The British Accounting Review 48 (2016) 341–358

Contents lists available at ScienceDirect

The British Accounting Review

journal homepage: www.elsevier.com/locate/bar

The rise and fall of management accounting systems: A case study investigation of EVA™

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ARTICLE INFO

Article history:
Received 12 March 2014
Received in revised form 14 December 2015
Accepted 4 February 2016
Available online 9 February 2016

Keywords:
Economic value added
New Zealand
Management accounting systems
Institutional theory
Longitudinal study

ABSTRACT

This paper uses institutional theory as a framework for explaining and understanding the processes involved in the creation, use and decline of comprehensive Economic Value Added™ (EVA) based management accounting systems (MASs) in three substantial New Zealand companies. Longitudinal case studies, each extending to more than a decade through the recent financial crisis, were conducted. Qualitative data from interviews was combined with the investigation of the initial EVA philosophy, technical design (and subsequent evolution thereto) of the firms' new MASs. The result is a study which highlights and emphasises the socio-technical nature of management accounting practice. The interface between the technical accounting issues and the circumstances, beliefs and experiences of participants led to the introduction of extensive EVA-based systems, followed by significant adjustment of them and finally to their eventual abandonment. Thus, the analysis shows that, to fully understand the process of institutionalisation of management accounting, the technical characteristics of change should not be neglected but should be integrated in analysis undertaken. The factors involved in the de-institutionalisation of the above changes are also explored and presented.

1. Introduction

The purpose of this paper is to configure and explain the life (from birth to death) of a management accounting system (MAS). It is focussed on revealing how and why situational factors and technical accounting method characteristics interact to give rise to the creation of a new system, then influence its development and growth and, finally, initiate its decline and effect its demise. This is achieved through longitudinal, comparative case studies of three major New Zealand companies. In the 1990s, each of these firms adopted and used new MASs based on the Economic Value Added (EVA™) concept (Ehrbar, 1998; Stewart, 1991; Stern, Shiely, & Ross, 2001; Young & O'Byrne, 2001)[1] for periods of between twelve to fifteen years. In each case the EVA-based MAS was eventually abandoned.

The approach used in this study of EVA is processual in nature, where the system is viewed as a cumulative process over time (Burns, 2000; Burns & Scapens, 2000; Contrafatto & Burns, 2013). Initially, the process begins with an adoption stage

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[1] EVA is a registered trademark of the Stern Stewart and Co Consulting firm ('Stern Stewart') and it is defined as net operating profit after tax (NOPAT) less a capital charge (capital multiplied by the cost of capital). For ease of reading, the trademark symbol is omitted from the remainder of the article, although the patent is acknowledged.

http://dx.doi.org/10.1016/j.bar.2016.02.001
0890-8389/

where the decision to introduce the EVA philosophy is taken and the EVA-based MAS is rolled out within the organisation. For each case firm, the new EVA philosophy and MAS represented a radical departure from the previous system. It also represented a far-reaching change as it was extensively implemented in performance measurement and control systems throughout the organisation (i.e. at the business unit level, not simply for reporting at the overall firm level) and also used for many important managerial decisions involving planning, investment, control and remuneration determination. Following EVA adoption, the implementation process occurred over a relatively long time period and, during this time, the system's technical nature and use evolved as managers learned and responded to its changing form and impact within their firms and to changes in the internal and external environment. Finally, the process ends with the decision to abandon EVA as the basis of the MAS.

The study centres on the factors which stimulated and influenced each stage of the process for the case firms. The investigation of the factors extends beyond their identification to an explanation of how and why they operate and interact to intervene in the system (Bebbington, 2007). Therefore, the process is not studied as one of technical change occurring in isolation, rather it is enshrined in the organisational and environmental contexts of the case firms. This facilitates the development of a narrative surrounding the complex and dynamic nature of the EVA system as it begins, operates and ceases in the real world setting. One important advantage of this approach is the recognition it accords to the fact that management accounting change is not homogeneous in nature. The adoption, development and abandonment of a MAS constitute very different types of change, with different triggers for these changes. Institutional theory is used as a framework to investigate and explain the nature of the philosophy and routines surrounding EVA in the case firms, together with the motivation for changes over the EVA life cycle. This theory is particularly suitable for investigating the workings of the MAS which came to constitute a series of routines within the firm. Whilst routines may be regarded as repeated patterns of behaviour, or taken for granted beliefs of the way something works in an organisation (Burns, 2000; Burns & Scapens, 2000; Contrafatto & Burns, 2013; North, 2008; Nelson & Winter, 1982), they may also change over time in an evolutionary manner (Feldman, 2000, 2003; Feldman & Pentland, 2003, 2008; Nelson & Winter, 1982; Rerup & Feldman, 2011). Routines can be influenced by a variety of factors at the individual, organisational and environmental level (Miner & Estler, 1985). Furthermore, the internal dynamics of a routine is another possible source of change, leading to a flow of ideas, actions and outcomes (Feldman, 2000). As such, routines have the quality of both stability and change (Pentland & Reuter, 1994; Rerup & Feldman, 2011). Although institutional theory does not specifically focus on change in the form of abandonment, it has the potential to provide an explanatory role at that stage.

The paper makes three main contributions. First, the longitudinal nature provides an opportunity to 'tell the story' of how and why EVA was adopted within the case firms. A longitudinal approach is necessary for an understanding of how MAS change over time (Ryan, Scapens, & Theobald, 2002) whilst case studies have the 'nearly unique capacity to study phenomena in their naturally occurring setting' (Brownell, 1995, p77). A second contribution of the study is, through its contextual nature, the provision of empirical evidence on EVA through the economic cycle, including the recent financial crisis. This complements the exposition of EVA that is now prevalent in management accounting and finance textbooks (for example, Brealey, Myers, & Allen, 2014; Drury, 2012; Merchant & Van der Stede, 2012) by providing evidence on the operation of an EVA system and the circumstances in which it can fail. Third, by focussing on the dynamic nature of EVA routines, explanations for their institutionalisation, evolution and change are developed. The results suggest that particular internal pressures resulting from unintended outcomes may lead to an evolution in routines, while external shocks can lead to the abandonment of a management accounting philosophy such as EVA.

The paper is structured as follows. In the next section, relevant literature on EVA and on the study of management accounting change is reviewed and this defines a gap in existing research which this study is designed to address. The research design is outlined and the findings are then presented in the context of the economic and organisational environments of the case companies. Discussions are then presented, with conclusions drawn in the final section.

2. Relevant literature

Two areas of literature which reflect the socio-technical nature of management accounting are relevant to this study. The first comprises analyses and empirical studies of EVA as an operational and technical accounting method. The second covers institutional theory which has been used widely in the study and explanation of management accounting change. Together they provide a means of contextualising the study and interpreting the significance of the findings.

2.1. EVA studies

EVA-based financial management systems rose to prominence in the 1990s. Their roots lie in the residual income concept (Solomons, 1965) but it has been claimed that extra adjustments to the accounting measures of income, assets and liabilities make the construct more economically meaningful (Stern et al., 2001).[2] Furthermore, EVA has been promoted as more than a technical tool, as it is argued that it can be the basis of the business philosophy for the firm, with its focus on shareholder value and the drivers for improving that value (Stewart, 1991; Stern et al., 2001; Young & O'Byrne, 2001). In implementing the EVA

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

philosophy, EVA becomes the basis of the MAS (McLaren, 2005, 2004). It can be cascaded down the organisation to the divisional, departmental, process or product level and can be used as an integrated measure within the firm, for planning, investment decision making, control and remuneration determination (Stern et al., 2001). EVA was implemented by many companies across the world and early adopters identified by Stern Stewart include Coca-Cola, Quaker Oats, Briggs and Stratton and the US Postal Service in the US; Cadbury Schweppes, Lloyds Bank and Tate and Lyle in the UK; Siemens in Germany and Telecom, and Airways Corporation in New Zealand (Ehrbar, 1998; Stern et al., 2001).[3]

In their commentary on EVA, O'Hanlon and Peasnell (1998, p442) demonstrated the link between EVA and value and praised the attempt by Stern Stewart to use 'accounting as a device for linking incentive systems to a model of shareholder value creation'. They also raised possible issues that may arise from the use of EVA for performance measurement and concluded that only time will tell whether EVA had made a significant contribution to management accounting (O'Hanlon & Peasnell, 1998).

There are relatively few case studies that have examined EVA. Examples are the study by Francis and Minchington (2002) which investigated EVA in a UK water company; Malmi and Ikaheimo (2003) which considered the experiences of EVA users in Finland; McLaren (2005, 2004) which examined EVA as a means of benefit sharing for firms; and Woods, Taylor, and Fang (2012), which provided case study evidence of EVA in the European arm of one multinational firm. These studies have highlighted possible technical difficulties in the measurement of EVA, including the number of adjustments, together with issues highlighted by Zimmerman (1997), including the calculation of EVA at the divisional level and the difficulty of determining capital bases[4] and the difficulties of assigning joint costs and benefits. However, extant case studies may suffer from limitations such as a short-term focus, the examination of a specific (limited) number of defined factors, or an absence of an institutional environment (for example, Woods et al., 2012).

A recent institutional field study examining the societal influence of EVA through its use in Chinese central and Thai State-owned enterprises (SOEs) has been published by Chiwamit, Modell, and Yang (2014). In this study, EVA was seen as a management accounting innovation and its societal relevance was examined as a governance system for SOEs, where it may provide a link to financial accounting and a mechanism for other actors to shape and influence the organisations. However, it is clear from the interview evidence presented that EVA was not fully embedded in the SOEs as it was used mainly as a reporting tool. Therefore, the political governance mechanism could not work in the exact way that was intended. Nevertheless, the expansion to consider the relevance of EVA beyond the firm is recognised as a potentially useful dimension.

In summary, EVA has had many prominent adopters but there is no conclusive weight of research evidence on either its practical value or its durability in use. This study, therefore, addresses a research gap by providing case study evidence on the experiences of users of EVA within three very large firms, spanning the full life cycle, including the circumstances under which it can fail. The results constitute a response to the plea made by O'Hanlon and Peasnell (1998) to investigate further the contribution of EVA to management accounting practice.

At a technical level, it is apparent that EVA is seen as an innovation whose operation can vary and whose impact is, consequently, somewhat uncertain. This substantiates the need for detailed longitudinal studies drawing on theory that can assist in explaining and understanding the nature and effects of EVA in practice.

2.2. Institutional theory and management accounting change

Old-institutional economics (for example Nelson & Winter, 1982; North, 2008) can provide insights into management accounting change (Burns, 2000; Burns & Scapens, 2000; Contrafatto & Burns, 2013). Institutional theory specifically focuses on 'intra-organisational processes (of change) over time' (Contrafatto & Burns, 2013, p353) and the assimilation of changes into the fabric of an organisation. Change is delivered by people and is determined by their actions, as they respond to the internal dynamics of the operational routines, and to organizational and environmental factors (Feldman, 2000; 2003; Rerup & Feldman, 2011) including contradictions that they face in organisational life (Burns & Baldvinsdottir, 2005; Seo & Creed, 2002). In the case of management accounting change, such contradictions will stem from experiences at the interface of the technical character of the change with the beliefs, aspirations and motives of participants. These experiences can serve to highlight how new techniques subsequently become part of the organisation's rule-based routines and 'taken for granted' beliefs (Burns & Scapens, 2000).[5]

The emphasis on the processual nature of change inherent in institutional theory (Burns, 2000) fits well with the focus of this study on the different life cycle process stages of a MAS. While the process of adoption is considered an area of relative weakness in institutional theory (Burns & Baldvinsdottir, 2005; Seo & Creed, 2002), it is possible to use aspects of the theory to frame this phase. Initially, there is the decision to adopt the EVA philosophy, with its primary focus on shareholder value

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

[4] Nielsen and Roslender (2015) state that the calculation of invested capital can be reasonably accurate (Nielsen & Roslender, 2015, p269). However, the estimation can pose problems at the corporate, as well as, divisional level. For example, there are choices over whether to use opening, closing or average capital balances. Furthermore, it may be difficult to reach agreement over adjustments to the capital base, and revaluation of assets can cause tensions both within the firm and with outside agencies such as regulators.

[5] Alternatively, the change may occur but not become properly institutionalised or embedded in the organisation. Instead it exists but is not used and operates in a manner that is decoupled from the management process (for example, Sulaiman & Mitchell, 2005). Thus, the change has little effect on events. However, this does not mean that the new technique was not worthwhile. It may still be valuable to confirm decisions using other methods, so it plays a role in reducing uncertainty (Malmi, 1997).

and the identification of value drivers (Stewart, 1991; Stern et al., 2001; Young & O'Byrne, 2001). This philosophy can be viewed as an 'organisational interpretive schema', described in the management literature as 'a set of shared assumptions, values, and frames of reference that give meaning to everyday activities and guide how organisation members think and act' (Rerup & Feldman, 2011, p578). The adoption phase involves managers articulating the EVA philosophy as a new 'espoused interpretive schema' which may be introduced in response to problems and challenges (Rerup & Feldman, 2011) in order to reduce uncertainty and complexity. Upon implementation of EVA, the 'schema is enacted'. The result may or may not be consistent with the espoused schema (Rerup & Feldman, 2011).

Schemata patterns, which operate at the organisational level, differ from routines, which operate at the task level (Rerup & Feldman, 2011). However, espousing and enacting the EVA philosophy or schema for the firm will lead to changes in routines at the task level, as the new system is constituted and implemented. At this stage, routines may change fairly quickly in an ordered and sequential fashion. For example, EVA may be trialled at the firm level or in one unit only, before being rolled out to other units, or changes to remuneration schemes may lag the introduction of EVA, in order to provide time for users to understand them. The routines at this stage may be ostensive in nature, in other words they may be a 'script used by participants to guide their action' (Pentland & Feldman, 2005).

As part of the routinisation process, routines may be subject to evolution (Feldman, 2000, 2003; Feldman & Pentland, 2003, 2008; North, 2008; Nelson & Winter, 1982; Rerup & Feldman, 2011) in response to individual, organizational and environmental factors (Miner & Estler, 1985), leading to a change in the espoused and enacted schema (Rerup & Feldman, 2011), and/or changes in internal dynamics within the routines (Feldman, 2000). This instability arises as the routines are performed over time and the consequences and outcomes are learned and understood. There is a dynamic interaction process that is specific to the firm context (Becker, 2004), involving processual sequences of action (van der Steen, 2011). These dynamics have be described by Feldman (2000) as repairing, expanding and striving as managers' performative (performed) routines deviate from the original ostensive routines. Intended outcomes may not be achieved, or unintended and undesirable outcomes may be produced, leading to a change response in an attempt to repair the routine. The outcomes may produce new possibilities, enabling an expanding of the routine. Finally, outcomes may fall short of ideals, so that there is a process of striving to attain something that is difficult to achieve. Overall, routines may be viewed as generative systems involving a trial and error process (Rerup & Feldman, 2011). This evolutionary process occurs as the routines are performed, suggesting that they are an ongoing accomplishment (Feldman, 2000) as ostensive aspects are created and recreated, which in turn constrain and enable the performative aspects, and may impact upon the organisational schema (Rerup & Feldman, 2011). This process of stability and change (Pentland & Reuter, 1994) takes time to work its way through and will be context-specific depending on the complex interaction of influencing factors (Scapens, 2006).

The final phase, the decision to abandon, is not well documented in the literature (Sulaiman & Mitchell, 2005). This phase represents a move away from the EVA philosophy and its embedded rules and routines that have formed part of the organisational fabric for a period of time. The decision to abandon may be taken as single 'all or nothing' switch to a new schema that would by its nature suggest a new set of rules and routines. Alternatively, there may be a more gradual move away from enacted schema to a new espoused schema, with the undoing or changing of routines taking place over time. This gradual move could be the result of deliberate or phased changes, or it could be the result of a less formal and deliberate move away from the system. Whatever the process of abandonment, there will be underlying factors (internal and external) that trigger the de-institutionalisation change.

3. Research design and setting

3.1. The case approach, data gathering and analysis

In this study, three case companies were chosen for analysis. Case studies are well established as a basis for researching topics where in-depth study of factors relating to 'how' and 'why' (as opposed to 'what') research questions (Otley, 1999; Scapens, 1990; Yin, 2014). In management accounting they have been widely used in practice change research. The purposes of this study (outlined above) are particularly suitable for case research. In addition, the choice of the case study method will generate the type of findings that are needed to complement the predominance of large scale quantitative studies that exist on the topic of EVA use and will permit the novel longitudinal study of a full MAS life experience. This will enable a richer understanding of the motivations for the decisions taken at each stage of the process. The analysis of more than one case reduces the 'prospect that a rival explanation of what is found in the study is not uncovered' (Brownell, 1995, p66). Comparison of the EVA systems also allows for the possibility of confirming and so reinforcing findings. It also enables the possibility of asymmetric results across the firms. The large size of these firms and their infrastructure nature meant that over the time period that EVA was employed, a significant proportion of the New Zealand economy was exposed to the EVA methodology (see Table 1).[6]

[6] Over the time period 1998–2010, the operating revenue for the companies was maintained at least 10% of New Zealand retail sales (rising at its peak to over 15%), 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. Whilst these may be fairly crude measures, they do provide some idea of the importance of the companies in the New Zealand economy.

Table 1
Summary information.

	Company A	Company B	Company C
Type of Company	Listed, infrastructure network business	SOE, infrastructure network business	SOE, infrastructure network business
Organisational Environment			
• Competition	Increasingly throughout the business	Limited scope	Increased in some areas
• Regulation	2001: 'Light touch regulation' 2011: Regulated by Regulatory Commissioner	Regulation through SOE Act and Deed of Understanding	Regulation through SOE Act and Deed of Understanding
• Innovation	Products and services	Some innovation in service delivery	Products and services
Structure	Decentralized functional structure with interdependent business units	Decentralized functional structure with interdependent business units	Decentralized functional structure with interdependent business units
Size			
• Number of employees	2000: 6500 FTE 2010: 9000 FTE	2000: 650 FTE 2010: 750 FTE	2000: 7500 2010: 11,000
• Operating Revenue	2000: NZ$4000m 2010: NZ$5000m	2000: NZ$100m 2010: NZ$145m	2000: NZ$900m 2010: NZ$1200m
• Operating Profit	2000: NZ$1400m 2010: NZ$-4500m	2000: NZ$15m 2010: NZ$5m	2000: NZ$50m 2010: NZ$24m
EVA Implementation	1995: Full implementation to business unit level using Stern Stewart Consultants EVA Owner: Initially finance team and then assigned to HR Manager	1996: Full implementation to business unit level using Stern Stewart Consultants EVA Owner: Finance Manager	1998: Full implementation to business unit level using Stern Stewart Consultants EVA Owner: Dedicated EVA Manager

Anonymity was guaranteed to all participants. Thus, the financial information is aggregated and the companies are referred to as Companies A, B and C. Data from the relevant annual report and accounts.

The case study design employed is of an embedded nature. It involved multiple levels of analysis within each firm. Data were obtained from questionnaires issued to company staff in 1999 together with 22 semi-structured interviews conducted in February 2001 and February 2011 (further information is provided in Appendix 1).[7] In this form of naturalistic enquiry, the focus is not on sample size but rather it is on sample adequacy (Bowen, 2008). An appropriate, 'purposive' sample of respondents was selected in discussion with the lead respondent in each firm, comprising participants who best represented or had knowledge of EVA. Respondents held a variety of positions, in order to capture any different perspectives, and they included users and preparers of EVA. In each of the three firms, the EVA 'owner' was interviewed in 2001.[8] Ownership varied across the case firms and included the HR Manager, the Head of Finance, and a dedicated EVA Manager. In the 2011 interviews, the researchers had access to at least one 2001 interviewee within each firm (including two original EVA champions and one subsequent EVA owner), thus ensuring a measure of continuity in the EVA history. Interviews lasted from one hour to a full day and the transcripts were sent to respondents for verification and authorisation. Initially the researchers read through the approved transcripts independently to highlight pertinent points, before meeting to discuss the findings. Across the interviews, replication was sought to ensure coverage of the topics by at least one respondent (please see Appendix 1). This evidence was triangulated using internal documents (such as Board minutes and other internal reports). The interview evidence was further triangulated with documents from external advisors to the companies which were provided by the respondents, as well as unstructured discussion with other employees during the researchers' visits. In addition, one 120 min interview was held at the Treasury in February 2011, with five managers from various units including the National Infrastructure Unit and the Crown Ownership Monitoring Unit. The triangulation served to enhance calibration and construct validity (Brownell, 1995) and is a standard approach for case study research (Otley & Berry, 1994). Taken together, the large size of the firms in the context of the New Zealand economy, the careful design to ensure sample adequacy, the multiple data-gathering techniques and replication techniques aim to achieve data saturation, thus maximising the possibility of theoretical saturation.[9]

4. Case findings

As a prelude to the presentation of the case findings, two aspects of the case company setting, the economic context and the organisational context, both of which are relevant to the explanation of findings, are presented below.

[7] Questionnaires were originally sent to a number of individuals in several EVA firms. The three companies in this study were selected for follow-up interviews, based their EVA use in 1999.

[8] The EVA owner was not necessarily the original champion but they did hold overall responsibility for the EVA MAS within their firm.

[9] Data saturation involves including new participants into the study until the data set is complete, indicated by data replication or redundancy (Bowen, 2008). Replication 'verifies, and ensures comprehension and completeness' (Morse et al., 2002, cited in Bowen, 2008, p140). Theoretical saturation is the point at which no new insights are obtained, no new themes are identified and no issues arise regarding a category of data (Strauss and Corbin, 1990, cited in Bowen, 2008, p140).

4.1. Economic context

The three case companies are large ex-nationalised infrastructure firms operating in New Zealand. In 1987, one firm was proposed for stock exchange listing (which took place in 1990) and two firms became SOEs.[10] Coming from the state sector, the companies began operating in product markets where there was no competition. Consequently, there was an expectation that monopoly profits could be generated. Moreover, since the SOEs were not publicly listed, they did not operate in the capital market and therefore they would not be subject to capital market discipline, such as the threat of takeover. Financing of SOEs is via government equity (which receives an annual dividend), external bank borrowing and corporate debt.

In this economic context, there were proponents of EVA within New Zealand who suggested that it was best performance measure for SOEs. In 1996 an advisory regulation, the Value-Based Reporting Protocol, was published. The Protocol, which was developed by Shareholding Ministers in consultation with the SOEs and with the New Zealand Treasury, recommended that SOEs should report EVA information on an annual basis.[11] Although the Protocol did not become mandatory as a reporting mechanism, it did influence managerial behaviour, with several listed and non-listed firms in New Zealand introducing EVA as a result.[12] Therefore, the Protocol was an example of an externally-rooted development that created an opening for organisational change (Laughlin, 1991) but it was not an example of forced-selection (described by Malmi, 1999), as there was no requirement to follow the Protocol. Furthermore, the Protocol was concerned only with reporting at the corporate level, yet within several firms EVA was implemented as the business philosophy, the MAS and it was extended to the business unit level. Thus, regulatory engagement could not have been the only impetus for the take-up of EVA at this time.[13]

The more comprehensive application of EVA may have been the result of a further external impetus for organisation change, which arose slightly earlier in the mid-1990s from the promoters, Stern Stewart. They marketed EVA as a 'new' performance measure and it is possible that they acted as 'fashion setters', who disseminated 'transitory collective beliefs that certain management techniques are at the forefront of management progress' (Abrahamson, 1996, p254) and which are 'improvements over previous practices' (Spell, 2001, p360).[14] Acceptance of these beliefs by the business press through extensive publicity creates further impetus for acceptance (Deegan & Azizul Islam, 2014; Spell, 2001).

4.2. Organisational context

Within the case firms, EVA was fully implemented in the 1990s as a central component of the MAS. Stern Stewart consultants were employed to assist with a comprehensive introduction that was phased from the company level down to business units. Summary information on the firms is presented in Table 1 below, with the notation A, B and C used to preserve anonymity.

The three firms, being former nationalised monopolies, are all regulated to some extent, with the regulatory environment changing markedly for Company A during the study, moving from 'light touch', with no appointed regulator, to regulation by a Regulatory Commissioner. Regulation for Companies B and C is through the SOE Act and a Deed of Understanding, together with the publication of targets in a Statement of Corporate Intent.[15] Each firm has its main operations in New Zealand but they are all pursuing a corporate strategy of related diversification into international markets. Overall, Company B faces the most stable environment and the least amount of competition, with low personnel mobility. The environment faced by Company A is more turbulent, in terms of competition, regulation and innovation, than that faced by Companies B and C.

4.3. Case findings

The results are presented in a way that reflects the processual nature of the study, comprising the adoption and initial implementation, evolutionary and demise stages and, thus, the different types of practice change experienced by the case

[10] SOEs are companies that are government-owned. In New Zealand, they are governed by the Commerce Act (1986) which applies to all companies, as well as by the State-Owned Enterprises (SOE) Act, 1986. Principles outlined in the Act state that SOEs should be 'as profitable and efficient as comparable businesses that are not owned by the Crown; and a good employer; and 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.

[11] Although the Value-Based Reporting Protocol (1996) used the terms value-based reporting and economic profit, the calculations are the same as those for EVA, with use of the terms NOPAT and capital charge, and an illustrated example showing the possible adjustments and reconciliation to the accounting numbers, and the calculation of the cost of capital.

[12] EVA users in the mid-late 1990s in New Zealand included Air New Zealand, Airways Corporation of New Zealand, Fletcher Challenge, Lion Nathan, New Zealand Post, Telecom Corporation of New Zealand, Transpower.

[13] In contrast to the study by Dunne, Helliar, Lymer, and Mousa (2013), who found that regulatory engagement seemed to be the only impetus for diffusion of XBRL (eXtensible Business Reporting Language) outside of a narrow set of stakeholders.

[14] In the literature, the usual way that evidence to assess whether a technique is a management fashion is via bibliometric counts (for examples, see Daniel, Myers, & Dixon, 2008).

[15] 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.

companies. Within each of these stages, the findings are presented and related to the literature. Discussion of these results in the context of institutional theory will follow in the next section.

4.3.1. The adoption and initial implementation phase

Prior to EVA implementation, traditional systems of management accounting were employed within each firm. There was no overt criticism of these systems, rather it was simply believed by managers that EVA would prove superior in meeting corporate objectives. At the time of implementation, EVA was chosen over other commercially available products[16] and it constituted a very significant change for the companies, since it represented a new philosophy or set of values for the firms, with the entire MAS run on an EVA basis.

Company A, the largest and only listed company, was the first to implement EVA, followed by Company B and then Company C. The choice to implement was formally made in an independent way within each company, although it is likely that managers in one firm may have been aware of the decision made in the other organisations. Respondents in each firm cited clear, but different, motivations for the new philosophy:

> 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. (Interviewee II, A, 2001)

> EVA is a means of establishing a fair price that customers are comfortable with in the monopoly product marketplace. (Interviewee I, B, 2001).

> In the absence of a share price, EVA provides a benchmark against which to measure performance. (Interviewee II, C, 2001)

> 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, 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 … The marketing of EVA was quite intensive, so shareholding ministers began to ask questions about using EVA. (Interviewee 1, C, 2001)

For the case firms, the implementation process involved a phased approach, guided by Stern Stewart, following their recommended practice of initial determination of the measure, where there are choices to be made in terms of the number of adjustments to NOPAT and the capital balance. Because the measure of EVA is designed to reflect the economic context of each organisation and there are no associated standards, its measurement may involve an initial trial and error process, in order to determine which adjustments have a material impact. Furthermore, EVA measurement will vary from firm to firm. This individual tailoring of EVA is marketed as a selling point by Stern Stewart (for example, Stewart, 1991) where the measurement of economic, rather than accounting, performance is emphasised. In addition, there is a choice to be made about which of the adjustments are to be disclosed to external parties. For example, within Company C EVA was calculated with 10 adjustments for internal purposes and 15 for external reporting, demonstrating differential objectives within and outside of the firm. Upon implementation, Company A followed the Stern Stewart practice to manage the potential for underinvestment that EVA could create, by allowing capital to be kept off the balance sheet and therefore out of the capital charge.

Once the measure has been determined, Stern Stewart recommend that EVA is calculated initially at the overall firm level, followed by mapping to the business unit level after a period of time. Initially, EVA projections and outcomes are presented alongside existing measures (but not actually used or linked to remuneration), so that managers have time to understand the system and see how EVA tracks against the conventional numbers (Ehrbar, 1998; Stewart, 1991; Stern et al. 2001; Young & O'Byrne, 2001). This means that full implementation of the system, in terms of its embedding in the organisation and its use for planning, investment decisions, control and remuneration, may take several years. Indeed, full implementation took 1–2 years in Companies A and B and up to 5 years in Company C:

> Five years ago we were using EVA at just a company level under the Protocol of Value-Based Management. In March of '98 the Board said go ahead, implement EVA at a business unit level and also pay incentives based on EVA … We had a year to implement it and we presented our first-cut results about three months into that year. The Board said advance so within six months we actually had EVA bedded down and the final six months was just sort of fine tuning it. Along the way we consulted with our EVA advisors as to the adjustments that we used at a company level, how appropriate were they today because they hadn't been looked at for three or four years. (Interviewee II, C, 2001)

The extended implementation process suggests that studies that draw their data from the very early stage of implementation may be investigating less integrated systems (Krumwiede, 1998).[17] A full understanding of the process can only be established after implementation is complete, at which point the factors for success can be determined. For the case firms, behavioural and organisational factors identified by respondents include support from the Chief Executive, link to remuneration and performance management, training, resources and organisational-wide representation, for example:

[16] 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.

[17] In their paper, Anderson and Young define a mature application of ABC as one where implementation had taken place two years prior to their study (Anderson & Young, 1999).

> It certainly needs a level of commitment from the top. {The Chief Executive} has got to be an EVA advocate, otherwise when we go to the monthly performance review, they're just not going to talk about EVA. They'll talk about sales and they'll talk about costs. (Interviewee IV, A, 2001)

> The original EVA implementation was effectively a three way project. Finance, Strategic, whatever they were called at the time and HR … We did the project with Stern Stewart, it was a huge investment. The amount of work we did on EVA has never been repeated with another kind of tool or methodology. (Interviewee I, A, 2011)

> We said we need a year of EVA to actually get your pay on it to get people's interest up. After that year we held training sessions to the top 170 people. We said you guys now have the full brief on what EVA is, it's your job to go out and be the EVA champions in your world. Send the message in the manner that is most appropriate. (Interviewee II, C, 2001)

These factors have been shown to be relevant for successful implementation of other management accounting systems, for example ABC and the balanced scorecard. For ABC, there have been a number of contingency theory studies investigating implementation, where cross-sectional statistical analysis has been used to identify factors for success, including top management support, link to competitive strategies, link to performance evaluation and compensation, training, ownership by non-accountants and adequate resources (Anderson & Young, 1999; Chenhall, 2004; Krumwiede, 1998; Shields, 1995). However, in the case firms, EVA did not represent a bolt-on to the existing systems (unlike ABC or the balanced scorecard), it was the system. Whilst all of these factors cited above were present for the firms in the study, the significance of EVA meant that the provision of adequate resources was particularly important, since one of the major aspects of implementation, particularly at the business unit level, is the initial work that is required in order to calculate EVA. Construction of business unit balance sheets is necessary, with capital clearly assigned and the costs of capital determined. It has been noted in the literature that divisional capital can be difficult to establish, particularly if assets are shared across units (for example, Francis & Minchington, 2002; McLaren, 2004). Furthermore, in a vertically integrated firm, the allocation of working capital may be problematic, as it may be difficult to determine where the debtors and creditor balances should reside. Within the case firms, the time taken to allocate capital was extensive:

> Most of the capital was directly able to be allocated because it was to do with our fixed assets register so this asset, this table belongs to this revenue centre which rolls up to this business unit, it's yours. Other things like breaking our debtors and creditors we had to use allocation methodologies to do that. So probably the greatest amount of time was spent with the business saying here's how we come up with your economic balance sheet. (Interviewee II, C, 2001)

> The tricky part was when we broke into the business units, deciding which assets should be allocated to which of the units and therefore they would be imposed depreciation and bear a capital charge. (Interviewee III, B, 2001)

The cost of capital at the firm and business unit level cannot be observed, so in that sense is different from the other inputs to the EVA calculation. To calculate the cost of capital, a model and estimation method are required. The case firms used a capital asset pricing model (CAPM) estimation process to determine the return on equity to use as an input into the cost of capital model, making use of average equity beta estimates from similar (pure-play) listed firms abroad.[18] For each firm, an asset beta is initially estimated by 'degearing' the average equity beta to obtain an asset beta, which is then adjusted for leverage to determine the return on equity.[19] Therefore the absence of a share price was not a barrier to the calculation of EVA within the SOEs. The case firms made use of different business unit costs of capital, consistent with the CAPM theory which created the potential for conflict (to be discussed below).

Resources are also required to establish the systems to deliver the EVA calculations. Within companies A and C, there were no new systems introduced for this purpose, but the EVA calculations had to be linked to the financial accounting system. Once the business unit balance sheets had been determined, EVA was calculated using standard spreadsheets. Company B also made use of spreadsheets but the whole system was designed around EVA, which was perhaps unique amongst EVA firms:

> 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 do half-year accounts or annual accounts we actually convert them to conventional. Most companies have conventional and convert them to EVA. All our internal reporting is EVA, our Board reporting is EVA. (Interviewee I, B, 2001)

At the completion of the implementation process, EVA was employed for planning, decision-making, control, performance measurement and remuneration – it became institutionalised as the full MAS. Furthermore, the two SOEs chose to publish EVA results in their annual reports and within all three firms, the corporate EVA result was audited against the firms' EVA

[18] In the CAPM model there is no guarantee that betas for similar companies in different capital markets should be the same. This was of no concern to EVA users in the companies.

[19] In the Treasury 'Handbook on Estimating the Cost of Capital for Crown Entities and State-Owned Enterprises' (available online), it is recommended that the cost of capital is estimated using the 'Brennan-Lally' model, although this approach is not mandatory and practice does vary across SOEs. However the value of the market risk premium was identical across the firms over the time period studied.

deeds. This serves to highlight the link between the management accounting system via another set of actors (the auditors) to financial reporting, thus widening the societal influence of EVA (Chiwamit et al., 2014).

Despite being used as the full MAS within each firm, the EVA philosophy was not implemented in the exact way that Stern Stewart would advise (see for example the processes recommended in Stewart, 1991). The measure involved fewer adjustments than recommended, and traditional measures were not totally abandoned. For example, net present value (NPV) and payback periods were still calculated to support investment decision-making, in order to provide reassurance about how EVA calculations tracked against more traditional measures, due to a lack of understanding of EVA (discussed more fully below). Remuneration was linked to EVA at the business unit and overall firm level and a bonus bank was introduced in Company A to try to alleviate short-termism, as recommended by Stern Stewart. However, there were upper and lower bounds introduced to individual bonuses in all firms, whereas Stern Stewart would suggest that there should be no caps and floors in the schemes. Respondents indicated that it would not be culturally acceptable within New Zealand if this were the case. It was seen as vital that the EVA system was compatible with national (and organisational) culture, otherwise recruitment and retention of staff would be a problem.

4.3.2. The first evolutionary phase

Within the firms, EVA evolved in two distinct phases around 18 months-two years after implementation completion. After this time, it was clear that the EVA system wasn't working as desired. The first evolution concerned the simplification of the calculation. Several issues had arisen over complexity, instability in business unit structure and personnel mobility. The complexity of the calculation made it difficult to get the results on a timely basis within Companies A and C, for example:

> I got involved, it might have been about 18 months after that (implementation), when it became clear that a number of things were going wrong. The finance people had actually put in a process. The first time we came to produce a number, no one had actually made sure that the process was able to produce the number. (Interviewee I, A, 2001)

The number of adjustments further added to the complexity. It was too high to be administratively practical, for example:

> When we introduced EVA we had a deliberate policy that in the first two years we weren't going to change too many things. We've had to make a few minor changes after one year where we saw things that weren't working. After two years, we've concluded that by having ten adjustments, that's too many … There's a proposed simplified EVA and there's going to be three main adjustments. (Interviewee II, C, 2001)

> 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 … Effectively we just take an EBIT number and we just take a cost of capital off that. (Interviewee II, A, 2001)

An important aspect of the use of EVA for performance measurement is the analysis of the trend in the results. This may be achievable if there is stability in business unit structure or in the managers heading up the units. However, if either or both of these change, issues arise. The former difficulty was experienced in Company A, where its evolving structure meant that there was no EVA history over time. The latter was experienced in Company B where a respondent noted that when personnel change, there are difficult questions to be addressed concerning whether the new business unit manager should be held accountable to decisions made by the previous manager. In this situation, in order to maintain the confidence in the measure, past history was ignored, with any EVA losses absorbed by the organisation.

Problems also arose with the use of EVA, including external and internal comprehension and its contestability:

> As we've 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 kept simplifying it and truthfully they 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. Today we effectively make no adjustments. (Interviewee I, A, 2001)

> That's the heart of the problem. 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. (Interviewee I, C, 2001)

Taken all together, these issues led to the decision to simplify the calculation, thus modifying the EVA routines. A need to simplify the Stern Stewart measure of EVA has been documented in the literature, for example in the study by Woods et al. (2012), where the reduction in the number of adjustments was made due to some being 'guesstimates'. For the case firms here, the number of adjustments was a motivation for simplification, together with perceptions that the measure is subjective, involves arbitrary choices that are not supported by accounting standards, is difficult to calculate and establish trends in performance (due to evolving business unit structure, personnel changes and smoothing), and observing that several of the adjustments were not decision-influencing. Comprehension was an issue both internally and externally. These factors meant that every step of the EVA calculation could be contested, leading to instability in the measure and hence a loss of trust in the system.

However, despite these problems, there was still a desire to keep EVA, with evolution in the system when managers learned of these problems. A strong effort was made to modify EVA into a measure that worked, demonstrating that the EVA philosophy was central to all three firms, with no 'loose-coupling' to an established traditional MAS (Sulaiman & Mitchell, 2005).

4.3.3. The second evolutionary phase

After the initial evolution had taken place, a further evolutionary stage followed, involving the EVA mapping. In all three firms, full implementation meant that EVA had been pushed down to the business units, where managers had their own balance sheets and remuneration was based on their unit's EVA (together with a corporate EVA element). However, by the time of the 2001 interviews, the rules had changed in Company A and EVA had been 'pulled back' to the corporate level, so business unit balance sheets were no longer constructed and remuneration was based on overall firm performance. Secondary evolution occurred as a result of the incentives created by the EVA system. Its use to incentivise managers did not work as expected, an aspect which has not been well documented in the literature. EVA created short-termism in decision-making leading to a loss in investment and hence value-creating productivity. For example:

> 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. (Interviewee V, Company B, 2011)

However, much more important was the conflict and disunity created by EVA incentives. This lack of managerial coordination and cooperation manifested itself in managers attempting to improve their own result at the expense of others via the transfer pricing mechanism. This did not fit with the pursuit of a strategy of related diversification where communication and cooperation were important. Instead it created tensions between business units and destroyed company value. Contrary to Stern Stewart's assertions, the firms learned that EVA at the business unit level impeded vertical and horizontal integration. For example:

> For a couple of years (unit X) got lousy EVA results. And they probably worked harder than anyone. They would have seen that as a disincentive, whereas (unit Y) saw it as a real incentive to make sure that you maximised your outcome out of trading arrangements. (Interviewee III, A, 2001)

> I always thought that once we had a set of rules, it didn't matter where the costs actually fell. We had a framework for allocating those and once they were signed off on an annual basis you got on and managed the business. But it has caused some greater friction between business units than it ought to have. (Interviewee III, C, 2001)

The quotes illustrate the fact that the rules for EVA, laid down in order to promote collaboration, actually produced the opposite effect. Within Companies A and C, the solutions to this problem were different, with A addressing the use of business unit incentives directly but C by changing the organisational architecture. The new Chief Executive in Company A provided the agency for a change in the philosophy of EVA:

> We were down there and now we've moved away from that for most of the business units because of our experiences with the way it was operating. It was causing 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. There were some good outcomes from that too but in the end (T) came in as Chief Executive and 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. (Interviewee VI, A, 2001)

However, the prospects for a revision to the use of corporate EVA as a successful evolution were not promising in the case firms. Firstly, evidence from Company B, where one business unit manager commented on the impact of corporate EVA on his team, demonstrating that such a solution to the design of incentives could have a disincentive effect because the link to value creation was more remote:

> I don't think that people can actually relate to it that well because they don't see that they have a direct influence over it. It doesn't drive value creation – people don't look at it and say if I do this differently I'll create more value and I'll make more share, which is often the way these schemes are supposed to work. Incentivising people to find better ways of doing things. It doesn't do that for us. (Interviewee IV, B, 2001)

Secondly by removing incentives at the business unit level, EVA was no longer in the forefront of managers' minds and this led to a change in the discourse and routines. For example:

> When I go and talk to the CFO about where we're heading as a potential discussion point for an executive meeting on targets, we going to be talking in terms of EBIT and earnings, we're not going to be talking in terms of EVA … I don't see EVA being used to manage the business. (Interviewee VI, A, 2001)

In contrast Company C decided to remove the goal incongruence problem by redesigning their organisational structure. Initially disagreements between business units were resolved by means of mediation with a member of the Finance team and, if necessary, arbitration with the CEO or CFO. But it was recognised that the EVA rules continued to inhibit communication and coordination:

> That's probably the birth of the doom of EVA, 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 sub-optimal group outcomes. (Interviewee IV, Company C, 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." (Interviewee VI, Company C, 2011)

A restructuring of the firm through the amalgamation of business units is one way of solving the problem of incongruent behaviour for decentralised firms but it does involve the loss of advantages created by decentralisation (Zimmerman, 2013).

The effect of this discretion in choosing adjustments, what adjustments to disclose and smoothing of EVA over time was to damage one of the fundamental properties of the comparability of performance measures both through time for a given firm and across firms.

4.3.4. The demise stage

By 2011, the EVA philosophy was no longer central and EVA was not the basis of the MAS. Company A had abandoned EVA in 2007 and Companies B and C followed in 2010. Whilst EVA had left no legacy in Company A, in Companies B and C some traces remained. Within Company B, EVA was still calculated 'at a high level' for pricing decisions and within Company C, EVA was used for some business cases, alongside other measures. Respondents cited systematic factors for the decline in EVA including internal pressures surrounding information and incentives (all three companies), and external pressures from a new regulatory regime and the recessionary environment (Companies B and C).

Within Company A, the previous EVA owner stated that there was no particular event that triggered the demise of EVA. The rules and routines changed gradually, as there was a 'gentle dismantling' of EVA over time:

> It wasn't really like, we don't want EVA anymore, EVA is no good. We just evolved away from it, and no one was a strong enough – I guess, what's the word – champion for it that said, 'You must have EVA'. (Interviewee I, A, 2011)

The demise was a result of internal effects that diluted the EVA philosophy, starting originally at the first evolutionary stage with the removal of adjustments, continuing through the second evolutionary stage when EVA was pulled back to the corporate level, followed by the removal of the EVA bonus bank for remuneration. The HR Manager explained that the bank represented 'an American view' which did not fit the cultural values of the company or of New Zealand. Finally, the Board formally decided to remove EVA for target setting in the 2006–2007 year, replacing it with the 'more widely understood EBITDA as the financial metric'.[20] By this time, Company A was facing competition in the product market and therefore readily understood benchmarks of profitability were available, such as EBITDA.

In contrast to Company A, Companies B and C continued with EVA for several more years before its demise was triggered by external events. There was a more definite change in the philosophy and routines. An initial trigger 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. Respondents in both companies cited the amount of time that IFRS preparation required, as well as the corresponding change in philosophy. In addition, the CFO in Company B wanted to ensure that his staff were fully au fait with IFRS, in order to maintain their marketability.

> 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. (Interviewee V, C, 2011)

> 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 B) accounting staff to be behind the ball in terms of IFRS competence. (Interviewee VI, B, 2011)

> 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." (Interviewee IV, C, 2011)

A further drive for the demise in Companies B and C was the recession phase of the business cycle, which started at the beginning of 2008.[21] The EVA model was not appropriate in this climate, both in terms of the incentives created and the information provided. 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 & March, 1992, p43).[22] The value provided by this cushion is

[20] EBITDA = Earnings before interest, taxes, depreciation and amortisation. Source: Board meeting minutes 2006/07 financial year.
[21] Source: The Treasury, Monthly Economic Indicators January 2010.
[22] Slack resources are defined as total resources less necessary payments.

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 an interviewee in Company B:

> 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. (Interviewee V, Company B, 2011)

In a credit crunch, if external borrowing is unavailable, managers must hold surplus liquidity in order to be able to exercise any growth options that arise. Indeed, the recession led to such a change in strategic focus, since the normal business was in decline. EVA was regarded as an unsuitable measure in this situation as it would lead managers to reject projects that are ultimately profitable but which have EVA losses in the early years. This weakness of EVA has been recognised by Stern Stewart.[23] In this situation, the focus turned to cash.[24] For example:

> You tend to have to go back to more of your traditional cash flow modelling, because that becomes more critical … So it's not a good judge of how well a business is doing in a growth phase. That's one of the main reasons we've moved back, from a management point of view, to using GAAP … We're now looking more towards NPV, payback, cash flow profiles, – cash burn. (Interviewee VII, Company B, 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. You're guided more by the long term outcome than you are about what the result looks like right now. (Interviewee V, Company C, 2011)

Secondly, the EVA system did not provide managers with the information to assess how close the business may be operating in respect of the restrictions of debt covenants, something which may become 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. (Interviewee II, Company B, 2011)

In this situation it was financial accounting measures that were required. This contrasts with the assertions of Abdeen and Haight (2002) who state that rapid and complex changes in the environment mean 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 & Haight, 2002). Moreover, in a recession it may be difficult to motivate people when results are depressed. In common with other performance measures, a string of poor results could be demoralising:

> 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. 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. (Interviewee VI, C, 2011)

Finally, respondents in Companies B and C provided evidence 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. (Interviewee II, B, 2011)

5. Discussion

5.1. Adoption and initial implementation

The respondents have provided a varied set of motivations for EVA implementation, demonstrating that the EVA system could, ex ante, achieve a number of objectives. Company A's motivation for EVA as an operational measure for shareholder value maximisation is consistent with the Stern Stewart evidence (O'Hanlon & Peasnell, 1998; Stewart, 1991; Stern et al., 2001; Young & O'Byrne, 2001). The focus on the cost of capital is unique amongst performance measures and this feature

[23] Stern Stewart suggest that capital could be kept 'off the books' in a suspense account so that managers have the incentive to invest. Company A adopted this approach in order to encourage investment, when it was at the peak of EVA use within the firm.

[24] A comparison of the average cash balances in the annual reports for the three companies for the years 1998–2000 and 2008–2010 indicated that the average cash balances increased between these two time periods by 1150% for Company A, 100% for Company B and 594% for Company C.

of EVA was recognised. The presence of the cost of capital means that there is no incentive to hold slack resources or unproductive capital, the implicit assumption being that the firm can go to the capital markets at any time to raise funds at the cost of capital. Within the two SOEs, the Protocol provided a motivation for implementation, although the objectives for EVA were different. Within Company B, EVA was seen as a means of solving the pricing decision, where the sharing of benefits between the customers and the shareholder (the Government) was deemed to provide an important signalling mechanism in the monopolistic environment. The commonly-cited objective of EVA, shareholder value maximisation, was not primary for this monopoly SOE as it sought to have a customer-related focus. This demonstrates the influence of a set of external actors on the firm (Chiwamit et al., 2014) but it contradicts the findings of Dodd and Johns (1999), who suggested that the adoption of EVA leads to a move away from customer-centred measures. Within Company C, the lack of a share price provided the impetus, together with a champion and the publicity surrounding EVA, with Board members convinced that the EVA philosophy could provide a good strategic fit to the firm. Managers within this company were responding to the influence of other external actors (including the Government, the Treasury and the marketing by Stern Stewart), consistent with the results of Chiwamit et al. (2014).

The full-scale adoption and implementation of the EVA philosophy and the resulting change to the MAS represented a revolutionary change in espoused and enacted schema for the firms, the shared assumptions, values, and frames of reference (Rerup & Feldman, 2011). The new philosophy brought about a change to the rules (formal procedures) and routines ('taken for granted assumptions') within each firm (Burns & Scapens, 2000). There was a conscious move away from the traditional rules and routines, in order to implement EVA as the MAS. The motivation for change was seen to be via an internal agent (a director) (Contrafatto & Burns, 2013), together with external agents who provided agency to trigger the change (in particular Stern Stewart and the Protocol). Together they provided guidance and support through the adoption and implementation process. The process of the initial determination of the measure involved some repairs to the routines that were to be introduced (Feldman, 2000) in a form of trial and error process (Rerup & Feldman, 2011), before the EVA philosophy and MAS was rolled out and the routines were expanded through the firm (Feldman, 2000). Internal and external support, together with the significant investment, contributed greatly to the conditions in which the espoused philosophy could be enacted and routines established. Support from the Chief Executive, an EVA champion, on-going training, and the link to strategies, performance evaluation and remuneration, together with the significant investment and external support via the Protocol and Stern Stewart, were identified as factors for successful implementation. A further factor for success was the perceived fit to national and organisational culture. Together these factors ensured that EVA institutionalisation could take place.

5.2. Evolution stages

The nature of adoption of EVA, in terms of the strong top management support for it and removal of other systems, contributed to its prompt integration in the managerial processes of the companies. It quickly became important and used. However, hurdles existed to its routine use. Lack of speed in information generation, complexity and lack of user comprehension, flexibility in measurement and the lack of cohesion in EVA measurement caused by staff and structural change all combined to pressure technical changes to the initial routines that had been established. The reaction in all of the companies was to undertake further repair to the routines (Feldman, 2000), through a process of simplification as the solution to make EVA workable. Participants had experienced EVA in its initial form, learned from its operation and adapted it to facilitate its use. Overall this simplified measure meant that the EVA calculation was reduced to a residual income concept (Solomons, 1965). None of these changes were made in response to fashion, fads, or any coercion.

The institutionalisation of an administrative innovation such as EVA, therefore, proved to involve an extensive and ongoing learning process which led to technical changes in its application. This is to be expected, as rules and routines are 'part of an ongoing processes of replication, adaptation, modification and/or change over time' (Contrafatto & Burns, 2013, p353), which are part of a trial and error process (Rerup & Feldman, 2011). These processes have been described as evolutionary changes, and they are likely to be quite minor in comparison to the adaptation to the revolutionary change (Contrafatto & Burns, 2013). Without such technical adaptation and modification it is unlikely that the innovation would have become embedded in the companies. Institutionalisation was not, therefore, simply an event but a process (and a struggle) involving the interface between the technical and the behavioural aspects of management accounting. It is notable that the changes made compromised the initial characteristics of the technique in ways that reduced its claimed technical superiority over other methods.

There were considerable frailties in the integration of EVA in the case companies. More extensive use of EVA (at business unit level and as a basis for remuneration) did not result in greater integration of EVA but brought further problems of short-termism and internally competitive behaviour. The latter aspect could be described as a partial 'capture' of the rulebook for EVA by one set of actors in the firm who were able to tilt the outcomes of the EVA process in their favour. This meant that EVA did not work as intended and the beneficial effects could not be realised, meaning that the firm lost value. In order to keep EVA, the firms went through a process of striving to make the routines work (Feldman, 2000), by undertaking repair in the form of retrenchment through the dismantling of systems. The consequence of this was a decoupling of EVA from the management process which sowed the seeds of its demise. Just as an innovation can be

institutionalised so it can suffer a process of de-institutionalisation. This process was a result of the enacted EVA schema impacting on routines in a way that led to unexpected outcomes. These (adverse) routines then constituted the motivation for a change to the organisations' espoused schema, as the firms pulled back from their original EVA philosophy to a much weaker application of the model.

5.3. The demise stage

It has been noted in the literature that evidence on the demise of a management accounting technique may be difficult to find (Chanegrih, 2008; Sulaiman & Mitchell, 2005).[25] The case study firms represent clear evidence that the demise of all or the great majority of the EVA philosophy and systems was the result of a progressive accumulation of factors that related to the three companies' troublesome experience with EVA over a considerable period of time and changes in their circumstances which mitigated against continuing with EVA. As, in the cases studied, a technique such as EVA can be considered, ex-ante, to be an efficient choice for an organisation but this justification for adoption cannot be confirmed until ex-post i.e. after the operation has been experienced. In the three cases the influential arguments for EVA were largely not realised and many unforeseen dysfunctional consequences emerged from EVA use. The external and internal propagation of it was convincing and influential in the adoption phase but it was discovered through a process of trial and error that these attractions could not be operationalised. The information fields of participants become filled with first-hand knowledge of working with the philosophy and routines and prior external claims of benefit were consequently downgraded. Furthermore, the unanticipated shift in the economic environment meant that the measure was no longer appropriate, particularly when there were failures in the credit market and the lack of a capital market created issues over the cost of capital, a central component of EVA.

The rise and fall of the EVA philosophy and routines may lead to the natural view that EVA was a management fashion. According to the fashion perspective, shared beliefs about the merits of a particular technique do not remain stable for too long; they are relatively transitory as norms of rationality and progress create demand for new techniques (Abrahamson, 1996). However, it is argued that managers do not adopt management fashions just because of these forces. They also adopt fashions in order to respond to performance gaps that have opened up between the firm and its competitors. Furthermore, the transitory nature of these techniques means that there will be an eventual fall in popularity which could result from say the withdrawal of a government regulator-mandated technique or a change in the environment that narrowed these performance gaps (Abrahamson, 1996). However, the demise of EVA does not fit with a management fashion justification, since the changing environment did not close any performance gaps leading to abandonment (Abrahamson, 1991, 1996) and whilst the introduction of IFRS constituted a regulator-mandated change, this change was not a mandate against EVA. The extra work created through IFRS may not have contributed to its downfall if the recession had not also occurred. Furthermore, external agents continue to promote EVA. Stern Stewart still exists as an agency and the New Zealand Treasury continues to recommend the reporting of EVA by SOEs.[26]

5.4. The overall picture

Although institutionalisation can be a considered a careful process through the modification of rules and routines, it is also reversible. The situation studied provided some insights into how de-institutionalisation of management accounting can occur. This involved the accumulation of a weight of different factors that combined to result in participants rescinding the EVA philosophy and eliminating EVA from their organisational routines. First, the measure itself created uncertainty. The complex adjustments together with an absence of accounting standards meant that the calculation was difficult to defend. Furthermore, it is natural in a market environment to look for benchmarks in performance or prices to enable comparisons to be made both internally and by outside parties. This was impossible with EVA. Overall, the cited advantage of the EVA measure, that it is tailored to the firm, was actually a disadvantage. Second, the use of EVA created unintended behavioural outcomes. Full implementation demands that EVA be pushed down the organisation and linked to remuneration. Instead of EVA solving the moral hazard issues endemic in organisations, it actually accentuated them as one party to the trading arrangements captured the 'rule book' in order to exploit the other party. Third, for the SOEs, the EVA system was not robust enough to withstand the dual external shocks of the regulatory change and the credit crunch. The penalisation of a prudent recessionary policy (focussing on liquidity and growth opportunities) by the EVA method made many staff question its value. The findings support Hopwood's view that the economic crisis had put enormous pressure on the functioning of management

[25] A possible exception is the study by Ezzamel and Burns (2005) which investigated the implementation and abandonment of EVA in one UK firm. However, the time period between introduction and demise was extremely short (6 months), so it could be argued that EVA was never fully implemented in the firm. Furthermore, the introduction and abandonment of EVA took place at the time of the de-merger of the company, so there was a 'confounding event' which would call into question the results.

[26] This fact was confirmed in a meeting with Treasury staff in February 2011 and it can be authenticated in the 'Owner's Expectation Manual', available on the Treasury website. The Treasury remains concerned that SOEs may earn monopoly profits through a lack of competition, and EVA is seen as the best measure for identifying any such profits (notwithstanding the measurement issues over revaluation and comparability).

accounting systems and there was a growing informational intensity around cash and liquidity (Hopwood, 2009, p799). Fourth, changing staff attitudes resulted in EVA being viewed as a technique that suited an American rather than the New Zealand culture. North (2008, p91) made the point that 'perhaps most important of all, the formal rules change but the informal constraints do not' where the latter are the 'deep-seated cultural inheritance'. The result is that over time there 'tends to be a restructuring of the overall constraints' leading to an outcome that is 'far less revolutionary'. The firms studied certainly reverted to less revolutionary methods, partly to mitigate against the clash of the philosophy with both the organisational and national culture and the current economic climate. Thus, the de-institutionalisation of EVA related to its philosophy (and the resulting behavioural impact), its technical nature, and external developments that constrained staff resources. Taken together, these factors led staff to abandon all or most of the (formal) EVA systems they had initially created with great enthusiasm.

6. Conclusions

This study has presented longitudinal evidence on EVA in three case study firms in New Zealand, one listed company and two SOEs. The emphasis was on the narrative surrounding EVA in operation, including why and how the system was implemented, evolved and eventually abandoned. Within each firm, EVA represented a significant investment, and it exerted an extensive influence both internally and externally for the SOEs (through the publication of results). Prior research in institutionalisation has tended to focus on the adoption and implementation of new techniques. However, this study also explores the demise of a management accounting system. It shows that institutionalisation is a reversible process with rejection being stimulated by changing circumstances and detrimental experiences with the philosophy and system.

The introduction of EVA was based on careful preparation and consideration of its beneficial effects, with efficient-choice arguments cited as motivations for implementation. However, it is only after adoption and implementation that unforeseen shortcomings become apparent. There were unanticipated consequences that could not have been provided for in the ex-ante design of the system. Thus, it is often only through processes of trial and error that efficient choices and institutionally-embedded techniques are achieved. As a result, the 'new' technique can end up being a highly modified version of the original. Where modifications fail so does the innovation. EVA is claimed by its promoters to work everywhere, in the public and private sectors and under all situations. But it is clear that there are conditions, such as instability in design and market crises, where it does not work. Firms respond to failing credit markets by holding cash balances to facilitate their business. EVA is no longer an appropriate objective in this situation. These problems with EVA are not highlighted in existing empirical studies. This is likely because there are no prior studies that have examined EVA from birth to death, including also the changing economic environment.

The longitudinal nature of this study has enabled a processual view of the rise and fall of EVA within the firms. The theoretical framework of institutionalisation provided an opportunity to explain the changes in EVA use over time. The introduction of EVA representeda revolutionary change in the philosophy and the rules and routines within the firms as it was implemented throughout the organisations. It was quickly institutionalised but it soon became apparent that issues over complexity in measurement and uncertainty over value added led to a loss of trust in the system. In an effort to retain the philosophy, routines were repaired. Part of the philosophy of EVA is to decentralise decision-making and control and this created an additional problem. The system failed to deal with the issue of moral hazard, moreover it exacerbated the problem through a partial-capture of the 'rule book' which destroyed firm value. The firms responded to this unexpected outcome by diluting the EVA philosophy through scaling back the measure. Furthermore, the EVA system was not robust against the dual shocks of the regulatory change and the financial crisis. Additional instability was created by a failure to mesh with the unchanging culture (the 'informal rules'). Taken together these outcomes of EVA accumulated over time and contributed to its de-institutionalisation. Ex-ante, there were sound economic reasons for its introduction, but over time, unanticipated managerial behaviour, technical complexities and changes in the markets lead to the conclusion that EVA did not develop as a value-creating philosophy in the three case firms.

Our findings have demonstrated that EVA did not remain institutionalised. It was rejected regardless of the objectives set out for it, thus diluting the significance of its contribution to management accounting. However, the results are limited by the fact that only three case firms were studied in one setting, New Zealand. Whilst these firms were of significant economic importance during the time period studied, the findings may not be generalizable across different contexts. Nevertheless, it is anticipated that the key elements that led to the demise of EVA are generally applicable because they are inherent within EVA and not specific to context. Further research is required, perhaps on different types of companies, with different objectives, in different countries, in order to determine whether the results are robust.

Acknowledgements

The authors are grateful to the editors and anonymous reviewers, and participants at the British Accounting and Finance Association annual conference (Newcastle upon Tyne, April 2013) and the European Accounting Association conference (Paris, May 2013) for their useful comments and suggestions. The financial support of CIMA is also gratefully acknowledged.

Appendix 1. Interview participants and coverage of topics

Company A

Interviewee Number	Position	Duration (min.)	Date	
I	Manager, Human Resources	150/120	02/2001	03/2011
II	Manager, Strategy and Architecture	120	02/2001	
III	Manager, Network and Services	120	02/2001	
IV	Financial Management Advisor	120	02/2001	
V	Group Controller	120	02/2001	
VI	Corporate Finance Team Member	90	02/2001	
	Total		**6**	**1**

Since EVA had been abandoned by the time of the return visit in 2011, no further interviews were deemed to be necessary.

Company B

Interviewee Number	Position	Duration (min.)	Date	
I	Group Manager, Finance	120	02/2001	
II	Group Manager, Human Resources	120/150	02/2001	02/2011
III	Group Manager, Technology and Support	120	02/2001	
IV	Business Unit Manager	120	02/2001	
V	Chief Financial Officer	120		02/2011
VI	Ex-Chief Financial Officer	60		02/2011
VII	Financial Controller + Team Member	120		02/2011
	Total		**4**	**4**

Company C

Interviewee Number	Position	Duration (min.)	Date	
I	Chief Executive	90	02/2001	
II	Manager, Corporate Finance, EVA and Investment Analysis	Full day/60	02/2001	02/2011
III	General Manager, Human Resources	120	02/2001	
IV	Chief Financial Officer	120		02/2011
V	Group Corporate Finance Manager	120		02/2011
VI	Group Planning Manager	120		02/2011
	Total		**3**	**4**
	Grand total		**13**	**9**

In addition, a 120 min interview was held in February 2011 with five managers from various units within the Treasury, including the National Infrastructure Unit and the Crown Ownership Monitoring Unit.

To maximise the prospects for data saturation (see note 7), participants were chosen to ensure that all topics could be covered by at least three respondents within each firm (with the exception of the demise of EVA in Company A), to maximise the opportunities for replication and for capturing different views. The framework for the structure of the topics was based on Otley (1999). Coverage was established among respondents as follows:

Topic	Company A	Company B	Company C
EVA adoption and implementation	I, II, III, IV	I, II, III	I, II, III
EVA strategy	I, II, III, IV, V	I, III, IV, V, VI, VII	I, II, IV, V, VI
EVA measurement, including adjustments and cost of capital	I, II, IV	I, II, III, IV, V	I, II, III
Planning and investment decision-making	I, II, III, IV, V	I, II, III, IV	I, II, III
Control	II, III, IV, V, VI	I, II, III, IV	I, II, III
Remuneration and bonuses	I, II, IV	I, II, III, IV	I, II, III, IV
Transfer pricing/other issues	I, II, III, IV	I, II, III, IV	I, II, III, IV
Alternative measures	I, II, III, IV, VI	I, II, IV	I, II, III
Evolution of the philosophy and measure	I, II, III, VI	I, II, V, VI, VII	I, II, III, IV, V, VI
Demise of EVA	I	II, V, VI, VII	IV, V, VI

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