected for follow-up interviews, based on the extent of EVA use in 2000.

interviewed in 2001 and again in 2011, thus ensuring continuity over time. Summary information on the positions held by the respondents is presented in table 5.1 below.

Table 5.1 Summary information on respondents

	2001	2011
Company X	6 interviews Human Resource Manager (EVA owner) Manager, Strategy and Architecture Manager, Financial Management Group Controller Financial Management Advisor Corporate Finance Team member	1 interview Human Resource Manager (same person as 2001) EVA abandoned so additional interviews not possible since no other staff members had experience of EVA
Company Y	4 interviews Group Manager, Human Resources Group Manager, Finance (EVA owner) Group Manager, Technology and Support Business Unit Manager	4 interviews Group Manager, Human Resources (same person as 2001) Chief Financial Officer Ex Chief Financial Officer Financial Controller
Company Z	3 interviews Chief Executive Manager, Corporate Finance, EVA and Investment Analysis (EVA owner) General Manager, Human Resources	3 interviews Chief Financial Officer Group Planning Manager Group Corporate Finance Manager

5.4.2 Background Information on the Companies

Summary information on the companies is provided in table 5.2. This information is designed to provide factual details on the business, strategy, structure, size and technology of the firms. It is not designed to be so specific that it enables the companies to be identified.

Table 5.2 Summary information on the case companies

	Company X	Company Y	Company Z
Type of Company	Listed	SOE	SOE
Type of Business	Network service provider	Network service provider	Network service provider
Strategy <ul style="list-style-type: none"> Corporate strategy Business Strategy 	Related diversification into international markets Product differentiation. Possible confrontation	Related diversification into international markets Cost minimisation	Related diversification into international markets Product differentiation
Environment <ul style="list-style-type: none"> Business Cycle Competition Innovation Regulation 	2001: 'Good' 2011: Recession Competition in some aspects of the business Innovation in products and services 2001: 'Light touch regulation' 2011: Regulated by Regulatory Commissioner	2001: 'Good' 2011: Recession Competition in some aspects of the business Some innovation in service delivery Regulation through SOE Act and Deed of Understanding	2001: 'Good' 2011: Recession Competition in some aspects of the business Innovation in products and services Regulation through SOE Act and Deed of Understanding
Culture <ul style="list-style-type: none"> National Organisational 	New Zealand High personnel mobility	New Zealand Low personnel mobility	New Zealand High Personnel mobility
Technology	Rapidly changing technology to deliver the service	Rapidly changing technology to deliver the service	Rapidly changing technology to deliver the service

Structure	Decentralized functional structure with interdependent business units Mechanistic	Decentralized functional structure with interdependent business units Mechanistic	Decentralized functional structure with interdependent business units Mechanistic
Size			
• Number of employees	2000: 6500 FTE employees 2010: 9000 FTE employees	2000: 650 FTE employees 2010: 750 FTE employees	2000: 7500 employees (total) 2010: 11000 employees (total)
• Operating Revenue	2000: NZ\$4000 million 2010: NZ\$5000 million	2000: NZ\$100 million 2010: NZ\$145 million	2000: NZ\$900 million 2010: NZ\$1200 million
• Operating Profit	2000: NZ\$1400 million 2010: NZ\$-4500 million	2000: NZ\$15 million 2010: NZ\$5 million	2000: NZ\$50 million 2010: NZ\$24 million

Statistical information presented in the table is derived from the relevant annual report and accounts.

Descriptive information given in table 5.2 covers the questionnaire and interview time periods. The business cycle for 2001 is described as ‘good’ for all companies. This is a general classification recognising the fact that it was not a ‘boom’ time for the firms (that came a little later, in the mid 2000s). The year 2011 was characterized as a period of recession by respondents in each company. Between the two interview time periods, the regulatory environment changed for Company X (for further details, please see chapter 2). At the time of the questionnaires and the 2001 interviews, regulation was ‘light touch’, with no appointed regulator. Disputes, if they arose, were settled through the courts. By 2011, the company was regulated by a Government appointed Regulatory Commissioner. Regulation for Companies Y and Z is through the SOE Act and the Deed of Understanding, together with the publication of targets in a Statement of Corporate Intent.⁵¹ From the information provided it is apparent that there are many similarities between the companies, including the type of business (at a very general level), competitive environment, innovation, corporate strategy, technology and structure. The firms all have a mechanistic structure, with an emphasis on formal controls. This may make them more open to new techniques (for example the

⁵¹ The Deed of Understanding sets out certain actions that the company may or may not take. The Statement of Corporate Intent is published by the companies and provides annual targets based on accounting information. Results are tabled annually in Parliament. Please see Chapter 2.

association between mechanistic structure and ABC adoption, as documented by Gosselin, 1997). The business strategy and organisational culture of Company Y differs from Companies X and Z. In terms of size, Company X is the largest, then Company Z (which has many part-time employees) with Company Y being the smallest according to the size variables. Overall, Company Y would have the most stable environment and the least amount of competition. The environment faced by Company X is more turbulent, in terms of competition and innovation, than that faced by Companies Y and Z. As such, this company should be most likely to characterised as adopting a confrontation strategy. However, it can also be characterised as adopting a differentiation strategy and it does not adopt the lean, flat structure postulated by Adler (Adler, 2011). Therefore it appears that the notions of differentiation and confrontation may not be as distinct as he suggests.

5.4.3 *Analysis of the Evidence*

Analysis of the empirical evidence is centred on the three stages: implementation, evolution and decline. To aid in the interpretation of this evidence, summary information on the EVA life cycle for the companies is presented in table 5.3.

Table 5.3 Life cycle of EVA

	Implementation	Evolution	Decline
Company X	1995: Full implementation to business unit level using Stern Stewart Consultants	1997: All EVA adjustments removed 2000: EVA pulled back to corporate level, no remuneration based on business unit EVA	2007: EVA formally abandoned as a financial metric, decline in use prior to this date
Company Y	1996: Full implementation to business unit level using Stern Stewart Consultants	2000: Adjustments reduced Mid 2000s: EVA pulled back to corporate level, no business unit balance sheets constructed, no remuneration based on business unit EVA	2011: EVA ‘dormant’ for remuneration, not used for business cases but still calculated at ‘high level’
Company Z	1998: Full implementation to business unit level using Stern Stewart Consultants	2001: Adjustments reduced Mid 2000s: EVA pulled back to corporate level, no business unit balance sheets constructed, no business unit remuneration	2011: No EVA for performance measurement, still used for project investment

Implementation

Company X, the largest and only listed company was the first of the three in the micro-study to implement EVA, followed by Company Y (the smallest company) and then Company Z (the middle-sized company). At the time of implementation, the three firms all chose EVA over other commercially available products.⁵² Each of the three firms implemented EVA as the complete MCS, using Stern Stewart and Company Consultants. Implementation involved a phased approach, with initial calculation and measurement at the corporate level, followed by a mapping to EVA calculation and use

⁵² These products are described as commercially available as they were promoted by various groups of consultants. Examples include economic profit, value based management and cash flow return on investment. There was no attempt in this research to assess the relative merits of the competing products.

at the business unit level. In each of the companies, EVA was used for planning, decision-making, control, performance monitoring and remuneration determination. Within each of the firms, the implementation of EVA as the MCS was a major investment in terms of time and money. The magnitude of this investment was noted by the Human Resource Manager in Company X:

“When we started EVA we actually started on a pretty full-on path. We had Stern Stewart Consulting, we spent quite a lot of money with them, and we had I think a pretty full-on implementation, particularly in terms of our incentive model... The amount of work we did on EVA has never been repeated with another kind of tool or methodology.” (Human Resource Manager, Company X, 2011)

The original motivations for EVA implementation, as expressed in the questionnaires and confirmed in the 2001 interviews, are summarised in table 5.4 below. The tick mark indicates that the motivation was explicitly cited by one or more respondents. The number 1 indicates the primary motivation (or, for Company Z, the joint most important motivation), as indicated in the questionnaires and interviews.

Table 5.4 Motivations for EVA implementation

	Company X	Company Y	Company Z
Information Provided			
1. EVA provides a benchmark for targets and for measuring performance	✓	✓	✓
2. EVA can be used for setting prices		1	
Incentives Created			
3. EVA correlates with shareholder value	1		✓
4. EVA leads managers to focus on the cost of capital	✓	✓	✓
5. EVA can be used to align incentives	✓		✓
The ‘Fit’ of EVA to the business			
6 Value Based Reporting Protocol		✓	1=
7. Board member with previous experience of EVA			1=
8. EVA is the ‘right’ measure for the business			1=

Motivations 1-5 relate to the information provided and incentives created by the EVA system. Each of these reasons cited for EVA implementation is a feature of the EVA system, as cited by Stern Stewart. These motivations can be classified as **strategy** variables, as they all relate to the strategic direction of the company. Thus, EVA as a system was deemed to align with corporate and business strategy. These reasons for implementation were reinforced by several respondents in the interviews, for example:

“It was a good proxy to market value ... the Stern Stewart research shows. The other aspect with our business in particular is that the EVA mechanism takes into account the cost of capital.” (Group Manager, Strategy and Architecture, Company X, 2001)

”In the absence of a share price, EVA provides a benchmark against which to measure performance.” (Manager, Corporate Finance, EVA and Investment Analysis, Company Z, 2001)

Within Company Y, the primary motivation for EVA was that it was seen as a way of establishing “a fair price that customers were comfortable with in the monopoly product marketplace.” (Group Manager, Finance, Company Y, 2001). In other words, shareholder value wasn’t the main objective for Company Y. Rather, a sharing of benefits between the customers and the shareholder was deemed to be of primary importance. In other words, it was a characteristic of the market environment, the absence of **competition**, which drove the introduction.

Motivation 6 relates to the Value Based Reporting Protocol, a document published in 1995 by a panel within New Zealand which included representatives from academia, the government and SOEs. This Protocol recommended that SOEs should provide EVA information on an annual basis (for further information, please see chapter 2).

The Chief Financial Officer of Company Z reflected:

“The Government Crown Agency that looked after the SOE portfolios was very keen to see EVA standardised across SOE portfolios, but, as it tried to do so, it

found some difficulties in consistency and comparability... They found that, across quite different organisations, they couldn't arrive at an agreed standard set of adjustments.” (Chief Financial Officer, Company Z, 2011)

The inability to agree on standards meant that Protocol did not become mandatory and so did not place direct external demands on SOE companies. However, it did influence the behaviour of New Zealand SOEs, with many firms (including Company Z) introducing EVA as a result of its publication. For further information, please see chapter 2 for details on the Protocol. Although the Protocol concerned reporting at the corporate level, the two SOEs in this micro-study chose to extend its application to MCS and to the business unit level. This is evidence for the **environment**, in particular the **regulatory environment**, as a factor that was influential in all three companies at the implementation stage.

Motivation 7, cited by Company Z, relates to **technology**, in particular the people that are employed in the firm. Motivation 8, also cited by Company Z, could be classified as a strategic or a **cultural** factor. These motivations were further explained by the Chief Executive:

“One of our directors has quite a lot of experience of EVA. As we were beginning to think about the right sort of measures for the business at that time, that was the time when EVA debates were coming to the fore and so from a general view of the Board, EVA captured that information.” (Chief Executive, Company Z, 2001)

Overall, the evidence supports Proposition 1. The Stern Stewart justifications for the EVA system were valid reasons for its introduction within the firms. Furthermore, contingency factors were important for EVA implementation, as follows:

- Strategy, in particular the fit with corporate objectives: important for all companies
- The environment, in particular the regulatory environment for Companies Y and Z (the SOEs) and the absence of competition for Company Y
- Technology, in particular people in the organisation for Company Z
- Cultural fit for Company Z

A different mix of contingencies was therefore apparent within each firm with strategy the only common factor cited by respondents in all three firms. The differing strategies of Company Y (cost minimization) to Companies X and Z (product differentiation) did not make a difference regarding the perceived suitability of EVA to the businesses at the time of implementation. Similarly the notion of confrontation strategy for Company X versus a non-confrontation strategy for the two SOEs did not lead to a difference in the perceived suitability of EVA. Thus EVA was an innovation that complemented different strategies. The regulatory environment, in particular a proposed regulatory requirement, was a factor for both the SOEs. Size was not a factor for implementation – EVA was implemented as the full MCS for all three firms. In other words, the EVA performance management system was viewed as ‘right’ and ‘appropriate’ by the three firms, despite their differing strategies and size.

Evolution

The nature of EVA implementation at a technical level was very similar across the firms and at the time of the 2001 interviews, they continued to use EVA as the MCS but the system had undergone evolution within each organisation. The evolution was gradual (over a number of years) but the pattern was similar in all three companies. The first evidence of evolution, which had occurred in all of the firms by 2001, was due to the information that the measure provided. Within the firms, it was found that in order to make EVA work, a simplification was required to reduce the number of adjustments from those first recommended by Stern Stewart at the time of implementation. This evolution took place at approximately the same time for the micro-study firms, after they had learned about the impact of EVA. Reasons for the simplification, cited by respondents in 2001, are presented in table 5.5 below.

Table 5.5 Reasons for initial evolution: information provided by EVA

	Company X	Company Y	Company Z
1. Lack of understanding of EVA – outside the firm	✓	✓	✓
2. Lack of understanding of EVA – inside the firm	✓	✓	✓
3. Complexity of the measure – difficult to calculate	✓	✓	✓
4. Subjectivity of the measure	✓	✓	✓

From table 5.5 it is apparent that the reasons cited for simplification were identical across the firms, centring on the measure itself and the information that it provided. There were problems created due to a failure of external and internal comprehension in the measure. The lack of external comprehension was explained by respondents in Companies Y and Z:

“One of the problems with EVA, it even happens at the Board level at times, is that as soon as they see something like EVA or a small EVA figure, people start thinking in their minds back to more conventional profit approach and say ‘that’s too low.’ We record both but you’ll find that some of the business press reporters were still getting mixed up and they’ll be quoting your EVA as if it was a profit.” (Group Manager, Technology and Support, Company Y, 2001)

“Obviously in the annual report, profit is the only measure that’s audited, that’s the one that the Chief Executive is managed to. While we may use EVA, our shareholders may not care for it to the same extent. Certainly the public looking at us may not know or understand so we’ve still got to manage accounting profit so that’s a challenge that all EVA companies will have. We know that EVA is important but when we go to the market, it’s ‘what’s your profit?’” (Manager, Corporate Finance, EVA and Investment Analysis, Company Z, 2001)

Evolution as a result of problems with external comprehension is classified as an **environmental** reason for simplification; in particular it is an aspect of Government and regulation as it reflects the fact that outsiders understood results that were based on existing GAAP regulation rather than EVA, which is not subject to accounting standards. In contrast, the lack of internal validity represents a **technological** reason for the evolution. Problems created by the lack of external and internal comprehension are consistent across all three companies. The complexity of the calculation of EVA was a common reason for simplification. For example, the Human Resources Manager of Company X explained:

“As we have gone along in the last five or more years, we have tinkered and tinkered with the EVA calculation. We had some members of our Board who actually didn’t like EVA and repeatedly would raise issues with this piece or that

piece of it. In order to keep it, we would say, perhaps we could change it like this or change it like that. One of the major problems was they couldn't understand it... We looked at it and actually decided ourselves that none of the adjustments themselves made enough impact to make it worth the complexity that they added on." (Human Resource Manager, Company X, 2001)

Similarly, a manager in Company Z commented on the complexity of the measure and the desire for simplification:

"After two years, we've concluded that by having ten adjustments, that's too many. I've talked to many organisations, the major corporates, and all of them who have introduced EVA have gone more complex than us on introduction and have gone vastly simplified... It's too complicated. People get bogged down in the cost of capital, their capital allocation; there are just too many issues." (Manager, Corporate Finance, EVA and Investment Analysis, Company Z, 2001)

This view was reinforced by the Chief Executive, who also mentioned the subjectivity of EVA and the lack of EVA standards, which caused problems internally:

"There's the heart of the problem. We've never let go of traditional accounting measures. Traditional accounting measures are driven by accounting standards. EVA doesn't have those. So we are making somewhat arbitrary choices with EVA. Managers really can't get to grips with it... Managers think 'oh well, there's some juggling; I don't quite understand what it means.' So they stop paying any attention to it." (Chief Executive, Company Z, 2001)

The perception that the measure is subjective, involves arbitrary choices, and is without the underlying support of accounting standards, means that every step of the EVA calculation can be contested. If too strong a theoretical approach is adopted to the measurement, this leads to too many adjustments and exceptions. Overall, the whole measure can be perceived as a 'black box' by managers and therefore ignored. However, despite the problems over complexity, subjectivity and understanding, there

was a desire to keep EVA within each of the firms. In other words, the EVA system was modified but not abandoned as managers learned of the problems that were created. The firms worked to try to alleviate the issues with EVA to ensure understanding and acceptance.

After the initial evolution stage had taken place, a further evolutionary stage followed, in respect of the mapping of EVA within the organisations. In all three firms, initially EVA was pushed down to the business unit level, business unit managers had their own balance sheets and remuneration was based on their unit's EVA (together with a corporate EVA element). By the time of the interviews in 2001, EVA in Company X had been 'pulled back' to the corporate level, so business unit balance sheets were no longer constructed and remuneration was not based on business unit performance. Evolution in Companies Y and Z followed the same pattern, but this did not take place until the mid 2000s, so evidence for this was not forthcoming until the 2011 interviews. However, despite the fact that secondary evolution took place at different times, the underlying motivations were the same. These reasons are presented in table 5.6 below.

Table 5.6 Reasons for the secondary evolution in EVA: Incentives created by EVA

	Company X	Company Y	Company Z
1. Incentives not aligned, resulting in goal incongruence	✓	✓	✓
2. Difficulty in measurement	✓	✓	✓
3. Incompatibility of incentives with national and organisational culture	✓	✓	✓

Secondary evolution was a result of the incentives created by the EVA system. In all three companies, once the measure was accepted and understood, the use of EVA at the business unit created adverse incentives, with managers responding to these incentives and maximising their EVA result. With the firms pursuing a strategy of related diversification where communication and co-ordination is important, this created tensions between business units and had the potential to destroy company value. For example, in Company X:

“Regardless of EVA incentives for the company, line managers were more concerned with EVAs for their own units... in order to have business unit results you have to have a transfer pricing mechanism. Basically they fought over it constantly, it was a major distraction.” (Manager, Strategy and Architecture, Company X, 2001)

“What it was causing was a lot of divide between the business units. They spent a lot of their time fighting internally, that’s what their EVA was driven off. In the end the Chief Executive said ‘no, I don’t want this to continue, I want much more collaborative relationships between my executives and that should flow all the way down. Therefore we’ll have one EVA for the company.’” (Group Controller, Company X, 2001)

The message was the same in Companies Y and Z, with the following quotes being typical of respondents’ views:

“It’s driven the wrong behaviour. A backlog of investment now means that we’re not going to get a bonus payment for five years and I don’t think that works.” (Chief Financial Officer, Company Y, 2011)

“That’s probably the birth of the doom of EVA in (Company Z); actually linking EVA down to individual strategic business units because then you have arguments... Individual business units ended up competing with each other in the market, for suboptimal group outcomes.” (Chief Financial Officer, Company Z, 2011)

“We’re going away from having little silos running their own thing and having duplication of effort and wasted effort arguing about transfer pricing between units and arguing over whose customer belongs to who... We’re now bringing all these businesses together that were previously run under their own management structures to have basically super-business units that are supposedly going to work a lot better together.” (Group Planning Manager, Company Z, 2011)

The incentive impact was therefore a result of the corporate **strategy** (related diversification) and the **structure** of the organisations (decentralised, functional structure with interdependent business units organised as investment centres). The strategy and structure meant that business unit managers could take decisions (for example over investments and transfer pricing arrangements) that were in their own interests, to the detriment of other business unit and overall company value. The integrated nature of the business units meant that transfer pricing was important, leading to in-fighting. In other words, contrary to Stern Stewart's assertions, the firms learned that EVA at the business unit level impeded vertical and horizontal integration as it created goal incongruence and damaged co-ordination and communication between business units. This was also a feature in all of the firms, regardless of their business strategy. In Company Z, as well as leading to an evolutionary change in EVA, the behavioural impacts also led to a change in business structure, with business units grouped into 'super-business units.' This is evidence for the MCS feeding back to impact on a contingency variable.

As well as the issues created by the measure itself, at the same time within the firms, **structure** had changed as a result of changes in both **technology** and the **environment**. The restructuring made EVA difficult to calculate at the business unit level, leading to problems with EVA measurement, targets and remuneration. The following quote is typical of respondents' views:

“Over the years we've had a lot of trouble with business units. One of the things we never really realised and have never really grasped is that we've been slicing and dicing our business units. When this first scheme started we had a business unit that then got split about three ways but it wasn't a clean split. The next year following the split we had no history for the EVA based on growth. So there was about 8 months and then these people just said we can't do it.”
(Human Resource Manager, Company X, 2001)

The above quote illustrates the fact that within the firm, it took time for managers to understand that changes in structure impacted on EVA and to learn that they needed to pull the calculation back up to the corporate level. As well as the level of EVA

calculation, within Company X the EVA incentive scheme evolved away from the Stern Stewart recommended bonus scheme for business managers, with no caps and floors. This was a **cultural** reason for evolution, reflecting both national and organisation culture, meaning that the sharp incentives created did not fit:

“One of the reasons we got rid of negative multipliers was the impact on recruitment and retention. If you’ve got so far as your bonus bank was negative, you could see that you needed two good years to get any money out of it. We could see that that was never going to be any good. You can’t recruit people in that situation. You can’t retain people in that situation... We decided culturally that in (Company X) and we believe in New Zealand that isn’t sustainable. People really struggle with it. This is very aggressive, this is all ‘perform or get out’ – it’s an American culture.” (Human Resource Manager, Company X, 2001)

Overall, the relevant contingency factors which drove EVA evolution in the three firms were:

- Environment – in particular Government and regulation (for initial evolution) and innovation (for secondary evolution) for all three firms
- Technology – including the EVA measure itself and also technological advances (for initial and secondary evolution).
- Corporate Strategy (for secondary evolution) – the strategy of related diversification meant that communication and co-ordination was important. The incentives created by the EVA MCS inhibited this.
- Structure (for secondary evolution) – both in terms of the behavioural impact created by the interdependent decentralised structures and the impact of environmental and technological variables, leading to changes in structure. In one company there is evidence that the EVA MCS fed back to influence structure.
- Culture – national and organisational (for secondary evolution).

Whilst the motivations for the evolutionary process may have been capable of prediction in advance, the exact time sequence could not have been predicted. Within the firms, EVA users may have been aware of the process (for example one company knew that other firms had simplified the measure of EVA). However, they had to learn

for themselves how to adapt the system to fit their organisation. This could only take place after they had gained experience of the information provided and the incentives created by EVA. Therefore, the proposed contingency variable of **dynamic interaction** is important in the evolution of the EVA MCS system after initial implementation. Overall, Proposition 2, which states that dynamic interaction will lead to evolution in the EVA MCS as managers learn whether there are issues over the information provided and the incentives created, or whether there have been changes in one or more of the contingency variables, is accepted.

Decline of EVA

By 2011, EVA was no longer the MCS for the firms. Company X had abandoned EVA in 2006-2007 and Companies Y and Z in the late 2000s. Whilst there was no EVA legacy in Company X, Companies Y and Z still made some use of EVA in 2011, with Company Y calculating EVA ‘at a high level’ for pricing decisions and Company Z using EVA for some business cases, alongside other measures. The contingencies for EVA decline were explored by the researcher in the 2011 interviews. These contingencies are presented in table 5.7 below.

Table 5.7 Reasons for decline in EVA use

	Company X	Company Y	Company Z
Information			
1. Volatility in the EVA result	✓		
2. Confidence in the EVA targets	✓		
Changes in Contingency Variables			
3. Change in personnel - lack of EVA champion	✓		✓
4. Introduction of international reporting standards		✓	✓
5. Recession		✓	✓
6. EVA no longer fits business strategy		✓	✓
Incompatibility			
7. Incompatibility with organisational culture	✓		✓

From table 5.7 it is apparent that the respondents cited differing but overlapping reasons for the decline in EVA in their firms. Within Company X, the Human Resource Manager interviewed in 2011 had been the EVA owner in 2001. This respondent had an excellent understanding of EVA in the company and was clear about the reasons for its decline and the fact that there was no legacy of EVA within the organisation:

“EVA was a concept that ideally allowed you to external benchmark your targets... but it was volatile. And the first thing we probably started to unravel was that volatility and also confidence with the target setting which allowed us to feel comfortable with that kind of range of outcomes... so at this point in time we still continued to call it EVA we started to unpick, particularly if you take the Stern Stewart model of EVA as opposed to just the measure, we started to unpick pieces of it... The way I recall it was kind of like a gentle dismantling.”
(Human Resource Manager, Company X, 2011)

As has been discussed above, the ‘gentle dismantling’ of the EVA MCS started with the removal of adjustments and of the business unit calculation of EVA. Shortly after the 2001 interviews, further evolution took place, with the bonus bank feature removed from the remuneration scheme. The Human Resource Manager explained that the bank had “an American view of bonuses” which did not fit the cultural values of New Zealand or of Company X. The perception was that New Zealanders were more used to being managed to targets and if the target is met then the remuneration is paid. If EVA is seen as volatile, then setting and meeting targets is problematic. At a meeting in the 2006-2007 financial year, the Board formally decided to remove EVA for target setting, stating that it would be replaced with the “more widely understood EBIT as the financial metric” (Board meeting minutes). The Human Resource Manager confirmed:

“When we finally stopped using EVA, it wasn’t that we had massively rejected it at that point in time. There was just a view that it would be easier to focus people on EBITDA.” (Human Resource Manager, Company X, 2011)

The importance of an ‘EVA champion’ or ‘owner’ was also emphasised:

“If you want something like this, you really need a strong advocate and you need to keep working on it... We kind of just drifted to what most people would do.

Whereas EVA was a decision to do something quite different, certainly initially it was an enormous investment... I guess it's probably a CFO to be honest who has to believe in it and continue to drive it." (Human Resource Manager, Company X, 2011)

To summarise, within Company X, EVA 'waned' over time as the company gradually evolved away from the institution. Finally, the system was formally abandoned by the Board in the 2006-07 year. The reasons for the decline were predominantly **technology** reasons (personnel and the measure itself) but incompatibility with the New Zealand **culture** was also a factor –in terms of the conflict between the American and New Zealand view of bonuses and the volatility in the range of targets that EVA produced.

In contrast to Company X, Companies Y and Z continued with EVA for several more years. Evolution in Company Z followed the same pattern as Company X, with the next stage in the evolutionary process being the dilution of EVA for remuneration:

"The range of possible incentive results was quite massive and at the time our EVA and profit was actually quite modest so that bonuses as a percentage of total profit was actually quite a high percentage. For every dollar of profit earned we were paying out some massive percentage of that as incentives, so it was just like a media disaster waiting to happen, if someone was clever enough to ask the right question." (Group Planning Manager, Company Z, 2011)

Despite the actual results being different, the reason for the dilution of EVA for remuneration is the same as that given by the respondent in Company X: EVA bonuses did not fit the national **culture**. In Company Z, it was a clash of the EVA outcomes with the people outside of the organisation, in contrast to Company X where the conflict was with employees inside the organisation.

The final life cycle phase for Companies Y and Z was the decline of EVA to its present state. For both companies, a key driver for the dilution in EVA was the introduction of international reporting standards (IFRS), which became mandatory in New Zealand from 1st July 2007. This represented a change in the regulatory environment for the firms. It wasn't that the environment was uncertain, but rather it shifted as a result of the new regime. Respondents in both companies cited the amount of time that was

required to devote to IFRS as being a major reason for the decline in EVA. In addition, the CFO in Company Y wanted to ensure that staff were fully au fait with IFRS:

“EVA was really useful. But I think as IFRS came in from an accounting point of view it became trickier to reconcile the two systems, especially as the standards for IFRS were in motion. A lot of energy and attention was going in to the new accounting standards and the new way of thinking... I moved from having an EVA based accounting system to a GAAP based accounting system... mainly because in terms of staffing, I didn’t want the (Company Y) accounting staff to be behind the ball in terms of IFRS competence.” (Ex-CFO, Company Y, 2011)

“IFRS was certainly the initial driver... There’s obviously been a lot larger focus on the IFRS standards... With New Zealand IFRS there are clear standards which map out how you’re supposed to do your reporting. Under EVA it is not as clear in terms of the rules and there are grey areas... It creates a bit of complexity in the accounting function which, when you’re getting down to the nitty-gritty, it’s nice to get rid of those things.” (Financial Controller, Company Y, 2011)

The extra work required with IFRS together with the lack of standards for EVA was mentioned by respondents in Company Z also, for example:

“The other thing that IFRS did was that it increased the workload on finance teams, so they didn’t have the luxury of mucking around with something that they didn’t actually have to do... They were all hands to the pump, doing the IAS39 hedge effectiveness testing and this, that and the other.” (CFO, Company Z)

“EVA was always viewed as being effectively a management accounting view of the world because there are no standards... The push to standardisation meant that EVA, which was inherently subjective and probably open to a bit of interpretation, sort of seemed to be swimming against the tide.” (CFO, Company Z, 2011)

In other words financial accounting, which became more heavily regulated with the introduction of IFRS reporting requirements, led to a crowding out of the management accounting measure when resources were constrained. This is an **environmental** variable, relating in particular to Government and regulation.

A further environmental variable for Companies Y and Z was the recession phase of the **business cycle**, which started in the beginning of 2008.⁵³ The impact of the recession was that there was a lot of uncertainty created and capital markets were not liquid; there was a squeeze on new capital and a pressure on existing financing arrangements, leading to a focus on cash. The EVA model was not appropriate in the economic crisis, both in terms of the incentives created and the information provided. Firstly, in a credit crunch, there is value to holding liquid resources. Cyert and March stated that “slack is a cushion when the environment becomes less favourable” (Cyert and March, 1992, p43).⁵⁴ The value provided by this cushion is not captured in EVA. In fact, holding surplus liquidity would run counter to the EVA principles, where there is an incentive to try to reduce the capital charge. This was explained by the CFO of Company Y:

“There’s a willingness to have perhaps a more flexible balance sheet structure and perhaps some capital availability... You’re only doing that for flexibility in uncertain times; otherwise you wouldn’t be running that surplus liquidity position. Therefore your EVA would be lower.” (CFO, Company Y, 2011)

Secondly, the EVA system did not provide the firm with information to assess how close the business may be operating in respect of the restrictions of debt covenants, something which is very important in a recession:

“EVA would not potentially disclose some of the other financial parameters that we needed to be conscious of when we were thinking about those covenants... We needed to be thinking more about conventional accounts.” (Group Manager, Human Resources, Company Y, 2011)

Holding liquid resources is valuable when credit markets are squeezed; this runs counter to the EVA philosophy.

⁵³ Source: The Treasury, Monthly Economic Indicators January 2010.

⁵⁴ Slack resources are defined as total resources less necessary payments.

Finally, EVA may not be a useful motivational tool in a recession, when results are depressed. A string of poor results can be seen as unacceptable:

“I think we achieved about six years in a row of EVA growth which is actually quite hard to do for most businesses but since then we’ve had a peak point and then it’s tanked through this recession thing. So maybe that’s the other thing in the last couple of years that is showing and communicating to staff that it’s negative 20 million dollars or whatever... I think they always thought it was a bit more acceptable when you could show the growth going up.” (Group Planning Manager, Company Z, 2011)

Respondents in Companies Y and Z provided evidence on the fact that it was the **collective** impact of IFRS and the recession that led to the decline in EVA. For example:

“It was all timing; if we’d had those IFRS standards coming in at a time we were making good EVA, you may well have found that we would still do all the communications that we used to do, quarterly, around how we were going and the sharing in success because we could hold it out there as a tantalising thing. But when you’re not making money and all you’re doing is reducing costs, it’s very tough.” (Manager, Human Resources, Company Y, 2011)

As well as the collective impact of IFRS and the recession impacting on EVA, the Human Resource Manager emphasised the fact that EVA was an appropriate system when the business cycle was more favourable:

“If you’d been here five years ago, I would have been saying to you, gosh, we’re in clover, this stuff really works.” (Human Resource Manager, Company Y, 2011)

Within Companies Y and Z, the recession led to a change in **strategic focus**.

Respondents in both companies cited the recession as leading to a revised business strategy where growth opportunities were the focus. There was also a need to focus on cash. EVA was regarded as an unsuitable measure in this situation, for example:

“We had a lot of difficulty, particularly with the growth side of our business and you tend to have to go back to more of your traditional cash flow modelling, because that becomes more critical... So I think it’s not a good judge of how well a business is doing in a growth phase and so we felt that’s one of the main reasons we’ve probably moved back, from a management point of view, to using GAAP... We’re now looking more towards NPV, payback, cash flow profiles, that sort of thing – cash burn.” (Financial Controller, Company Y, 2011)

“The financial crisis and the recession have driven businesses to focus on streamlining their processes, simplifying their businesses and so focusing on other things... you’re not going to embed an EVA way of thinking about the world... When you’re in a growth business, especially in a rapidly moving industry, your expectations about how that’s going to pan out say over three years, are vastly different from actually what happens in the market. Often you write the business cases for rapid growth businesses, with a set of assumptions that are widely different from what happens. The issue that then confronts the business is to say ‘well look, you know we’ve got this EVA result that’s widely different from what we thought, what does that mean? Do we abandon the strategy; do we tweak it, or what’s happening?’ And in the growth business you’re sort of guided more by the long term outcome, and what you’re trying to do in the market, and where you are going to get to, than you are about what the result looks like right now.” (CFO, Company Z, 2011)

The latter quote contains two interesting points. First of all, there was a need to change strategy in the recession. Secondly, the industry was rapidly changing, due to technological advances and changes in the environment (For Company Z, these changes was due to innovation). Together these factors led to a focus on growth opportunities and the need to concentrate on the whole life cycle of the investment. Cash modelling became more important. The annual EVA result wasn’t of consequence and the information provided by the annual EVA result didn’t help the company to assess whether it was on the right path.

Finally, the point raised by the Human Resources Manager in Company X, regarding the importance of the CFO’s support in order for EVA to continue, was mentioned in

Company Y as a reason for its decline and replacement with the balanced scorecard for performance measurement. This is a **technological** reason:

“The new CFO wants to adopt a far more balanced scorecard approach that says there’s a pool of money and then that gets adjusted by whatever, how you go on your other objectives.” (Manager, Human Resources, Company Y, 2011)

“I’m more of a believer in holistic measures, not divide measures... It (EVA) hides a multitude of sins because it tries to capture too many things in a single one thing... The all encompassing measure just hid a hundred and one things.” (CFO, Company Y, 2011)

The latter quote is interesting since one of the original selling points for EVA was that it encapsulated performance in a single measure. This advantage was seen as a disadvantage for EVA by the CFO of Company Y. Furthermore, prior to the decline of EVA within this company, the frequency of the reporting of the EVA numbers had been changed from monthly to quarterly reporting. This sent out a signal that perhaps EVA was not so important.

In conclusion, the contingencies for decline in EVA concerned:

- Technology in all three companies, in particular the appropriateness of the measure in a recessionary environment, technological advances, the lack of an EVA champion and the lack of support by the CFO.
- Culture in two of the companies, in particular the clash between what is acceptable in the New Zealand culture versus the American model of EVA.
- Environment, in particular government and regulation (for the SOEs), the business cycle (for the SOEs) and innovation in the market (one company). The introduction of IFRS and the recession were two variables that had a collective impact on EVA.
- Strategy, in particular the lack of fit between EVA and the new business strategy that was caused by the recessionary environment (the SOEs).

There was no evidence that firm size or structure were variables that drove the decline of EVA within the case organisations. Overall, Proposition 3 is accepted for the two SOEs as there was a shock to the environment (IFRS and the recession) that led to the

decline of EVA. Proposition 3 is refuted for Company X; there was no shock that led to the decline in EVA.

EVA legacy in the firms

Finally, summary quotes are presented, outlining the EVA position in the firms at the time of the 2011 interviews. In Company X, personnel mobility has meant that there is no legacy of EVA within the organisation:

“And now, if you talked about EVA, people wouldn’t know what you are talking about. It doesn’t live in our parlances... Most people would not even know what it stood for.” (Human Resource Manager, Company X, 2011)

Companies Y and Z both retain some legacy of EVA, but it differs:

“There’s an element that’s very relevant in EVA. You’ve got to take the best relevant parts out and then look at the weaknesses and say ‘that didn’t drive holistic behaviour often.’ But to cover your cost of capital absolutely is a relevant concept.” (CFO, Company Y, 2011)

“We haven’t abandoned EVA all together. I mean we still think that there’s value in there and over the long term you should be generating positive EVA... So we’re still using it from a capital investment project perspective but we’re not using it from a performance measurement perspective year on year.” (CFO, Company Z, 2011)

The decision to move away from EVA wasn’t viewed as positive by all respondents. For example, in Company Z, one respondent regretted the loss of the advanced warning signal that EVA could provide:

“My personal opinion is that it’s definitely a useful measure to keep because it actually gives some very good warning signals that are coming to fruition over the last couple of years. We’ve had some major business units having serious decline, and there may be a stable EBIT for one of them that I can think of – flat-line EBIT - but EVA has been tanking big-time because it’s getting more

and more capital put into it... I would hate to see it (EVA) lost from doing that role there (planning), because you could signal parts of the business we need to be challenging or to make fundamental changes.” (Group Planning Manager, Company Z, 2011).

Summary of the Evidence

Overall, the evidence matched the predicted time-series trend in the EVA life cycle (implementation, evolution and decline). Proposition 1 (relating to implementation) and Proposition 2 (evolution) was accepted for the three firms. However, differing explanations for decline meant that Proposition 3 was rejected for one firm and accepted for two firms. In other words, the outcome for Proposition 3 was contingent on the firms. The micro-study methodology has enabled the different explanations to be discovered. This is an added dimension that would not be detected in a large-scale statistical study that focussed on the average outcome.

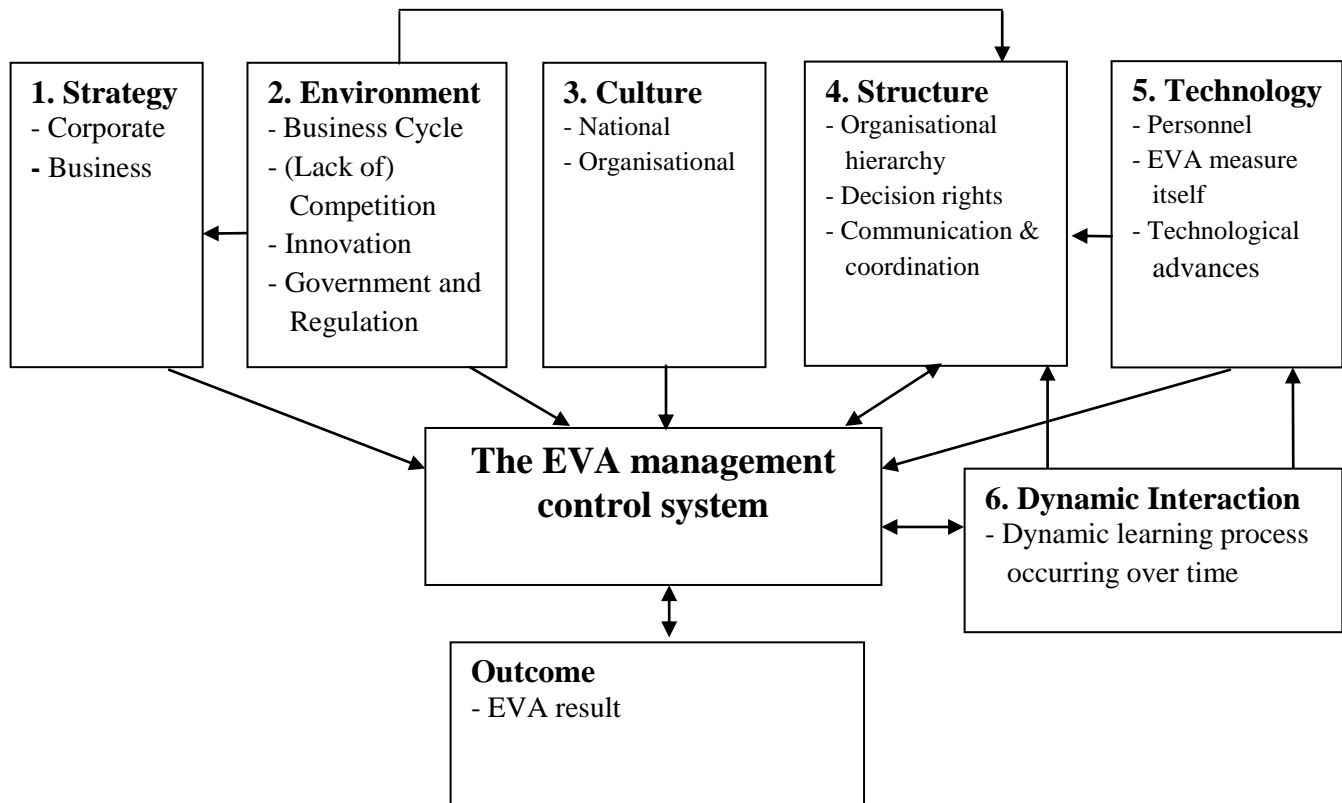
In terms of Fisher’s categorisation of contingency studies (Fisher, 1995), the study is Level 4, as the analysis has focussed on the impact of several contingent variables on EVA (the MCS and the outcome variable). The dynamic perspective provided an opportunity to explore the relevant variables, how and why these variables change over time, and their interactions with each other and with the EVA system. From the evidence presented a summary of the relevant contingency variables at each stage of the EVA evolutionary process can be developed. This information is presented in table 5.8 below. From the evidence, a model depicting the relevant factors and their interdependencies is derived. This is presented in figure 5.1.

Table 5.8 Relevant contingency variables at each stage of the EVA life cycle

	Company X			Company Y			Company Z		
	I	E	D	I	E	D	I	E	D
Strategy:									
Corporate Strategy	✓	✓		✓	✓		✓	✓	
Business Strategy						✓			✓
Environment:									
Business Cycle						✓			✓
Innovation		✓							✓
(Lack of) Competition				✓					
Government and regulation		✓		✓	✓	✓	✓	✓	✓
Culture:									
National		✓	✓						✓
Organisational							✓		
Structure		✓			✓			✓	
Technology:									
Personnel							✓		✓
EVA measure itself		✓	✓			✓	✓	✓	
Technological advances		✓							
Dynamic Interaction		✓			✓			✓	

I = Implementation, E = Evolution, D = Decline, the three phases in the EVA life cycle

Figure 5.1 Model illustrating the relevant contingency variables and their interactions



5.5 Discussion of Results

At the implementation phase there is some evidence of hierarchical diffusion (as described by Bjørnnek, 1997). However, this diffusion did not follow through exactly in the manner that would have been predicted by Bjørnnek, as the smallest firm was the second to introduce EVA. With the study focusing on three companies, it is difficult to say whether the diffusion of EVA was contagious (smooth and continuous). A much larger study of EVA companies would have been required to make this assessment. Similarly, the study could not detect any impact of the size variable as the firms were all large organisations in the context of the New Zealand environment.

EVA was a new technique in the firms and as such, could be described as an innovation. The motives for EVA introduction were not a result of 'fad' or 'fashion'. The introduction of EVA represented a significant investment and a radical change for the firms – it was fully implemented as the MCS and it was used successfully within the organisations for over ten years. This conflicts with Sulaiman and Mitchell, who suggested that changes involving new techniques are susceptible to loose-coupling and relatively low success ratings and that successful change is of a modificatory type (Sulaiman and Mitchell, 2005, p434). For one firm, the introduction of the EVA innovation solved a problem that was facing the organisation, concerning the sharing of value added between customers, employees and the shareholder. This motivation is similar to that cited by Cyert and March (1992). However, this firm was a successful firm that needed to solve a problem. In other words, the dichotomy of innovation cited by Cyert and March of innovation by successful firms (with slack resources) or unsuccessful firms (with a problem to solve) is not mutually exclusive.

Initial evolution, the simplification of the measure due to perceived lack of internal and external validity, is perhaps not surprising, as it is easier to challenge a management accounting model that has no associated standards, than it is to question financial accounting results which are based on accepted standards (Ezzamel and Willmott, 1998). The potential advantage of the measure of EVA, that it is free of accounting rules and regulations and so can be specified individually for each firm, is in fact a disadvantage as there is no objective support for the calculation.

Variables driving secondary evolution were consistent across the firms. For example, culture was important where the 'American view' of bonuses was deemed unsuitable in the New Zealand culture. This is evidence of the MCS losing effectiveness if it is deemed to be culturally inappropriate (Merchant and Van der Stede, 2012). Strategy was also an important variable, but the impact of and problems with EVA were the same, regardless of differing business strategies. It didn't matter whether the firm was characterised as a cost leader (Company Y), a differentiator (Companies X and Z) or characterised as pursuing a confrontation strategy (Company X), the fully implemented EVA system created the same adverse incentives that drove the motivation for secondary evolution.

Dynamic interaction provided to be an important variable at the evolution stage; an understanding of the issues over information and incentives created by EVA had to be learned over a period of time. Also, firms had to learn of the impact of the changing environment and technology on the EVA MCS. Dynamic interaction is similar to a feedback mechanism and it is a variable that would not be detected in the traditional cross-sectional application of contingency theory. It is important to note that the impact of managers is not about psychodynamics (where managers want to 'make their mark' or further their careers by adopting innovations, as described by Sturdy, 2004) or managerial power or competition (see for example Ezzamel and Burns, 2005; Malmi, 1997).

The final life cycle phase was the demise of EVA in one firm and the decline in the other firms. Although a stable variable, national culture was an important factor for abandonment – EVA was regarded as an American view of the world that did not fit with the New Zealand perspective. Although the firms had addressed the perceived cultural clash at the evolutionary stage by pulling the measure back to the corporate level, the clash still remained. Interestingly, according to Hofstede's cultural dimensions, New Zealand is very similar to the USA with respect to masculinity, uncertainty avoidance and long-term orientation. However, the cultures differ regarding individualism (the extent to which individuals look after themselves and their immediate family) with New Zealand having a lower score than the USA (which has the highest score); and power distance (the extent to which the less powerful accept that

power is distributed unequally) with New Zealand having a lower score than the USA.⁵⁵ In other words, Hofstede's cultural dimensions suggest that the New Zealand culture is less individualistic and has a lower power distance. This is supported by the evidence from respondents in the micro-study companies, where the EVA system was seen to conflict with national and organisational culture. Although the EVA MCS created conflicting incentives at the business unit level, there was no evidence in this study of business units having a separate culture to that of the overall firm.

The larger company abandoned EVA before the two SOEs. For this company, there seemed to be a Darwinian 'survival of the fittest' with the well established financial accounting based measures prevailing. The major cause of the decline in EVA for the two SOEs was a change in factors relating to a contingency variable. The two separate shocks to the environment in close succession impacted on the EVA MCS and on other contingency variables. This has been described in biology as 'punctuated equilibrium' where evolution occurs in bursts as a result of rapid events (Eldredge and Gould, 1972). In this study, the rapid events were the shocks of the introduction of IFRS and the recession. These events also drove a change in business strategy within the two organisations still using EVA. For both firms, there was a shift to a focus on new growth opportunities, investment now for (uncertain) cash flows in the future. This new strategy was not compatible with EVA so the system needed to change. Since the EVA model does not easily accommodate growth options, adjustments may be necessary to provide the incentive to invest⁵⁶. Just as compatibility with strategy was an important factor for EVA implementation, incompatibility with strategy was a factor for the decline of EVA. This confirms the view that the MCS must fit corporate strategy and if strategy changes, the MCS must also change (Brignall, 1997; Merchant and Van der Stede, 2012).

The evidence demonstrated that contingency factors relating to the environment, (regulation and the business cycle) acted collectively to impact upon the EVA MCS and contingency variable of strategy. The introduction of IFRS meant a huge increase in the

⁵⁵ The scores for New Zealand and the USA respectively are Power Distance: 22, 40; Individualism: 79, 91; Masculinity: 58, 62; Uncertainty Avoidance: 49, 46; and Long-term Orientation: 30, 29. Source: http://www.geert-hofstede.com/hofstede_dimensions.php?culture1=63&culture2=95

⁵⁶ Stern Stewart states that incentives to invest can be provided through the creation of a suspense account to keep capital from such investments 'off the books' until the cash flows materialise (see for example Ehrbar, (1998, p170) and Young and O'Byrne (2001, p94). However, these adjustments add further subjectivity to the measure.

amount of compliance work. The recessionary environment led to a change in strategy and a focus on cash and cash burn. There was value to holding liquid resources, which is the antithesis of the EVA philosophy. This evidence from the respondents is borne out in the cash balance information in the annual reports and accounts. A comparison of the average cash balances for the three companies for the years 1998-2000 and 2008-2010 demonstrates that the balances had increased substantially by the end of the decade, compared to in the early years of EVA. This information is presented in table 5.9 below.

Table 5.9 Average cash balances for the years 1998-2000 and 2008-2010 (NZ\$000)

	Airways	Post	Telecom
1998-2000	2416	15953	41000
2008-2010	3726	107351	466667
Change	54%	573%	1038%

Source: Annual report and accounts: Statement of Cash Flows

Overall, the incentives to hold cash as well as the need to focus on financial accounting numbers (for tracking performance against debt covenant requirements) meant that EVA was not an appropriate measure in the recession. However, if either the introduction of IFRS or the recession had not occurred, perhaps EVA would not have declined. For example, the absence of IFRS would have meant that the firms did not have as much compliance work to do, so perhaps could have spared the time for staff to continue with EVA. The absence of a recession would have meant that credit was not squeezed, meaning that a focus on cash and financial accounting numbers were not so important; and EVA may have still provided the right incentives. It remains to be seen whether an improvement in the business cycle will lead to a renewed focus on EVA.

The evidence demonstrated that when the environment changed, it was financial accounting that took priority and provided the appropriate information. This is in direct contrast to the assertions of Abdeen and Haight who state that rapid and complex changes in the environment mean that companies need sophisticated measures of performance. They state that traditional metrics (based on financial accounting) are inadequate and ‘first class measures’ (of which EVA is cited as an example) are more appropriate (Abdeen and Haight, 2002). The focus on financial accounting provides

some support for the assertion by Cyert and March that the tighter the budgets, the more expenditure will be controlled by essentially conservative rules (Cyert and March, 1992, p189).

The evidence on decline of EVA suggests that there was a reduction in a management accounting system. This runs counter to the suggestion by Sulaiman and Mitchell who state that there is “a ratchet-like mechanism in operation, which preserves the management accounting system from reduction” (Sulaiman and Mitchell, 2005, p434). The micro-study demonstrates that there was a decline in the measure. However, as of February 2011, the regulators of the SOEs were considering a requirement for the SOEs to submit EVA results on an annual basis.⁵⁷ If this regulatory requirement is introduced, it could potentially increase the importance of EVA.

The changing nature of contingency variables, their interdependencies and collective impact provides a powerful result that demonstrates that the design of contingency research is important. The longitudinal approach provided an opportunity to investigate the changing influence, something that could not be discovered from the traditional cross-sectional approach to contingency studies. The micro-study involving questionnaires and in-depth interviews in the companies facilitated the detection of a number of relevant variables and their interdependencies. This suggests that results from studies where the impact of only one contingency variable is examined (classified as levels 1-3 in the Fisher categorisation (Fisher, 1995)) may lack meaning since the collective impact of and causality between variables cannot be detected. Statistical studies based on quantitative data or survey questions may be particularly vulnerable as it may be impossible to detect relationships.

5.6 Conclusions

This chapter has examined the implementation of and experience with the EVA innovation in three New Zealand companies (one listed company and two state-owned enterprises) over a period of fifteen years. The objective was to build explanations for EVA implementation, evolution and decline, using a dynamic contingency theory perspective. The longitudinal trend was predicted and a match sought between

⁵⁷ The source of this statement is a meeting held between the researchers and representatives from The New Zealand Treasury in February 2011.

propositions for each phase of the cycle and the empirical observations. The findings are limited by the number of companies and by the specific context examined. Nevertheless, this study provides four main contributions to the literature on contingency theory. First of all, the dynamic, longer-term perspective is itself a contribution since extant contingency theory studies tend to be cross-sectional, focussing on a relatively short period of time.

The extension to a longer-term focus facilitated the second contribution, the identification of the relevant variables that were influential at each stage of the EVA life cycle. The micro-study approach facilitated an understanding of the changing influence of the contingency variables over time. Evidence from each phase led to the development of a contingency model that illustrated the relevant variables and their interactive nature. Since the study was not restricted to a set number of pre-specified variables, the possibility of the omission of relevant variables was reduced. Furthermore, as well as acting individually, there was evidence of both a causal link between variables and contingency variables acting collectively to influence the EVA MCS. The collective impact and the causality observed mean that contingency variables should not be viewed as independent variables acting in isolation. Changes in and interactions between contingency variables would not be detected in a cross-sectional study that examines empirical data at a point in time.

A third contribution is the suggestion of the need to consider a new contingency variable, termed dynamic interaction. Dynamic interaction reflects the learning and experience gained from working with the EVA system. It occurs as a result of the passage of time and as such its impact would not be detected in a cross-sectional study. For the case companies, dynamic interaction led to evolution in the system as managers learned of the problems that EVA created.

Finally, the model of technique decline is itself a contribution. At this stage it was a shock to the environment that led to a complete decline in the EVA system. For the two companies still employing EVA at this time, the environmental factors of the introduction of IFRS and the recession acted collectively. If either the introduction of IFRS or the recession had not occurred, perhaps EVA would not have declined. The study has also provided evidence on the EVA system itself. For the three companies, EVA was an innovation and not simply a 'fad.' EVA was employed for

between ten to fifteen years in each firm as a central component of the management accounting system. However, during this time there were problems created by its lack of internal and external validity. The fact that the measure of EVA was sold by its promoters as being specific to each company (in terms of the adjustments made) and the lack of standards meant that EVA was viewed as subjective and complex, leading to a lack of understanding both inside and outside of the firm. This in turn created a need to evolve the measure to simplify it and to bring it closer to financial accounting results. The EVA system also created adverse incentives. When EVA was introduced, a cultural fit was assumed. Although national and organisational culture did not change over the time of this study, a clash of EVA with culture was an apparent driver for evolution in all three companies and for decline in one company. It took time for managers to discover that the American style system of EVA, with its sharp incentives, did not suit the New Zealand culture. This is another example of dynamic interaction at play. Finally, when the two shocks of the introduction of IFRS and the recession hit the two firms still employing EVA, it was the financial accounting system that dominated the management accounting system, driving out EVA. Furthermore, EVA was found to be an inappropriate system in a recession, where there was a focus on growth options and a desire to hold cash in illiquid markets. Both of these aspects are not easily accommodated in the EVA system. Overall, there were issues with both the information provided and the incentives created.

The evidence demonstrated that firms do abandon management accounting techniques and for these companies, there was no ratchet-like mechanism that prevented a decline in the system. Overall, for the micro-study firms, there is no legacy of EVA in the listed company, and very little legacy in the two SOEs. However, a possible new regulatory requirement to submit EVA results to The New Zealand Treasury could create a renewed focus on EVA in the SOEs.

The research conducted in this study was explanatory in nature. There was no attempt to provide general results that would be applicable to all firms. Notwithstanding this fact, the model presented could be used to investigate different management accounting techniques using a dynamic perspective. This would enable an examination of the changing impact of the relevant variables, their causation and the role of dynamic interaction. The micro-study evidence enabled the discovery of different explanations for the decline in EVA. Further studies could seek to confirm these explanations or find

new explanations. An analysis of the impact of the recession and the introduction of IFRS on the management accounting function would be a relevant area of investigation, to determine whether financial accounting does indeed drive out management accounting. The study could be extended to other EVA users and other state owned companies internationally to determine whether and how EVA is still being used and the variables that are relevant for its success. Finally, the impact of any regulatory requirements to publish EVA results imposed on state owned enterprises could be examined, to see if this is a relevant contingency variable for the continued use of EVA in these organisations.

Chapter 6. Conclusions

The overall objective of the PhD has been to conduct a dynamic, longitudinal evidence-based investigation of whether EVA can create value in three New Zealand companies: Airways Corporation of New Zealand (state-owned enterprise or SOE), New Zealand Post (SOE) and Telecom Corporation of New Zealand (listed company). Over the time period studied (1998-2010), the three companies together comprised a significant portion of the New Zealand economy, with operating revenue averaging at 12.1% of retail sales and 4.4% of GDP. It follows that if the use of EVA could lead to value creation then this would have significant impact on the New Zealand economy.

Within each firm, EVA was fully implemented with the help of Stern Stewart and used as a central component of the management control system for a period of ten to fifteen years. Although viewed as a new management accounting technique when it first appeared on the scene, the implementation of EVA was not a result of a fad or fashion for these firms. It was viewed as an efficient choice and, as such, EVA was not a short-lived phenomenon within any of the organisations. The decision to introduce EVA properly and implement it as the full management control system required a significant investment. The investment was not only in terms of time and money at the implementation stage, but was on-going through the life cycle of EVA as managers responded to the information and incentives created and worked to evolve the system. In the listed company, this significance was evident in a comment by the Human Resource Manager who commented in 2011 that the scale of the investment in EVA was such that “the likes of which have never been repeated.”

The study involved research that covered the entire life cycle of EVA for these firms. All of them made extensive use of EVA but eventually abandoned it. Thus, a holistic perspective of EVA was provided, from implementation, through evolution, to its eventual decline. The case study method enabled a detailed investigation of EVA, its origins and influences and how it persisted and changed over time. The variety of respondents from each organisation provided detailed evidence on the experiences of EVA, revealing linkages and widening the study beyond a management accounting perspective. This sort of evidence is not available from studies that investigate EVA at the corporate level.

The three companies were key EVA users in New Zealand, with the two SOEs also publishing EVA results in their annual reports and accounts. Airways went beyond the publication of the actual result and also provided detailed information on the calculation, including the value of NOPAT, capital and the estimation of the cost of capital. The analysis of this information, together with information on the companies and their business strategies enabled the consideration of some findings from the literature. First of all, the finding that EVA is more suited to defender firms (who compete through cost minimisation) than prospector firms who compete through differentiation), Lovata and Costigan (2002). Whilst this hypothesis could not be explicitly tested, it can be said that two of the case companies could be described as prospector firms and they continued to use EVA as their MCS for over ten years. The finding that EVA is suited to capital intensive firms (Kleiman, 1999, Riceman et al., 2002) was supported, since each of the firms operates in a capital intensive industry. Thirdly, the finding that EVA may be less effective for firms in the service area (Riceman et al., 2002) could not be supported as all three firms operate in the service sector. An examination of the published EVA results for the SOEs led to the rejection of the hypothesis of Lougee et al. (2006) that firms implement EVA to pick the “low hanging fruit.” This hypothesis was tested (and rejected) using the actual (correct) EVA results published by the firms, so did not rely on artificially constructed data.

In the analysis of the case study evidence, three major research questions were addressed:

1. Does the implementation and use of EVA lead to the discovery of value within the organisation?
2. Can EVA be interpreted as a management model to meet corporate objectives?
3. What were the key factors driving implementation, use and decline of EVA?

The first research question covered the implementation and evolution of EVA within the firms, whilst the second focused on the continued use of EVA. The third question examined each phase of the EVA life cycle.

The analysis of the evidence was guided by three different theoretical frameworks taken from three different disciplines: the discovery process (economics), management model (management) and contingency theory (accounting). The objective in using the different frameworks was to provide alternative perspectives on the practical application

of the EVA technique and a new application of the frameworks. The theoretical underpinning of the investigation (together with the testing of empirical findings) was undertaken in order to respond to criticisms by Zimmerman (2001) that management accounting research lacked theory and an economics perspective should be adopted, and the suggestion by Luft and Shields (2002) that a variety of theories should be used.

Although focussing on different aspects and different phases of the EVA life cycle, the central theme of each framework was the information provided and the incentives created by the EVA system, to address the fundamental question: can EVA create value? The conclusions from each of the frameworks are now discussed and the research questions answered. Following the separate conclusions, the contributions of the study are presented, in terms of contributions to the frameworks themselves, contributions of the holistic approach to the management accounting research method and contributions to our understanding of EVA. Finally, implications for practitioners and policy makers are presented.

6.1 Conclusions on EVA from the Discovery Process Framework

The discovery process framework was developed in order to evaluate the implementation and use of the EVA innovation and to see whether it could be employed to discover value within the organisations. The framework was informed chiefly by Nelson and Winter (1982) on routines and discovery, and Layard (2003) on incentives within organisations. The Stern Stewart framework for EVA motivated the discussion of the key influences, complementary systems (such as the balanced scorecard) and inhibiting factors for the discovery of value. A key feature of this framework was the recognition of the evolution in the management accounting function over time, and the mechanisms for those changes.

The research findings demonstrated that upon introduction of the EVA system, there was a shift in the rules and routines within firms, reflecting the fact that EVA was central to the MCS. Whilst this may represent a common starting point, from then on the process of evolution was path-dependent. Evolution in the rules and routines took place as a result of the interaction between managers and others working with the system. This evolution was different across the firms, as it depended upon the resulting sequencing of influencing actions.

The prospects for the discovery of value were recognised by the firms. Since the firms were former national monopolies and they still retained some monopoly elements in their businesses, it was anticipated that EVA could assist with the discovery of value, with the system employed alongside the balanced scorecard. However, there were limitations to the information provided by the system, due to the perceived complexity of the measure. Furthermore, the system failed in its ability to motivate managers to discover the value that was known to exist in these companies. The key to understanding this failure concerned incentives. As a consequence, through a process of discovery of the incentive impacts, there was an evolution in the EVA system, both in terms of its measurement and use. When discoveries were made that specific adjustments were not influential, these adjustments were abandoned. When it was discovered that the application of EVA at the business unit level created rivalry leading to sub-optimal behaviour, EVA was taken back up the organisation. This evolution could be interpreted as a transition to reduce the transaction costs of the system and it meant that each firm made use of a different application of EVA than the Stern Stewart model. The path-dependent process of evolution in each firm suggested that the exact course of EVA could not be predicted in advance. Whilst in the time period covered by this analysis (up until 2001), the EVA institution had not been abandoned by any of the firms, the way that the system was being employed meant that its prospects for value creation became increasingly diminished. Therefore, the answer to the first research question, for each of the firms, was no, the implementation and use of EVA did not lead to the discovery of value within any of the organisations. This is a powerful result: the applications of EVA employed in the firms could not discover value that was known to exist in these monopoly businesses.

6.2 Conclusions on EVA from the Management Model Framework

The evaluation of the evidence concerning the on-going use of EVA to meet corporate objectives was conducted using Birkinshaw and Goddard's management model framework (Birkinshaw and Goddard, 1999) for dimensionalizing management. This model was based on positive analysis and normative predictions. The positive analysis comprised the synthesis of a large number of existing theoretical management models in a type of factor analysis. This led to the encapsulation of the work of managers into four dimensions: the setting of objectives, motivating managers, co-ordinating activities

and decision making. Within each dimension, polar extremes of management are described, ranging from 'traditional' (in use for generations) to 'alternative' (just beginning to be adopted). The analysis of the Stern Stewart model of EVA revealed that EVA can in theory address each of the four dimensions with the Birkinshaw and Goddard management model, if applied in the way that Stern Stewart recommends. The application corresponded to the traditional end of the spectrum for two of the dimensions. Objectives should be managed with clear rather than oblique goals. These can be at the overall corporate level, the business unit level, or both. Incentives for managers should be based on EVA, so are clearly extrinsic rather than intrinsic (coming from within, such as a sense of pride in a job well done). For the two remaining dimensions, it was suggested that the Stern Stewart model of EVA aligned most closely with the traditional end of the spectrum since it was expected that coordination of activities would be achieved in a formal or bureaucratic way through for example budgets and transfer prices, rather than in a spontaneous manner. For decision making, it was suggested that EVA would lead to a hierarchical, rather than a collective wisdom approach. However, it was recognised that EVA could conceivably be used for spontaneous decision making and collective wisdom. The normative element of the management model suggested alternative forms of the model according to different business characteristics. The EVA evidence suggested that the EVA system would correspond to most closely to the planning model of management, which Birkinshaw and Goddard claimed is suited to mature firms in predictable industries. In addition, EVA may also align with the quest model, for established firms facing rapidly changing environments.

The evidence demonstrated that none of the firms employed EVA to the extent that Stern Stewart recommended. Furthermore, there was no uniform application of EVA across the firms. This reinforces the path-dependent nature of EVA concluded from the discovery process framework. Whilst the original implementation and use of EVA in the firms may have been more consistent with the Stern Stewart model, over time there was an evolution in its application. This evolution was not directly incorporated in the management model, as it is a static model that does not address management change. While it is possible that at different points in time the 'snapshot' may itself be different, the Birkinshaw and Goddard model does not explain how change takes place.

An important conclusion was that although the practice observed within each firm diverged from the theory, this did not compromise the status of EVA as a management model. EVA played a key role within each of the four dimensions for each firm, although it was weakest in the coordinating individuals dimension, reinforcing the rivalry conclusion from the discovery process framework. The divergence between the Stern Stewart recommendations and practice did not alter the principles within each of the four dimensions. For each of the case firms, EVA involved traditional, rather than alternative, principles. Since the firms applied the EVA model differently, this demonstrated that there can be considerable variation within the dimensions. It also showed that the EVA management model provided flexibility. Since two of the firms (listed company and one of the SOEs) operated in dynamic, rapidly changing environments for at least part of their businesses (corresponding to the quest model), the evidence demonstrated that EVA was suitable as a management model for these firms and not just for businesses operating in stable, predictable industries (corresponding to the planning model).

Despite the fact that the full Stern Stewart model of EVA was not applied, the evidence demonstrated that each of the three firms used EVA as a management model. Each of the case companies also operated with the balanced scorecard as the business model, which either pre-or post-dated the EVA implementation. For the firms studied, the balanced scorecard as a business model complemented EVA as a management model. In other words, the business model and the management model intersected, with the balanced scorecard containing both EVA (as one of the financial measures) and intangible measures (that are not encapsulated directly in the EVA measure). This was an attempt to promote longer term objectives alongside EVA, which can be regarded as a short-term measure.

6.3 Conclusions on EVA from the Contingency Theory Framework

This framework employed a dynamic, longitudinal approach to investigate the whole life cycle of EVA within the firms, with the cycle split into three distinct phases: implementation, evolution and decline. Drawing on the contingency theory literature for management accounting (for example, Chenhall, 2003; Fisher, 1995), empirical propositions were posited in order to identify the important variables for each phase.

The dynamic focus provided an opportunity to consider the variables, their interactions with each other and how they impacted on the EVA system.

At the implementation phase, a constant factor across the three firms was the fit of EVA with strategy. However, since the firms pursued different business strategies, (cost leader, differentiator, confrontation), EVA was shown to suit more than one particular type of strategy. Furthermore, for the SOEs, the environment was an important variable for implementation, particularly the government and regulation (via the Value-Based Reporting Protocol, discussed in chapter 2). In addition, for one SOE, the lack of competition was a factor for introduction. EVA was seen to be a 'fair' way to set prices by all stakeholders in the firm. For the second SOE, cultural and technical factors were important.

Evolution was proposed to be a two-phased process, with initial evolution due to the information provided and secondary evolution occurring as a result of the incentives created. For the three firms, the process did follow this predicted pattern, although the result (in terms of the measure of EVA and how it was used) was not identical. Furthermore, the time scale was not the same, with the listed company going through this process prior to the SOEs. A key factor for evolution was a new contingency variable, termed dynamic interaction. This variable was suggested to encompass the dynamic learning that takes place as a result of managers working with the system. Over time, the information and incentives created by EVA were reviewed and this was fed back in the form of adjustments to the system. In addition, as well as strategy, technology and the environment, culture and structure were important factors for the evolution of EVA. For the firms, it was necessary that the measure evolved to make it less complex and less subjective, and for two of the firms, to reduce the perceived clash of culture between what was acceptable in New Zealand and the American approach to incentives enshrined within the EVA system. Regardless of the differing business strategies, the fully implemented EVA system failed to provide the right incentives.

Since the EVA methodology was employed for an extended period of time within each of the three firms, it was predicted that the impetus for its demise must have been an external shock or change that meant that EVA was no longer viable in the companies. This was the case for the SOEs, where two external shocks to the environment meant that EVA could not be sustained. First of all, the introduction of IFRS meant that there

was a shortage of accountants and staff time to devote to EVA. Secondly, the recessionary environment meant that through dynamic interaction, managers learned that the EVA measure no longer provided the right information or the right incentives. These two variables acted collectively to influence the decline of EVA, as it was deemed to be too costly and no longer appropriate. The new focus was on cash and cash burn and company strategy had changed in response to the recessionary environment. The listed company had ‘drifted away’ from the EVA system over a period of time prior to the introduction of IFRS and the recession. There was a ‘gentle dismantling’ of the construct, with formal abandonment in the 2006-07 financial year. The demise of EVA was largely due to a lack of support from the top, such as commitment by the CFO to maintain the system.

6.4 Contributions of the Study

The study comprises a comprehensive study of EVA in the three companies. In achieving this it makes a unique contribution to the management accounting literature. Overall, it provides a holistic view of the EVA systems over the time period of their employment. The use of the three theoretical frameworks for the interpretation of the evidence generates contributions in respect of both the frameworks themselves, the management accounting research method and the EVA measure. These contributions are discussed below. Finally, implications for practitioners and policy makers are discussed.

6.4.1 Contributions to the Theoretical Frameworks

The use of the frameworks to interpret the evidence on EVA represented an original application of each framework. For the discovery framework, the consideration of both the key influences and inhibiting factors for the process was an important means of extracting the evidence concerning the implementation and evolution of EVA. The model developed, which incorporated these aspects, was useful for emphasising the nature of EVA as a process that was path-dependent. Differences in the key influences and the inhibiting factors meant that although the firms had the same starting point and they all went through the evolutionary process, there was path-dependency so that the process was not exactly the same and it did not occur at the same time. Furthermore, localised knowledge could be explored, since each firm’s individual learning process

determined the path that was taken by the EVA system. The analysis of EVA using the discovery process framework highlighted the importance of evolution, particularly as a result of information and incentives. It has been noted that the original Nelson and Winter evolutionary theory failed to consider incentives (Grief, 2005). The results from this study suggest that incentives were an important driver of the evolutionary process. It is proposed that incentives must be considered in a study where individuals' actions form an integral part of the analysis.

The application of the management model framework to EVA represented an attempt to forge a link between the literature bases in management and accounting, with management accounting contributing to the development of the management literature. Whilst EVA was employed as a management model for the firms, the evidence suggested a revision of the Birkinshaw and Goddard (2009) framework for the firms. The framework is static in nature, so it would benefit from extension to incorporate the dynamic nature of management. The four dimensions were not independent (as they appear to be in the framework). Rather, the specification of one dimension meant that other dimensions themselves were specified indirectly. Furthermore, the evidence demonstrated that there was a hierarchy to the dimensions, with motivating individuals at the centre. Just as in the discovery framework, analysis of the evidence within the management model framework was able to detect the key role of incentives. The framework was redrawn for the case firms, to show motivating individuals as the central dimension, with links to the other dimensions, reflecting the interdependencies. The successful application of EVA to the management model framework suggested that the management accounting measure of EVA could be more than a component of the model; it actually formed the model. This demonstrated a revision of the potential significance of accounting for organisational management and a potential to close the gap between the two disciplines.

With the contingency theory framework, the major contribution was an extension of the model to a longitudinal application, since most studies are cross-sectional in nature. The discovery theory framework had indicated that evolution was important, suggesting that a dynamic approach is appropriate. Through the longer-term focus a new contingency variable was put forward: dynamic interaction. This variable reflects the dynamic learning and interaction process that occurs as a result of the passage of time. The longitudinal application and explicit consideration of dynamic interaction meant

that the variables driving the process of evolution could be explored in detail, as the firms moved through the life cycle of EVA. The model developed from this study suggested that as well as including the dynamic interaction variable, it is important to focus on a range of variables, their collective action and their interdependencies, as well as how they change over time. It was suggested that results from studies focussing on only a limited number of variables may be questioned as there could be omitted variables and the collective impact of variables may be missed. Furthermore, changes in interactions between contingency variables would not be detected in a cross-sectional study.

6.4.2 *Insights from the Holistic Approach*

In this study, the research method was designed to provide a holistic approach to our understanding of EVA, through the testing of empirical findings and hypotheses from the literature and the interpretation of case study evidence, using three different theoretical frameworks drawn from three academic disciplines. Thus, this study goes beyond the simple description of EVA and addresses some of the criticisms of management accounting research raised by Zimmerman (2001). It also provides an opportunity to reflect on insights and synergies gained through the use of the three frameworks.

The discovery theory framework was appropriate for emphasising the nature of EVA as a process of discovery within the firms (even though EVA was not able to discover the source of value). Thinking of EVA in this way highlighted the dynamic nature of the process and the path dependent nature of the system. It also emphasised the role of managers as leaders (or change agents) who influence the MCS. The use of this framework tended to focus on internal forces as drivers of the process. However, it needed extending to include the role of incentives.

The management model framework was suitable for analysing the evidence on the actual use of EVA within the organisation. As with the discovery process framework, it provided a good theoretical basis for an understanding of EVA. This framework complemented the previous framework by concentrating on the use of EVA within the firms. It reinforced the importance of incentives that had been highlighted in the discovery process framework. However, a disadvantage of this framework is that it

implies a static approach to the analysis, suggesting that without adaption it would not be satisfactory for a longitudinal analysis or an analysis of management change.

Whilst the frameworks were designed to be separate (but nested), in many ways the contingency theory framework benefitted from the previous application of the other two frameworks. Traditionally, contingency studies were static and focussed on perhaps a limited number of variables. Generally, researchers in these studies have been testing only a limited number of factors, or looking to draw up a 'check list' of factors that were relevant, without any notion of relative importance or interactions, or for how long the phenomenon being studied actually persisted in the firms. In this study, contingency theory was extended to a longitudinal application, with no restrictions on factors, with a focus on linkages between the variables and with the inclusion of the dynamic interaction variable to emphasise the importance of managers in the process. As such, key aspects of the previous two frameworks were introduced (emphasis on the process and the importance of management), meaning that this application was able to address many of the issues raised with earlier contingency theory studies. Overall, this framework was well suited to the study of the entire life cycle of EVA within the organisations. On its own contingency theory would not have satisfied the criticisms of Zimmerman (2001), as it is largely positive, based on empirical observations. Of course and in common with the management model, systematic or regular observations over time and across companies can lead to normative predictions for the impact of contingencies on management control systems.

A summary of the key features of the frameworks is presented in table 6.1.

Table 6.1 Summary of the key features of the three theoretical frameworks

	Discovery Theory	Management Model	Contingency Theory
Positive/Normative approach	Normative	Both	Both
Dynamic or static	Dynamic	Static	Extended to dynamic
Examination of underlying motivations for change	x (other than value discovery)	x	✓
Internal or external focus for change	Internal	N/A	Internal and external

To summarise, individually the frameworks each had their own strengths and weaknesses. However, used together, they complemented each other, providing synergistic gains for the researcher and meeting the suggestion of Luft and Shields (2002) to use a variety of theories. The frameworks facilitated the exploration of different aspects of the EVA system whilst also serving to strengthen the conclusions when important aspects of EVA were highlighted in one or more frameworks. Furthermore, the earlier frameworks improved the design of the final framework. Taken together, the three frameworks provided insights into a management accounting technique; how it was implemented, how it persisted and changed in the organisations over time, emphasising the dynamic nature of the system, the importance of managers in the change process and the role of internal and external forces in the process.

6.4.3 Contributions to our Understanding of EVA

The evidence demonstrated that EVA was a real innovation for the firms, leading to a major change in their rules and routines. Whilst the firms had the same starting point, employing Stern Stewart to advise on the full implementation, the path dependent nature of evolution in the firms (through dynamic interaction and localised knowledge) meant that each of the companies ended up with different EVA systems. The application of EVA was not uniform or standard, demonstrating that different applications can be successful. There is more than one way of working with the EVA

MCS and achieving the desired information from the system. Despite these differences, the reasons for evolution within the firms were the same. A contribution of this study is the analysis of the reasons for evolution of the measure, through the study of EVA as a process.

The first reason for evolution arose because the EVA measure suffered from a lack of internal and external validity. Both insiders to the firm (the people working with EVA) and outsiders (the media, interested stakeholders and analysts) misunderstood the measure. The main problems were the complexity and subjectivity that EVA entailed and the lack of standards for EVA. If the approach to the measure of EVA is too pure and theoretical, this leads to too many adjustments which are all contestable and possibly difficult to accept. For many managers working with EVA and board members seeing the EVA results, the calculation may be viewed as a 'black box'. Overall, these problems meant that it was easier to focus on revenue and expenses (and hence EBIT). External parties misunderstood EVA as they confused it with profit. Furthermore, the individual nature of the EVA calculation meant that the measure of EVA was specific to each firm. This feature was cited by Stern Stewart as an advantage of EVA (Ehrbar, 1998, p165). However, it was in fact a disadvantage. It meant that, coupled with the lack of standards, the EVA system suffered from a genuine lack of credibility.

The second motivation for evolution concerned the incentives created. Here the issue was the clash of cultures between the perceived American style 'cut-throat' nature of incentives and the more collegiate one-company view that the companies wanted to foster. This dichotomy presented a challenge both within the firms (managers resisted the highly levered bonuses) and with the firms' relationships with external parties (where there was a fear of repercussion or 'media disaster' if the high level of bonuses paid was made public). Whilst this may have been a direct result of the way the incentive schemes were applied, the lesson is that the views of insiders and outsiders must be heeded to ensure a cultural fit. Furthermore, in some cultures and in some organisations (such as firms in or originating in the public sector), intrinsic incentives may form an important dimension. An attempt to layer extrinsic incentives onto intrinsic incentives may fail if there is a clash between the two, such that intrinsic incentives (which may be regarded as vital for the organisation) are driven out by extrinsic incentives.

Overall, the process of evolution meant that the EVA system failed to be employed in the way that Stern Stewart would recommend; it just couldn't work. For decentralised firms where communication and coordination is important, the evidence shows that the EVA system can create, rather than solve, problems both internally and with external parties.

A further key contribution of this study is the evidence that is presented on the demise of the measure. In management accounting, there are very few studies that look at the abandonment of systems, particularly after they have been in use for such a long period of time. Studies tend to focus on implementation of new measures (often at a very early stage), without examining longer term reasons for persistence, change and demise within the organisation. One of the reasons is that it can be difficult to find evidence on reduction. For example diffusion studies often portray the introduction and use of a technique as an 'S' shaped curve, with no actual reduction, just a flattening out in the numbers employing the technique. Studies on abandonment often concern techniques that may have been adopted but not formally implemented. As a consequence, there is very little evidence available from which to study the reasons for failure.

The gradual demise of EVA in the listed company demonstrates that a necessary condition for success is the on-going commitment of an EVA 'champion.' Without the executive drive and continued renewal, refinement and development, the motivation for the system dies. Even with this commitment, external forces can act on the firm spelling the demise of the system. The significant factors driving the decline of EVA in the two SOEs were the introduction of IFRS and the recession, which acted collectively to mean that the EVA system was no longer appropriate. The introduction of IFRS meant that both human and monetary capital resources had to be devoted to compliance with the new regulations. This may have created no problems in a more buoyant economic climate but the recession meant that the management accounting function suffered as a result of the staff demands made by the financial accounting system. Because EVA was non-mandatory and it was costly, it was seen as a 'luxury' that had to go. In other words, new management accounting techniques such as EVA may be fine when resources are available but when this is not the case, their benefits do not outweigh the costs. Whilst formal cost-benefit analysis of accounting techniques may not be possible on the basis of exact numbers, there comes a time when it is well

understood in the organisation that the EVA system is both costly to sustain and it no longer provides sufficient benefits.

In addition to its costliness, EVA did not provide the right information in the recession. One aspect concerned external stakeholders. When firms are under pressure, particularly from fund providers that are looking for reassurance that their covenants will not be breached, it is the financial accounting information that forms the basis of the requirements. Since the firms must ensure that they meet these restrictions the focus turns to financial accounting. There is no interest in the subjective measure of EVA.

The recessionary cycle altered the firms' investment decisions. When normal activities are depressed in this sort of environment, the quest for growth opportunities becomes important. However, the evaluation of projects on an annual EVA basis can reduce the incentive to invest in such projects if short-term EVA is negative. Furthermore, the use of ex post EVA didn't provide the right information regarding whether the firms were on track with their investments. Managers couldn't assess whether the projects were going well or not. This may not have been a problem in times when there was no limit to the availability of funds.

The limited availability of funds also meant that the EVA system did not work. Recession caused a change in strategy so that a key focus was cash burn and payback from investment. One aspect of EVA that was perhaps not apparent when it first came to prominence is that the system works when the capital markets work. With EVA, there is a fundamental implicit assumption that firms can go to the capital market whenever they need to borrow and they will pay the market rate for that capital (Young and O'Byrne, 2001, p8). However, in a recession, capital markets don't work like this, there is a squeeze or 'credit crunch' so that it is costly or even impossible to raise funds. This means that firms need to hold liquid resources, to fund possible future projects. Consequently there is a clash with the incentives created under the EVA system, where holding capital depresses the EVA result through the increased capital charge.

Overall, it can be concluded that EVA was a system that could be evolved to ensure that its use was sustained in the organisation over a lengthy period of time. However, problems with information and incentives meant that the application could not work in the way that Stern Stewart originally intended. Although in theory EVA can be

employed to create value in the organisation, the evidence has demonstrated that in practice it did not fulfil this role. As a management accounting technique it was vulnerable to pressures that arose from a lack of internal support (which can be interpreted as inertia), the inappropriate information and incentives that it created, the over-riding importance of financial accounting and its unsuitability in the recessionary environment. Taken together these features meant that EVA is no longer a successful tool for creating value.

However, EVA has not disappeared without a trace. There is some residual legacy in the two SOEs; one continues to calculate EVA ‘at a high level’ for pricing decisions and the other uses EVA for some business cases, alongside other measures. The listed company, the firm that made very significant investment in the EVA system, has no legacy whatsoever.

6.5 Implications of the Research

6.5.1 Implications for Practitioners

As well as the overall conclusions on EVA highlighted in the previous section, it is interesting to consider the implications that the theoretical frameworks may have for managers designing the MCS in their firm.

The overall conclusions for practitioners from the discovery theory framework is that when a new management accounting technique is being considered, it is important to understand that the implementation and use of that technique will involve a process of discovery. This means that it cannot be predicted *ex ante* what the benefits will be and where the firm will end up. The process is dynamic, with managers playing a key role. It is also path dependent, meaning that it would be difficult for one firm to learn from the experiences of another firm that is further along the discovery process. Therefore, an element of faith and trust is required, with the understanding that the effect of the system will be discovered over time. This highlights the importance of, managerial experience and leadership.

The management model provided a good theoretical framework for thinking about what managers do and how a management accounting technique can form the model. The framework could be usefully adopted by practitioners, to frame the management role. However, it is a static model and it needs to be remembered that, over time, dimensions change in response to external factors. It must be recognised that managers must adapt (for example to changing objectives in a recessionary environment) so that flexibility must be incorporated.

Finally, the contingency theory framework highlighted the various factors that are important at the various stages of the evolutionary process. The conclusions from this study have highlighted the importance of a good cultural and strategic fit. Of vital importance is the external environment which can mean that the management control system is no longer appropriate due to problems over information and incentives. Over time, environmental changes can drive out management accounting measures, so that the firm converges to a sole reliance on financial accounting techniques. However, whilst highlighting these issues *ex post*, the very nature of contingency theory (the management control system is contingent on the firm and its environment) means that it is difficult to imagine how this theory can really help managers in the *ex ante* design of the management control system.

6.5.2 Implications for Policy Makers

It has been suggested that regulators or shareholding ministers for SOEs have been and continue to be interested in the measure of EVA as it provides an opportunity to benchmark the companies in the absence of a share price. These people are trying to assess the discovery of value within these firms, particularly in the monopoly elements of the businesses. It is a natural area of interest for them as they wish to protect the interests of consumers. Whilst this may be an acceptable reason for requiring SOEs to provide EVA results, it cannot be expected that firms would spend time on EVA, particularly in a recessionary environment. In addition, a requirement to produce EVA numbers does not mean that behaviour within the firms would change. This would require the specification of standards for EVA and a link to incentives. At this stage there is no indication that The Treasury in New Zealand would take these steps.

Secondly, there are difficulties with the EVA measure. It is complex and subjective, meaning that it is difficult to calculate and can be subject to manipulation. This means that there is a distrust of the results. Furthermore, its use as a means of comparing different businesses would be problematic. The EVA for one firm cannot be contrasted with the EVA of another firm, due to a host of measurement issues. There are also difficulties comparing EVA results for one firm over time, since assets and company structure can be subject to fluctuation. It is not clear how the EVA measure would cope with the revaluation of assets.

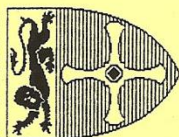
6.6 Further Developments of the Research Methodology

The study is limited by the fact that only three firms have been studied. Although they were large and important EVA users, it is known that other companies were using EVA in New Zealand at that time. One such company is Transpower, who also published EVA results in the annual report and accounts up to 2004. The study could be extended to include such companies. Furthermore, richer conclusions could be drawn by examining companies in different countries. For example, it would be useful to investigate organisations in developing countries, to see if EVA is present and to examine whether they are going through a similar process of evolution. The influence of regulators that require EVA results (for example for SOEs in China) could also be examined.

Every attempt was made to interview respondents from a variety of positions within the firms, to ensure triangulation of results. However, respondents were providing their own opinions sometimes these may not have been the view of other respondents. For example, when EVA was abandoned in one firm, some individuals remained loyal to the system and regretted the move away from it. These differences could be explored in more detail and with more respondents.

Finally, although this study is longitudinal in nature, it did require an end point. Different conclusions may be drawn if the study is extended (with the same firms), particularly if the extension went beyond the recession to a more buoyant economic climate.

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SURVEY QUESTIONNAIRE: ECONOMIC VALUE ADDED AS A SYSTEM FOR PLANNING AND CONTROL IN NEW ZEALAND COMPANIES

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This questionnaire forms part of a sponsored project looking at the experience of New Zealand companies using Economic Value Added (EVA[®]) for planning and control. A sample of companies was selected and the first questionnaire, aimed at the corporate level, has already been completed. This second questionnaire is aimed at the business unit level of the sample companies. Together the results will form a picture of EVA use by New Zealand companies.

Anonymity of responses is assured in the publication of results and any information will be used solely for the purposes of this research.

Please return the questionnaire to the person in your firm who forwarded it to you.

* EVA[®] is a registered trademark of the Stern-Stewart Consultancy Group, U.S.A. For simplicity, the ® symbol has been dropped from future reference to EVA in the questionnaire.

COMPANY NAME:

QUESTIONNAIRE 2: BUSINESS UNIT LEVEL

This questionnaire is divided into seven parts and contains a total of sixty-two questions, plus a space at the end of the questionnaire for any additional comments that you may wish to make. Please complete the questions as fully as possible. We would very much appreciate supporting documentation to assist in the interpretation of your responses. If the content of the documentation is deemed to be confidential, we will happily accept blank templates.

A. ABOUT YOU

1. What are your job title and your qualifications?

2. Please provide a description of your main duties and responsibilities:

3. Accountants refer to business units as responsibility centres and classify them according to the decision-making authority granted to the unit. For example, if the business unit manager has authority for both revenues and costs, the unit would be referred to as a profit centre.

In what type of responsibility centre do you work?

- Profit Centre ☐
 Cost Centre ☐
 Revenue Centre ☐
 Investment Centre ☐
 Other ☐ Please state

B. CORPORATE STRATEGY WITH RESPECT TO EVA

4. Did you perceive a change in the strategic direction of the firm as a result of the introduction of EVA?

- Yes ☐ Please give brief details of the change
 No ☐ Please go to Question 6

5. Are you happy with the change?

- Yes ☐ No ☐

Please explain your answer

6. In your business unit, what is the EVA objective?

- Maximise EVA ☐ Maximise EVA over a time horizon ☐ Zero EVA over a time horizon ☐
 Other ☐ Please state

7. The evidence is that most firms operate an annual financial planning cycle with monthly financial control. Is this true for your business unit?

- Yes ☐ No ☐ Please explain

8. Do you have an EVA target for your planning cycle? For example, if you have an annual planning cycle, do you have an annual EVA target for your unit?

Yes ☐ No ☐ Please explain

C. THE MEASUREMENT OF EVA

9. Please outline below the practical definition of EVA that you use, including:

- (a) adjustments to accounting profit
- (b) the calculation of the cost of capital
- (c) the definition of the asset base
- (d) whether cash specifically is included in the asset base.

You may attach supporting documentation if you wish.

10. Is the above definition the same for planning and control?

Yes ☐ No ☐ Please explain

11. Is the above definition the same as the definition used:

At the corporate level? Yes ☐ No ☐
For other business units? ☐ ☐

12. If comparisons are made across business units, is EVA scaled for size?

Yes ☐ No ☐ No comparisons are made ☐
If you answered Yes, please outline the scaling factor ☐

13. Within your unit, at what levels is EVA calculated? Please tick all relevant boxes.

Unit level only ☐ Please go to Question 17
Process level ☐ Project level ☐ Product level ☐

14. Within your unit, are common costs allocated to processes, projects and/or products in the calculation of EVA?

Yes ☐ No ☐ Please go to Question 17

15. Are costs allocated using activity based costing?

Yes ☐ No ☐ Please go to Question 17

16. Do you believe that activity based costing is a complementary system to EVA?

Yes ☐ No ☐

Please explain your answer

17. Are headquarter costs allocated to your business unit to form part of your EVA calculation?

Yes ☐ No ☐ Please go to Question 20

18. Has the basis of the allocation of headquarter costs changed as a result of EVA?

Yes ☐ No ☐

19. Have any issues arisen as a result of corporate policy on allocation of headquarter costs?

Yes ☐ No ☐

Please explain your answer

20. Do you take decisions that impact upon other business units but where the impact is not part of your measure of EVA?

Yes ☐ Please give an example below No ☐

21. Do other business units take decisions that impact upon your unit but where the impact is not part of their measure of EVA?

Yes ☐ Please give an example below No ☐

22. Do you believe that the cost of capital is a corporate parameter or should business units have the discretion to set it?

Cost of capital is a corporate parameter ☐

Business units should have the discretion to set their own cost(s) of capital ☐

23. Are there different costs of capital used across business units?

Yes ☐ No ☐ Please go to Question 25

24. Are different costs of capital used within your business unit?

Yes ☐ No ☐

25. Are tensions created within the organisation as a result of the corporate policy on the cost(s) of capital?

Yes ☐ No ☐

Please explain your answer

.....

26. Do you believe that the cost(s) of capital is/are a 'fair' reflection of risk?

Yes ☐ No ☐

Please explain your answer

.....

D. EVA FOR DECISION MAKING AND PLANNING

27. Managers are often perceived as having the incentive to adopt a short-term view when evaluating investment decisions. To what extent do you believe that this was an issue within your firm PRIOR to the introduction of EVA?

Very important ☐ Slightly important ☐ Important ☐ Not important ☐

28. To what extent do you believe that EVA can solve short-termism?

To a great extent ☐ To some extent ☐ Not at all ☐

Please answer the following question only if you use EVA for investment decision making:

29. In using EVA for investment decision making, do you believe that it can accommodate the value of growth options (i.e. where an investment is made now which may lead onto further cash flows, for example research and development expenditure)?

Yes ☐ No ☐

Please explain your answer

.....

30. If an asset is disposed of, this may lead to:
 (a) a book value gain or loss on disposal; and
 (b) foregone future cash flows.

How do you accommodate (a) and (b) in the EVA measure?

.....

31. Do you work with EVA budgets?

Yes ☐

No ☐ Please outline the nature of the budget and go to Question 37

.....

32. Who participates in the setting of EVA budgets? Please tick all relevant boxes.

Board ☐ Senior Management ☐ Middle Management ☐ Finance Department ☐ External Consultants ☐

Other ☐

Please state

33.

When preparing budgets, how far out do you look?

One year ☐Beyond one year with a detailed first year only ☐Other ☐ Please state

34.

Are budgets available at the start of the financial year?

Yes ☐ No ☐ Please state when they are available

35.

Has the budget preparation time changed as a result of the introduction of EVA?

Budgets take less time ☐ Budgets take the same time ☐ Budgets take more time ☐

36.

Is the detailed budget revised within the planning cycle?

Yes ☐ No ☐

Please explain your answer

E. EVA FOR FINANCIAL CONTROL

37.

Do you work with EVA for financial control?

Yes ☐ No ☐ Please go to Question 46

38.

Do you work with a cost of capital appropriate to your financial control cycle (for example, a monthly cost of capital for a monthly control cycle) in order to calculate the capital "charge"?

Yes ☐ No ☐

Please explain your answer

39.

Can the actual capital charge vary from the budgeted charge for your financial control cycle?

Yes ☐ Please explain how No ☐

40.

What EVA information is presented in the report? Please tick all relevant boxes:

Actual EVA ☐ Budget v. Actual EVA ☐ EVA Growth ☐Other ☐

Please state

41.

Do you see the EVA results of other units?

Yes ☐ No ☐

42.

Within the EVA system, how many value drivers do you work with?

43. Are the value drivers prescribed or do you have some flexibility in determining the drivers for EVA?

Value drivers are prescribed ☐
 There is flexibility over value drivers ☐

44. Do you believe that the value drivers are closely related to EVA for your unit?

Very closely related ☐ Quite closely related ☐ Some relationship ☐ No relationship ☐

45. Do you believe that there are additional value drivers that would be useful in explaining performance?

Yes ☐ Please give some examples below No ☐

F. EVA AND REWARDS

46. Please briefly outline the bonus schemes that were employed PRIOR TO the introduction of EVA and the number of business unit staff under such schemes :

47. What types of bonus schemes are NOW used in your unit? Please indicate how many staff are under each scheme (completing both boxes if relevant):

EVA ☐
 Other: Please specify the type of scheme and number of staff. Please go to Question 57 if no staff are under an EVA scheme. ☐

48. Which measure of EVA is used to determine the bonuses? Please tick all relevant boxes:

Firm EVA ☐ Unit EVA ☐ Process EVA ☐ Other units' EVA ☐
 Other ☐ Please state

49. Are EVA bonuses budget based?

Yes ☐ No ☐

50. When is the reward structure announced?

Start of cycle ☐ Start of cycle but is sometimes late ☐ Constant reward structure ☐

Other ☐ Please state

51. Do you believe that EVA bonuses provide the incentive for managers to concentrate on those activities that create value?

Yes ☐ No ☐

Please explain your answer

52. Can the bonuses still be triggered with a negative EVA?

Yes ☐ No ☐

Please explain your answer

53. Are bonuses affected by uncontrollable events, for example a sudden rise in input prices that cannot be passed on?

Yes ☐ No ☐

Please explain your answer

54. Do you believe that this is fair?

Yes ☐ No ☐

Please explain your answer

55. Has the introduction of EVA bonuses led to a greater performance related element?

Yes ☐ No ☐ Please go to Question 57

56. Has this led to a behavioural change?

Yes ☐ No ☐

Please explain your answer

G. EVA IN THE WIDER FIRM CONTEXT

57. Has EVA improved business opportunities within the firm?

Yes ☐ No ☐

Please explain your answer

58. Was transfer pricing between units an issue PRIOR TO the introduction of EVA?

Yes ☐ No ☐ No Transfer Pricing ☐

If you answered "No" or "No Transfer Pricing", please go to Question 60

59. Has EVA in any way resolved the issue of transfer pricing?

Yes ☐ No ☐

Please explain your answer

.....
.....
.....

60. Does EVA help you to manage with people in your unit?

Yes ☐ No ☐

Please explain your answer

.....
.....
.....

61. Do you feel that you are a better manager as a result of EVA?

Yes ☐ No ☐

Please explain your answer

.....
.....
.....

62. In summary, what are your perceptions on EVA?

Please tick one box below where:
1 = excellent 2 = very good
N/A = not applicable 3 = fair 4 = poor

	1	2	3	4	N/A
Implementation process	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Initial training	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
On-going support given	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ease of understanding by managers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ease of understanding by employees	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Quality of EVA information	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
EVA for capital expenditure decisions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
EVA for budgetary control	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
EVA and rewards	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Human resource management	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Communications within the business	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Appendix B. Extract from Post's annual report 1999, illustrating the use of EVA

NEW ZEALAND POST LIMITED AND SUBSIDIARIES

ANNUAL REPORT 1999

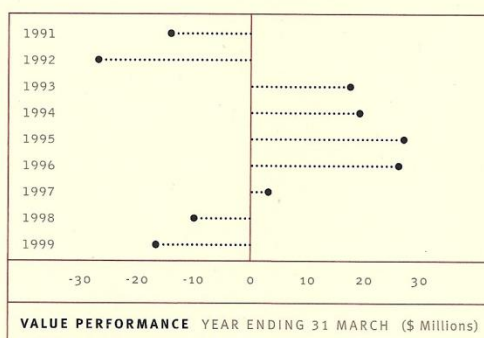
VALUE PERFORMANCE

1999

Value Performance

New Zealand Post has adopted Economic Value Added (EVA™), an operational-based framework, for the financial management of the company. EVA shows how much value an organisation has added to its shareholders' investment.

Because we are concerned with measuring economic operating performance, several adjustments are made to convert accounting information into economic information. For example, profit is stated before financing costs and any unusual or non-recurring transactions not part of the normal course of business (such as restructuring costs). Similarly, capital reflects investments in the business (restructuring costs) and leased assets (such as property). EVA has been used at New Zealand Post as an internal measurement tool since 1995 to value business plans, analyse major investment proposals and evaluate strategic options. The value-based system provides for more robust decision-making and performance measurement by looking at our organisation's performance from the shareholders' view. Using EVA, we can align ourselves better with the interests of our shareholders, thereby encouraging them to maintain or increase their investment in the organisation. The company has followed the draft voluntary value-based reporting standard set by shareholding Ministers. The management of New Zealand Post has done this to ensure the value system represents a fair measurement of company performance. This year, we have undergone an extensive review of our EVA methodology. We have made some changes in the adjustments between accounting profits and economic profits. Where appropriate, these changes have been reflected in our historical performance. While underlying trading profit has been strong despite a slow economy and our first year of operating in a deregulated letters market, we have been investing more money in our business over the last year to cope with the challenge of competition. We have spent several million dollars in our electronic billing initiative, e-bill, and on acquisitions in the courier market. However, we will



get the benefit of these investments over the coming years. There have also been a few large one-off costs relating to the payment of GST on international mail and getting our systems Year 2000 compliant. These factors alone have reduced our overall EVA result by \$7 million in the last year. Operating profits will continue to increase next year even though we expect some pressure on margins as a result of increasing competition. Capital is expected to be maintained at

similar levels, and our commitment remains to use capital invested in the company as efficiently as possible. Over the forthcoming year, we will also be measuring EVA at lower levels in the organisation to help us better identify opportunities for value improvement. Further, EVA will be implemented as a major component in our management incentive compensation.

EVA is a registered trademark of Stern Stewart & Company.

Appendix C. Airways' EVA statements published in the annual report and accounts, 1999

AIRWAYS CORPORATION OF NEW ZEALAND LIMITED

EVA

STATEMENT OF ECONOMIC PERFORMANCE

FOR THE YEAR TO 30 JUNE	1999 \$000	1998 \$000	Notes
Revenue			
Air Navigation Services	94,511	90,242	
Other Businesses	4,745	3,715	
	99,256	93,957	
Labour costs	61,936	58,133	
Other operating costs	19,491	16,564	
Depreciation	10,789	11,698	
Tax charge	3,528	1,084	
	95,744	87,479	
Net Operating Profit After Tax	3,512	6,478	
Less charge on operating capital	(7,030)	(8,077)	3
Economic Value Added	(3,518)	(1,599)	

EVA Notes:

Charge on Operating Capital

The charge on operating capital is the cost of an appropriate return to the providers of capital. It is calculated by multiplying the average capital employed by the cost of capital. The cost of capital is a percentage that represents an appropriate rate of return on operating assets for investing in a particular business.

Economic Value Added (EVA)


EVA measures the extent to which a business is performing above or below expectation. A positive EVA means the business is adding value after allowing for an appropriate reward to the providers of capital.

For and on behalf of the Board



John Maasland
Chairman

1 September 1999



Errol Millar
Deputy Chairman

1 September 1999

SHAREHOLDERS MOVEMENT IN EQUITY CAPITAL

FOR THE YEAR TO 30 JUNE	1999 \$000	1998 \$000	Notes
Opening equity capital	55,109	53,371	
Charge on equity capital	5,437	5,589	4
Other movements in equity capital	(2,650)	(51)	8
Transfer of EVA reserve	(730)	–	
	2,057	5,538	
Dividends paid:			
Current year dividend	(1,500)	(3,800)	
	(1,500)	(3,800)	
Closing equity capital	55,666	55,109	10

EVA Notes:

Charge on Equity Capital

The charge on equity capital is the cost of an appropriate return to the providers of equity capital. It is calculated by multiplying the average amount of equity by the cost of equity. The cost of equity is a percentage that represents an appropriate rate of return on equity for investing in a particular business. The cost of equity includes the cost of capital plus an additional premium for financing risk. The financing risk premium is dependent on the gearing of the business.

STATEMENT OF ECONOMIC POSITION

AS AT 30 JUNE	1999 \$000	1998 \$000	Notes
Capital employed			
Long-term assets	75,684	83,991	12
Current assets	12,628	14,597	11
Current liabilities	(5,818)	(6,190)	11
Net working capital	6,810	8,407	
Operating capital	82,494	92,398	
Non-operating capital (work in progress)	10,493	9,092	
Total capital employed	92,987	101,490	
Capital invested			
Equity	55,666	54,379	10
Debt	37,321	47,111	10
Total capital invested	92,987	101,490	
EVA Notes:			
Capital employed is used as follows:			
Air Navigation Services			
– Operating capital	81,134	89,576	
– Non-operating capital (work in progress)	10,493	9,092	
Other Businesses – operating capital	1,360	2,822	
	92,987	101,490	

STATEMENT OF ECONOMIC PERFORMANCE

FOR THE YEAR TO 30 JUNE	1999 \$000	1998 \$000	Notes
Air Navigation Services			
Revenue			
Airways charges	91,398	87,508	
Other revenue	3,113	2,734	
	94,511	90,242	
Labour costs	60,532	56,620	
Other operating costs	14,635	14,547	
Depreciation	10,104	11,572	
Tax charge	4,035	1,196	7
	89,306	83,935	
Net Operating Profit After Tax	5,205	6,307	
Less charge on operating capital	(6,601)	(7,798)	3
Economic Value Added	(1,396)	(1,491)	
Other Businesses			
Revenue	4,745	3,715	
Labour costs	1,404	1,513	
Other operating costs	4,856	2,017	
Depreciation	685	126	
Tax charge	(507)	(112)	7, 8
	6,438	3,544	
Net Operating Profit After Tax	(1,693)	171	
Less charge on operating capital	(429)	(279)	3
Economic Value Added	(2,122)	(108)	8
Airways Corporation of New Zealand Limited EVA	(3,518)	(1,599)	

NOTES TO THE FINANCIAL STATEMENTS

NOTE 1 – Economic Principles and Policies

It is important to state the basis and assumptions upon which the results have been calculated. There are as yet no generally accepted economic reporting standards. Economic principles and policies are consistent with those applied last year.

a. General Principles

Income and expenditure are recorded at – or close to – the time they are received or paid at the actual monetary value, except where noted below.

All expenditure is included in the calculation of Net Operating Profit After Tax (NOPAT) on a basis that reflects the periods over which related economic benefits are realised. See Note 14.

b. Financing Costs

No financing costs are included in the calculation of NOPAT.

c. Charge for Capital Employed (Capital Charge)

The capital charge in the EVA Financial Statements is calculated on the average operating capital.

A cost of capital, that represents an appropriate return for operating risk, is calculated for each business unit.

A capital charge is applied to work in progress.

d. Cost of Capital

The risk free rate used in the cost of capital is set at the beginning of the financial year.

e. Taxation

The total tax cost in the EVA Financial Statements (NOPAT and the charge on operating capital) is the actual income tax paid.

f. Trade Accounts Receivable

Accounts receivable are stated at their realisable value.

g. Stock

Stock is stated at weighted average cost or at market value (if this is significantly different). Any change in value is recognised through NOPAT.

h. Leases

Significant operating leases are capitalised. Lease rentals are discounted at the inherent interest rate to determine the cost of the assets.

The cost of the leased assets is included in the Statement of Economic Position both in financing (capital employed) and operating assets (operating capital).

The leased assets included in operating capital are depreciated through NOPAT.

i. Changes in Policies

Last financial year, Air Navigation Services EVA was recorded in the EVA reserve. EVA is now taken directly to Shareholders' Equity and the balance in the EVA reserve at 30 June 1998 (\$730,000 debit) has been transferred to Shareholders' Equity.

NOTES TO THE FINANCIAL STATEMENTS

	1999 \$000	1998 \$000	Notes
NOTE 2 – Components of the Capital Charge			
Capital charge derived from:			
Charge on operating capital	7,030	8,077	3
Charge applied to non-operating capital	715	733	
	7,745	8,810	
Capital charge provided to:			
Equity provider			
Charge on equity capital	5,437	5,589	4
Debt holders			
Opportunity cost of debt	2,308	3,017	9
Customers			
EVA reserve (available for return to customers)	–	204	
	7,745	8,810	
NOTE 3 – Charge on Operating Capital			
Air Navigation Services			
Average operating capital	87,782	95,214	
Cost of capital	7.52%	8.19%	5
Charge on operating capital	6,601	7,798	
Other Businesses			
Average operating capital	3,516	2,045	
Cost of capital – average	12.20%	13.64%	5
Charge on operating capital	429	279	
Consolidated			
Average operating capital	91,298	97,259	
Cost of capital – average	7.70%	8.30%	5
Charge on operating capital	7,030	8,077	
NOTE 4 – Charge on Equity Capital			
Average equity capital	57,232	54,000	
Cost of equity capital	9.50%	10.35%	6
Charge on equity capital	5,437	5,589	2

NOTES TO THE FINANCIAL STATEMENTS

	Abbreviation	1999	1998
NOTE 5 – Cost of Capital*			
Summary of parameters for cost of capital:			
Risk free rate – 5 year Government stock	RFR	7.19%	8.20%
Market risk premium	MRP	9.00%	9.00%
Company tax rate	Td	33%	33%
Business risk factor (asset beta)	Bu		
Air Navigation Services		0.30	0.30
Other Businesses (weighted average)		0.90	0.91
Airways Corporation of New Zealand Limited		0.32	0.31

* An example is presented in Note 6

EVA Notes:

To calculate the cost of capital it is necessary first to identify the return available from investing in Government stock. This is called "the risk free rate". Airways chooses five year Government stock as the risk free rate on the basis that the shareholder is making a long-term investment decision. The risk free rate is reduced to an after tax return by deducting tax at the current tax rate. A percentage premium is then added to the after tax risk free rate to compensate for investing in a business rather than risk free Government stock. The amount of the premium depends upon the level of risk of each business.

To determine the premium, a risk factor is calculated for each business. This risk factor is known as the asset beta and it represents an assessment of the risk attached to the operating assets of the business. Airways' air navigation activity is considered a low risk and has an asset beta of 0.3. Airways' other business units each have their own asset betas.

Empirical evidence demonstrates that an investor should expect to receive an average premium above the risk free rate of 9 percent after tax by investing in a diverse portfolio of shares in the New Zealand market, as measured over a long period of time.

Therefore, a shareholder in Airways with its asset beta of 0.32 should expect to receive a premium of 2.88 percent (0.32×9 percent) above the risk free rate for choosing to accept the operating risks of Airways.

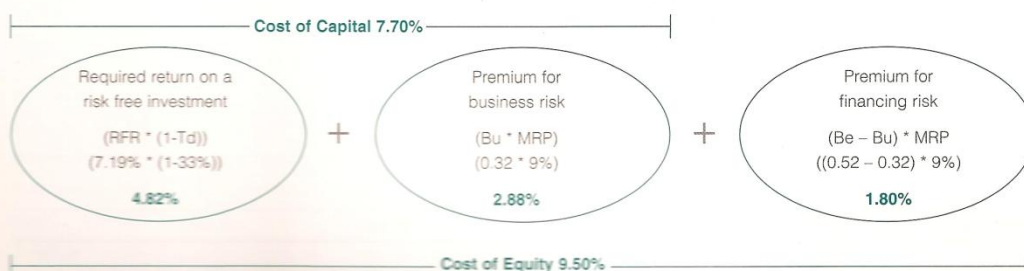
	Abbreviation	1999	1998
NOTE 6 – Cost of Equity Capital			
Equity risk factor (equity beta)	Be	0.52	0.54

EVA Notes:

The cost of capital is derived from the risk associated with the operations (assets) of a business and not the manner in which it is financed. The cost of capital is unaffected by the gearing.

The use of debt finance as capital in a business introduces credit risk to the providers of equity. Therefore, the equity providers will expect a return which includes the cost of capital (reward for business risk) plus an additional return for credit risk (reward for financing risk). The cost of equity increases according to the amount of debt financing.

It must be remembered that the cost of capital remains constant regardless of the gearing. However the cost of equity will be directly affected by the gearing. Costs of capital and equity are calculated using the following formula: (1999 numbers)



NOTES TO THE FINANCIAL STATEMENTS

	1999 \$000	1998 \$000	Notes
NOTE 7 – Income Tax			
Income tax payable includes:			
NOPAT tax charge	3,528	1,196	
Tax on net financing cost	(709)	(1,126)	
Other	–	–	
Withholding tax credit	–	(70)	
Income tax paid	2,819	–	

NOTE 8 – Other Movements in Equity Capital

Air Navigation Services EVA	(1,396)	–	
Other Businesses EVA	(2,122)	(108)	
Treasury gains	868	732	9
Prior period tax adjustment	–	(563)	
Other	–	(112)	
	(2,650)	(51)	

NOTE 9 – Treasury Gains

Interest on debt:			
At opportunity cost	2,308	3,017	
At actual cost	1,440	2,285	
	868	732	8

Opportunity cost of debt is based on the rate for five year Government stock plus an expected borrowing margin of 0.75 percent.

NOTE 10 – Capital Invested

Equity includes:			
Share capital (41,100,000 shares)	41,100	41,100	
Other economic equity	14,566	14,009	
	55,666	55,109	
EVA reserve	–	(730)	
	55,666	54,379	
Debt includes:			
Short-term borrowing	29,500	33,800	
Bonds	–	5,000	
Long-term loan	65,000	65,000	
Long-term deposits	(65,000)	(65,000)	
Capitalised leases	7,821	8,311	
	37,321	47,111	
Total capital invested	92,987	101,490	

As per Note 11, Changes in Policies, the balance in the EVA reserve for 1998 has been included in equity capital in the Statement of Economic Position.

NOTES TO THE FINANCIAL STATEMENTS

	1999 \$000	1998 \$000
NOTE 11 – Analysis of Working Capital		
Current assets:		
Trade accounts receivable	9,667	9,281
Other current assets	2,961	5,316
	12,628	14,597
Current liabilities:		
Trade accounts payable	1,510	1,265
Other current liabilities	4,308	4,925
	5,818	6,190
Net working capital	6,810	8,407

NOTE 12 – Analysis of Long-term Assets

Business development costs	680	1,343
Land	1,229	1,375
Buildings	20,218	22,754
Plant and equipment	48,786	53,522
Motor vehicles	439	618
Computers and furniture	2,849	4,229
Other long-term assets	1,483	150
	75,684	83,991

NOTE 13 – Long-term Liabilities

Long-term liabilities fall into two categories:

Known liabilities which amount to \$9 million (1998 \$11 million). Under present business conditions these liabilities are not expected to affect Airways Corporation of New Zealand's cash flow in the foreseeable future.

Contingent liabilities. Airways Corporation of New Zealand has no contingent liabilities.

NOTE 14 – Cost Realisation Schedule

Refer Note 1a.

Analysis of periods over which costs are included in NOPAT:

	Policy	Actual Average Period
Operating costs	1-5 years	1 year
Business development costs	1-8 years	8 years
Significant employee recruitment programmes	4 years	4 years
Business goodwill (which has a sustainable value)	not depreciated	not depreciated
Business goodwill (which does not have a sustainable value)	1-5 years	5 years
Land	not depreciated	not depreciated
Buildings	8-40 years	21 years
Computers and furniture	3-10 years	5 years
Plant and equipment	4-18 years	10 years
Motor vehicles	4-6 years	5 years
Work in progress	not depreciated	not depreciated



AUDIT REPORT TO THE SHAREHOLDERS OF AIRWAYS CORPORATION OF NEW ZEALAND LIMITED

We have audited the economic value added (EVA) financial statements on pages 23 to 31. These statements provide information about the past financial performance of the Corporation and its financial position as at 30 June 1999 within an economic value added framework. This information is stated in accordance with the economic principles and policies as set out on page 27.

RESPONSIBILITIES OF THE BOARD OF DIRECTORS

The Board of Directors (the Board) are responsible for the preparation and presentation of EVA financial statements which present fairly, in accordance with the economic principles and policies as set out on page 27, the financial position of the Corporation as at 30 June 1999 and its financial performance for the year ended on that date.

The Board has determined that the economic principles and policies used and described on page 27 of the EVA financial statements are appropriate to meet the needs of the shareholders.

AUDITORS' RESPONSIBILITIES

We are responsible for expressing an independent opinion on the EVA financial statements for the year ended 30 June 1999 presented by the Board and reporting our opinion to the shareholders.

In undertaking our examination we have relied on the audited statutory financial statements upon which the EVA financial statements are based and on which we expressed an unqualified opinion dated 1 September 1999.

BASIS OF OPINION

An audit includes examining, on a test basis, evidence relevant to the amounts and disclosures in the EVA financial statements. It also includes assessing:

- (a) the significant estimates and judgements made by the Board in the preparation of the EVA financial statements; and
- (b) whether the economic principles and policies used and described on page 27 have been consistently applied and adequately disclosed.

We have conducted our audit in accordance with generally accepted auditing standards in New Zealand. We planned and performed our audit so as to obtain all the information and explanations which we considered necessary in order to provide us with sufficient evidence to give reasonable assurance that the EVA financial statements are free from material misstatements, whether caused by fraud or error. In forming our opinion we also evaluated the overall adequacy of the presentation of the information in the EVA financial statements.

Other than in our capacity as auditors to the Corporation, we have no relationship or interests in the Corporation.

UNQUALIFIED OPINION

We have obtained all the information and explanations we have required.

In our opinion the EVA financial statements have been drawn up to present fairly, in accordance with the economic principles and policies on page 27, the financial position of the Corporation as at 30 June 1999 and its financial performance for the year ended on that date.

Our audit was completed on 1 September 1999 and our unqualified opinion is expressed as at that date.

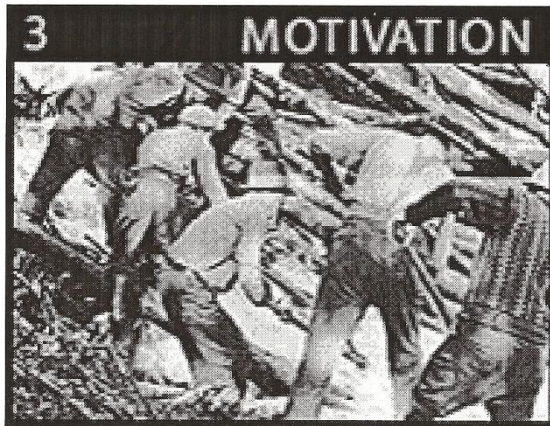
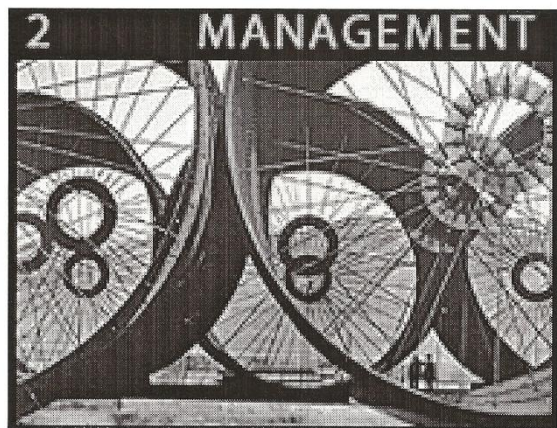
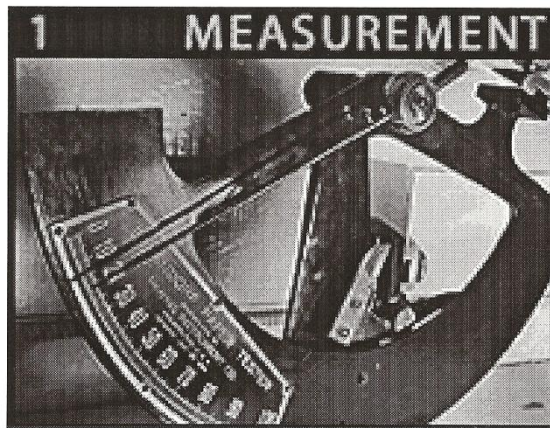
A handwritten signature in cursive script, reading 'PricewaterhouseCoopers', is written over a light blue background. Below the signature, the text 'Wellington' and 'Chartered Accountants' is printed in a small, sans-serif font.

**Appendix D. Extract from a presentation to employees regarding the
EVA performance incentive scheme at Company X, 2000/2001**

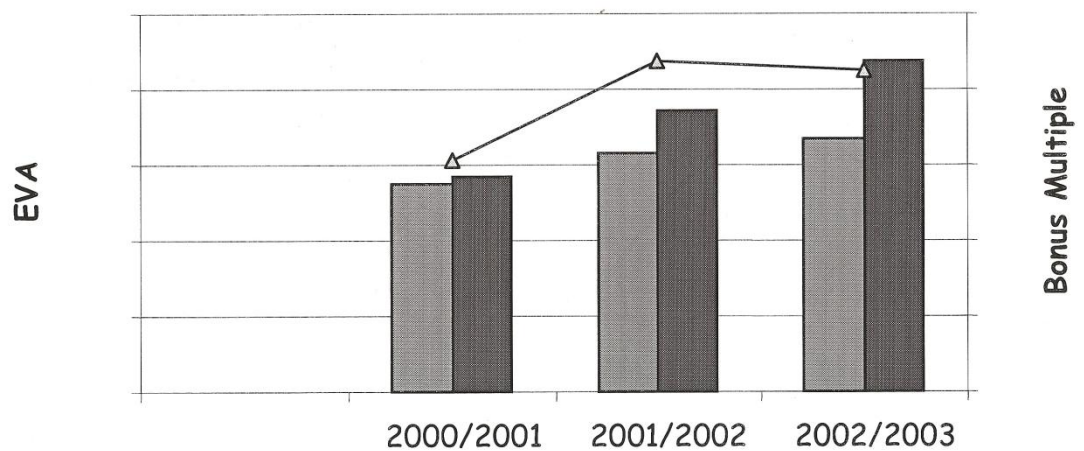
Introduction

- **Why EVA & Customer Satisfaction?**
- **EVA Target**
- **Customer Satisfaction Target**
- **Practical Implications**










EVA is more than a metric . . .



EVA Targets: 2000/01 - 2002/03



Increasing EVA - Adding Value

- **Managing**  **EBIT** 
Capital 
- **Building**  **EBIT** 
Capital 
- **Harvesting**  **EBIT** 
Capital 

Appendix E. Extracts from Company Z Annual Incentive Plan Guidebook, 2000/2001

1 Plan Purpose

The Annual Incentive Plan is designed to reward organisation and individual performance. AIP targets are based on our Annual Business Plan. The level of incentive payments is determined by performance against the Business Plan. This means rewards are “at risk” and dependent on our performance against Business Plan targets.

All permanent managers and specialists (except sales) will be offered the AIP.

2 Economic Value Added

‘Economic Value Added’ or ‘EVA’[®] is ultimate performance indicator. EVA essentially measures value creation – profit over and above our shareholder’s required return on investment.

WHY EVA?

While we have measured and reported EVA results for several years, this plan will reward people for achieving it. There are many reasons for taking an EVA approach, two of the most important are:

- EVA focuses the business on its ultimate goal – providing adequate shareholder returns
- EVA provides more robust decision-making frameworks and more accurate performance measurement.

HOW IS EVA CALCULATED?

Our shareholder expects a minimum return on the money it has invested in The expected return is based on the returns the shareholder could earn in alternative investments.

EVA is profit over and above the minimum return expected by our shareholder.

$$\text{Profit} - \text{Capital Charge for Funds Invested in the Company} = \text{Economic Value Added}$$

minus

For example, if the shareholder invested \$10 million in and wanted a return of 12%, it would require earnings of \$1.2 million. If earned \$1.5 million, the EVA would be \$300,000. In other words, would have created \$300,000 of economic value.

$$\begin{array}{r} \$10 \text{ million (shareholder investment)} \\ \times 12\% \text{ (return)} \\ \hline \$1.2 \text{ million (required earnings)} \end{array}$$

$$\begin{array}{r} \$1.5 \text{ million (actual earnings)} \\ - \$1.2 \text{ million (required earnings)} \\ \hline \$300,000 \text{ (positive EVA)} \end{array}$$

EVA[®] is a registered trademark of Stern Stewart & Co

5 Organisation Performance

For the purposes of the AIP, we have established two groups of participants:

1. Corporate Groups and the Senior Management Team (SMT)
2. Business Units

CORPORATE AND SMT EMPLOYEES

The Organisation Performance component of the AIP for Corporate and SMT participants will be based solely on Company Performance.



BUSINESS UNIT EMPLOYEES

The Organisation Performance component for Business Unit participants will be a combination of company and business unit performance.



Targets for company performance and Business Unit performance (for those Business units whose performance will be measured for the purpose of the Annual Incentive Plan), will be provided to plan participants, based on the Business Plan.

In exceptional circumstances, Company or Business unit targets may change during the year with approval of the Board (for company changes), or the Chief Executive (for Business unit changes).

Membership of Business Units and targets may also be changed during the year as a result of company restructuring and such change will not require individual employee agreement.

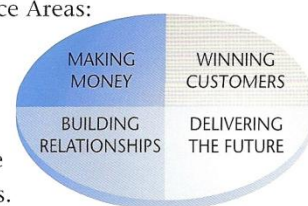
The performance component of the AIP for people in those Corporate Units will be based solely on Company Performance. Risk and Corporate Finance Groups are examples of areas which come within the Consolidated Group.

Your remuneration schedule will identify whether you are part of a Business Unit or the Consolidated Group.

6 Measuring Organisation Performance

Organisation performance will be measured in four Performance Areas:

1. Making Money
2. Winning Customers
3. Building Relationships
4. Delivering the Future



The 30% Business Unit component of Organisation Performance will be measured solely by Making Money for incentive purposes.

Company Performance will be calculated using the following measures in each of the four performance areas.

Key Performance Area	Incentive Plan Measures (Key Value Drivers)	Incentive Plan Measure/Definition
Making Money 	<ul style="list-style-type: none"> Company EVA Business Unit EVA (Business Unit participants only) 	<ul style="list-style-type: none"> Consolidated EVA (Net Operating Profit After Tax and after a Capital Charge). Business Unit EVA (Net Operating Profit After Tax and after a Capital Charge).
Winning Customers 	<ul style="list-style-type: none"> Customer Satisfaction 	<ul style="list-style-type: none"> Service Performance (TestPo) – Percentage of standard letters delivered next day across town, within 3 days out of town.
Building Relationships 	<ul style="list-style-type: none"> Public Favourability Employee Satisfaction Health & Safety 	<ul style="list-style-type: none"> Percentage of public who see  as "excellent" or "very good." POP Survey – An index of quality of employee satisfaction. Reduction in reported Lost Time Injuries from previous year.
Delivering the Future 	<ul style="list-style-type: none"> Revenue Growth 	<ul style="list-style-type: none"> Total External Operating Revenue.

WEIGHTINGS FOR ORGANISATION PERFORMANCE MEASURES

Making Money will be measured at both the Company and Business Unit level for Business Unit participants and only at the Company level for Corporate and SMT participants.

Winning Customers, Building Relationships and Delivering the Future will be measured only at the Company level for the purpose of the AIP.

Key Performance Area	Incentive Plan Measures (Key Value Drivers)	Corporate/SMT Participant	Business Unit Participant
Making Money	• Company EVA	80%	50%
	• Business Unit EVA (Business Unit participants only)	—	30%
Winning Customers	• Customer Satisfaction	5%	5%
Building Relationships	• Public Favourability	} 10%	} 10%
	• Employee Satisfaction		
	• Health & Safety		
Delivering the Future	• Revenue Growth	5%	5%

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