Accounting Measures vs Economic Value Measures

A survey study on public Swedish organizations

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Abstract

Seminar date: 2020-06-03

Course: BUSN79 – Business Administration: Degree Project in Accounting and Finance

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Five key words: Financial performance measures, contingency theory, economic value measures, accounting measures, value-based management.

Purpose: The main purpose is to investigate the use of different financial performance measures and if certain contingency factors may affect the use. The sub-purpose is to explore organizations' perceptions of the measures, aspects important for selecting measures and if the two categories of measures are used for different purposes.

Methodology: Our study is quantitative, has a deductive approach and uses a web-based survey for data collection. Descriptive statistics and logistic regression models were produced in SPSS.

Theoretical perspectives: Previous research on contingency theory, economic value measures, accounting measures and value-based management comprise the theoretical foundation used to analyze the findings.

Empirical foundation: The empirical foundation consists of 102 responses from a web-based survey sent to CFOs or other member of senior management in organizations listed on NASDAQ Stockholm stock exchange.

Conclusions: The perceptions on the measures are consistent with theory, the measures are used for the same purposes and organizations want measures to primarily reflect profitability, growth and shareholder value. In terms of using both types of measures, cost leadership and the sub-category of environmental uncertainty - turbulence - are significant when testing contingency factors in isolation. However, no significance is found for any of the contingency factors when tested simultaneously.

Acknowledgements

First and foremost, we would like to express our gratitude towards our supervisor Johan Dergård. His continuous support and great guidance throughout the process has been extremely helpful. We would also like to thank all the respondents for making this thesis possible. Lastly, we would like to thank friends and family for their words of encouragement during this process.

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Chapter 1. Introduction

1.1 Background

The use of financial performance measures within organizations is a widely accepted phenomenon and organizations have an endless amount of measures at their disposal. However, some have become more popular than others; accounting measures such as return on investment and earnings per share are the most common measures and have high contemporary relevance (Ittner & Larcker, 1998; Venanzi, 2011). In general, financial performance measures serve a variety of purposes ranging from decision support, facilitating strategy implementation, evaluating performance and rewarding on the basis of goal achievement (Ittner & Larcker, 1998; Kald & Nilsson, 2000, 2002). They constitute an integral part of an organization's performance measurement system (Neely, Gregory & Platts, 1995) and choosing appropriate measures is perceived critical in order to be successful (Venanzi, 2011).

Accounting measures have received plenty of criticism; the accounting numbers allow for manipulation by managers taking advantage of accounting conventions to facilitate improved organizational performance - a *moral hazard* issue (Venanzi, 2011). The measures may additionally cause managers to sacrifice long-term profitability in exchange for short-term success and are unduly influenced by external reporting rules (Ittner & Larcker, 1998). However, the main critique against the accounting measures is their inability to consider the cost of capital (Chen & Dodd, 2001).

By the 1990s, performance measurement began to shift direction towards encompassing other than strict financial dimensions. This decade saw the introduction of the infamous *Balanced Scorecard* by Kaplan and Norton (Ittner & Larcker, 2001). Around the same time, consulting firms started to introduce different economic value measures, a type of "improved" financial performance measure, to remedy the perceived disadvantages of accounting measures (ibid). Not only do these have the proclaimed benefits of being long-term and facilitating goal congruence - the most important feature of the economic value measures is that they take cost of capital into account (Chen & Dodd, 2001; Panigrahi, Zainudden & Azizan, 2014).

The economic value measures constitute an essential component in a wider *value-based management* (VBM) approach that establishes maximization of shareholder value as the primary objective of organizations (Chen & Dodd, 2001; Venanzi, 2011). According to proponents of this approach, accounting measures should be completely abandoned in favor of economic value measures (Ehrbar, 1998).

The pronounced benefits of the economic value measures should logically have resulted in diffused adoption on a global scale. However, the birth of the new measures did not necessarily resolve all aforementioned issues. Critics argue that they are complex, resource demanding, hard to communicate and require a great deal of adjustments (Chen & Dodd, 2001; Ittner & Larcker, 1998; Venanzi, 2011). Moreover, the empirical research examining whether these measures provide superior performance have yielded conflicting results; some studies found that economic value measures have superior predictive capability in relation to stock returns, while other studies found contradictory results (Venanzi, 2011).

Many years have passed since the introduction of the economic value measures and evidence from the U.S. suggests that managers tend to resort to accounting measures (Venanzi, 2011). In a survey conducted by Graham, Harvey & Rajgopal (2005, 2006) on 400 U.S. financial executives, they found that the majority of respondents consider earnings the most important aspect for financial performance measures. Most notably, they found that only 3 % of the respondents ranked EVA® or similar economic value measure as being most important. Similar results have emerged from other studies (Daly, 2011; Kald & Nilsson, 2000, 2002).

Seeing as most research on the use of the different types of financial performance measures has been conducted in the U.S., this study investigates the contemporary use of financial performance measures in Swedish organizations. More specifically, our study investigates whether certain contingency factors may affect the choice to adopt accounting measures and/or economic value measures. The empirical results of our study contribute new knowledge to the fields of VBM and performance measurement seeing as previous research has not considered how these factors may affect the adoption between different types of financial performance measures. Our study additionally contributes by investigating the general attitudes on the two different types of financial performance measures and if organizations use them for different purposes.

1.2 Purpose

Following the discussion, this study serves two purposes: The main purpose of the study is to investigate to what extent the two different types of financial performance measures are used within organizations and if certain contingency factors may explain the adoption.

The sub-purpose of our study is to explore how organizations perceive the two different financial performance measures, aspects considered important when selecting measures and finally if the two categories of measures are used for different purposes.

1.3 Limitations

The study is limited to organizations listed on the NASDAQ Stockholm stock exchange on the basis that these organizations fulfil the minimum criterion of being relatively large and thereby having a well-established and well-developed performance measurement system. In addition, this sample is sufficiently large to allow for statistical analysis. Finally, the study does not consider an exhaustive list of contingency factors. Instead, the identified 54 possible contingency factors (Hofer, 1975) was narrowed down to six based on relevance and considering survey size.

1.4 Disposition

The remainder of the thesis is divided into 5 main sections.

Chapter 2 – Literature Review

Here, previous research is presented. First, research within contingency theory is introduced along with a general introduction to financial performance measures. Thereafter follows a description on accounting measures, economic value measures and value-based management. Finally, the contingency factors are discussed in relation to financial performance measures.

Chapter 3 - Methodology

This section discusses the overall procedure, alternative considerations, general quality and operationalization of the dependent variable and independent variables. Finally, methodological criticism in different areas is presented along with ethical considerations.

Chapter 4 - Empirical Results

First, descriptive statistics and the results from our regression model testing all independent variables in isolation are presented. Thereafter follows results from a multicollinearity test and results from our regression model testing all independent variables simultaneously.

Chapter 5 – Analysis

In this chapter, the descriptive statistics and results from both regression models are interpreted and analyzed in relation to presented theory.

Chapter 6 - Discussion and Conclusion

This chapter present conclusions of the findings and subsequent discussion in relation to the research questions, the limitations and a wider context as well as the contributions the study adds in relation to purpose and existing theoretical and practical knowledge. Finally, implications and future research is discussed.

Chapter 2. Literature Review

2.1 Contingency Theory

Contingency theory stems from the *systems approach* that seeks to study the organization in relation to the broad context in which it operates (Emmanuel, Merchant & Otley, 1990). The concept of the theory is that organizational effectiveness is dependent upon the level of match between the organization and contingency factors (Otley 1980; Govindarajan, 1984; Fisher, 1998). The appropriateness of an accounting system will depend on the specific circumstances faced by the company (Fisher, 1998; Otley, 1980) and the structure of the organization varies along these circumstances (Gordon & Miller, 1976; Waterhouse & Tiessen, 1978). There is consequently no universal accounting system that fits the needs of all organizations (Gordon & Miller, 1976; Otley, 1980; Waterhouse & Tiessen, 1978).

Chapman (1997) presents the three most major works by Bruns and Waterhouse (1975), Gordon and Miller (1976) and Waterhouse and Tiessen (1978) when discussing the implications from environmental and technological uncertainty on organizational structure, and by extension accounting. Their research rests on early contingency research and discusses the conditions under which a centralized or decentralized approach to control is desirable. Based on this work, early accounting researchers investigated the significance of structure, size, industry, environment and technology on the design of management control systems (MCS) (Chenhall, 2006; Fisher, 1998; Otley, 1980). More recent studies in the MCS field have focused on the business strategy (Chenhall, 2006; Otley, 1999) and how this affects the organizations' MCS design (Langfield-Smith, 1997; Chenhall, 2006).

Despite its popularity in previous research, contingency theory has received criticism (Hanzlick, 2015). First, deriving a complete list of all potential contingency factors leads to a tremendous amount of variables (ibid). E.g. Hofer (1975) managed to identify 54 different organizational and environmental variables. Logically, empirical studies are unable to fully explore and capture all the contingency factors in one study (Hanzlick, 2015), which explains why a selected number of factors have been researched at a time (Fisher, 1998). Therefore, only a selected number of contingency factors have been included as follows.

2.1.1 Environmental uncertainty

Environmental uncertainty has received considerable attention as being one of the key contingency factors (Chapman 1997; Chenhall, 2006; Hartmann, 2000) and early research on the external environment that organizations operate in have been described in terms of heterogeneity, dynamism (Gordon & Miller, 1976) and predictability (Waterhouse & Tiessen, 1978).

Considerable empirical evidence exists supporting the view that environmental uncertainty is positively correlated with the design of control systems (Chapman, 1997; Otley, 1980). Thompson (1967) originally contended that reliance on results controls (broader term incorporating performance measures) was unfit in a highly uncertain environment. Moreover, Chong and Chong (1997) showcased that more sophisticated management accounting systems can facilitate improved decision-making as uncertainty decreases. Gordon and Narayanan (1984) further identified a correlation between perceived environmental uncertainty (PEU) and a need for external, future-oriented accounting information. However, the concept of PEU has been criticized by Ittner & Larcker (2001) for using managers' perceptions rather than objective measures.

As opposed to previous studies, Chenhall (2006) asserts that results controls may actually improve decision-making in an uncertain environment. Additionally, Hoque (2004) found no evidence to support previous studies that argued for less emphasis to be placed upon financial performance measures when facing an uncertain environment.

2.1.2 Strategy

Most studies on strategy as a contingency factor have followed either the proposed typology by Miles and Snow (1978) or Michael Porter (1998). The former classified organizations as *defenders*, *prospector*s or *analyzers*. Porter (1998) instead provides three generic strategies: *cost leadership, differentiation* and *focus*. The cost leadership strategy entails producing at a lower cost relative to competitors. A firm pursuing a differentiation strategy instead offers a product and/or service that customers may distinguish from competitors and for which a firm may charge a price premium. Lastly, a firm pursuing a focus strategy incorporates either one of the two former strategies, but targets a narrow market segment (Porter, 1998).

It is generally recognized that the intended strategic choices made by an organization will affect the performance measurement design (Ittner, Larcker & Randall, 2003; Taylor & Taylor, 2013). E.g. Otley (1999) refers to Simons (1995) and Langfield-Smith (1997) when discussing strategy as a contingency factor and further suggests that different strategies will tend to result in different control systems configurations. Moreover, Otley (1999) considers strategy as a contingency factor likely to have a significant influence on the choice of financial performance measures.

2.1.3 Decentralization

According to Chenhall and Morris (1986), decentralization is the level of autonomy delegated to managers. In an organization characterized by a high level of decentralization, managers have great responsibility over control activities (Waterhouse & Tiessen, 1978). Furthermore, Bruns and Waterhouse (1975) assert that results controls are used to a greater extent in decentralized organizations. In such a structural setting, managers will attempt to gather more aggregated and integrated information (Chenhall & Morris, 1986), and the number of divisional performance measures increases (Abernethy, Bouwens & Van Lent, 2004). Financial performance measures can be used to guide the behavior of decentralized business units by delegating and coordinating decision-making (Dossi & Patelli, 2008). Overall, the MCS literature considers results controls to be of importance when an organization is characterized as decentralized (Haustein, Luther & Schuster, 2014).

2.1.4 Size

Only a handful of MCS studies have considered size as a contextual variable. Instead, relatively large organizations have been studied with the justification of these being more likely to adopt formal control systems (Chenhall, 2006). He further proposes that large organizations use more sophisticated controls and are more likely to adopt economic value measures since they have more resources. Moreover, Bedford and Malmi (2015) argue that size may have a significant impact on controls used in organizations. Chenhall (2006) further calls for research to study variations among larger organizations.

According to Chenhall (2006) size can be defined in terms of sales volume, total assets, share valuation, profits and number of employees. However, the latter is most commonly utilized in contingency research (ibid).

2.1.5 Ownership Structure

Previous studies indicate that the ownership structure of an organization impacts the design of a management control system (Jones, 1992; Kamin & Ronen, 1978; Sandino, 2007; Whitley, 1999). According to Ferreira and Otley (2010), the ownership structure also affects the MCS design and its responsiveness to change. In addition, Granlund and Taipaleenmäk (2005) found that stakeholders in public companies demand implementation of more sophisticated controls. Haustein, Luther & Schuster (2014) further argue that greater reliance on result controls is associated with a dispersed ownership structure as a consequence of more external pressure. The dispersed ownership warrant results control because minority shareholders need to be able to track the result from a distance (ibid).

2.1.6 Industry

Industry type belongings of organizations constitute another factor that influences the choice of financial and non-financial performance measures (Abdel-Maksoud, Dugdale & Luther, 2005; Bhimani, 1994). Moreover, Ely (1991) found that the choice of accounting measures differs between industries. This finding, according to Ittner and Larcker (2001), suggests that financial performance measures should be tailored to reflect certain value drivers and environmental characteristics that are industry specific. However, some researchers have not found a correlation between industry type and chosen performance measures (Ittner & Larcker, 2001; Zaman & Yoon, 2016). E.g., Speckbacher, Bischof and Pfeiffer (2003) found no association between industry type and adoption of balanced scorecards.

2.2 Financial Performance Measures

Financial performance measures serve the primary purpose of quantifying the efficiency and/or effectiveness of actions performed and when combined, they constitute an integral part of an organization's performance measurement system (Figure 1) (Neely, Gregory & Platts, 1995). Financial performance measures are additionally used for decision support at both operational and top management levels, strategy implementation, facilitating business unit comparisons, external communication, benchmarking, determining bonuses and lastly to monitor shareholder value creation (Kald & Nilsson, 2000, 2002). For this reason, selecting the appropriate financial performance measures is perceived as one of the most critical challenges that organizations are faced with (Ittner & Larcker, 1998; Venanzi, 2011). Consequently, it is imperative that organizations continuously innovate and adapt in terms of choosing financial performance measures in order to remain successful (Lee & Yang, 2011). Ittner and Larcker (2001) furthermore maintain that the design of financial performance measures is contingent upon certain factors such as organizational design, competitive environment and strategy.
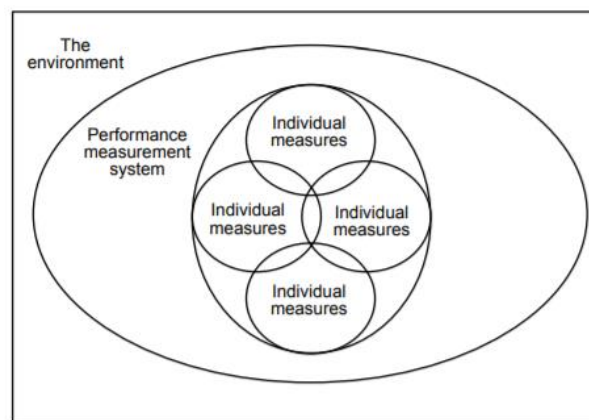
Figure 1: Performance measurement system (Neely, Gregory & Platts, 1995)

2.3 Economic Value Measures

When developing strategic plans, compensating managers and evaluating the achievements of the organization, financial performance measures are of high importance. As Ittner & Larcker (1998) show, organizations' performance measurement systems have been misaligned with the primary business objective of maximizing shareholder value. This in combination with the perceived inadequacies of accounting measures have prompted the development of "improved" financial performance measures, i.e. economic value measures (Ittner & Larcker, 1998; Venanzi, 2011). What these measures have in common is their use of the cost of capital to determine the profitability and thereby if performed actions actually create value for the shareholders (Venanzi, 2011).

From the organization's perspective the cost of capital reflects the cost of funds, both equity and debt. The rate of return for the project, investment or for the organization in its entirety must exceed the cost of capital in order to create value. The cost of capital depends on the capital structure and in order to arrive at the cost of capital, the cost of debt and cost of equity is assigned certain weights (Henderson, 1979; Modigliani & Miller, 1958).

Compensation for managers is often tied to the performance of the stock. Since the economic value measures are supposed to capture the true value of the company, compensation levels can be determined in accordance with stock performance by utilizing these measures (Venanzi, 2011). Despite this fact, economic value measures have seen modest use for compensation purposes (ibid).

2.3.1 Residual Income

In the 1920s, organizations such as DuPont and General Motors started using Return on Investment (ROI) to calculate different divisions' profitability and comparing this to the cost of capital to evaluate the value creating capabilities. Residual Income was later introduced to facilitate goal congruence among the different divisions (Horngren, Foster & Datar, 1997; Chen & Dodd, 2001; Venanzi, 2011).

The formula for Residual Income is as follows:

RI = Operating income – cost of capital

2.3.2 Economic Value Added

In the 1990s, the consulting bureau Stern Stewart & Co developed the measure Economic Value Added (EVA®). The origin of the measure stretches all the way back to the two decades following the end of World War II. During this era companies reported steady increases in Earnings per share (EPS) by calling on every single division to contribute by annually producing a certain amount of profit (Stern, Stewart & Chew, 1995).

Leverage buyouts, LBOs, began in the 1980s and increased significantly in a short time span. The LBO firms had no motive to report higher EPS - rather, they deliberately boosted the after-tax cash flow by selecting accounting methods that simultaneously reduced reported earnings. In these firms, the investors' capital was of high importance and they needed the high cash flows to pay the investors. The debt-to-asset ratio in the average LBO firm grew from 20% to 90% and this significant debt financing made the cost of capital highly visible. This resulted in an automatic internal control system where, if problems in the organization arose, needed to be addressed quickly and decisively as opposed to equity financed organizations. The latter could instead afford losses before requiring actions (Stern, Stewart & Chew, 1995).

Many LBOs defaulted throughout the later 1980s and this brought some important lessons for the future structuring and governance of public organizations. It provided the background that resulted in the development of an EVA® financial management system that takes the cost of

capital into account. The top management needs to design a "… performance measurement and reward system that simulates the feel and payoff of ownership." (Stern, Stewart & Chew, 1995, p. 40).

EVA® modifies the Residual income model by converting accounting income and accounting capital to economic income and economic capital. The EVA® model is as follows:

EVA®= NOPAT – (cost of capital X capital invested) where NOPAT is net operating profits after taxes (Venanzi, 2011).

There are over 160 possible adjustments that can be made to the NOPAT according to the EVA® model, but the necessary adjustments depend on the organization in question (Venanzi, 2011).

2.3.3 Cash Flow Return on Investment

In the 1970s the founders of HOLT Value Associates with help from Boston Consulting Group created the measurement Cash Flow Return on Investment (CFROI®). The reasoning behind the introduction is that it provides more insight into the economic return of the entire organization. The measurement is a combination of the internal rate of return and a hurdle rate which, when combined and applied on organizations' projects, results in a CFROI® for the entire organization. The CFROI® is supposed to remove distortions in the balance sheet and income statement, and adjust for inflation to create a measure that can be historically analyzed to see if the organization is adding or destroying value over time as it considers the cost of capital (Madden, 1999).

The CFROI® model is as follows:

CFROI®= Gross Operating Cash Flow / Capital Employed

Gross operating cash flow is the after-tax operating profit after adding back depreciation, amortization and the change in working capital. Capital employed is the sum of fixed assets and the working capital (Ittner & Larcker, 1998; Madden, 1999; Venanzi, 2011).

2.3.4 Shareholder Value Added

In the 1980s, only a handful of organizations had made an explicit pledge to shareholder value. Many managers were shortsighted and placed great emphasis on short-term earnings. Along with the takeover movement, managers were provided with a clear incentive to focus on creating real value for the organization. Organizations had not yet adjusted their focus and had therefore ignored many value enhancing activities, which in turn had penalized the stock performances. This gave rise to a value gap consisting of the difference between the current market value of the organization and the value that the organization would have if the management acted with the explicit objective of maximizing shareholder value. A positive value gap meant that corporate raiders could proceed to place a bid for the organization and replace the management. The best takeover defense to avoid this from happening was simply to shift focus towards delivering superior shareholder value. On this basis, Shareholder value added (SVA) was introduced (Rappaport, 1999). The formula for SVA is as follows:

SVA = Cumulative present value of cash flows + present value of liquidation at end of forecast period - Current liquidation value

2.3.5 Cash Value Added

As a response to Stern Stewart & Co's EVA® measure that the Boston Consulting Group regarded as misleading, they created Cash Value Added (CVA) in the 1990s. The measurement is an evolution of EVA® but constructed as a cash version. To calculate CVA, one must first arrive at the Boston Consulting Group's CFROI® (Boston Consulting Group, 1996; Venanzi, 2011). The formula is as follows:

CVA = (CFROI® – cost of capital) X gross investment

Gross investment is the sum of net current assets and the historical initial cost.

2.3.6 Discounted Cash Flow

Different kinds of discounted cash flow (DCF) valuation methods existed in the eighteenth and nineteenth century, but it was not until the 1930s that this approach was applied to equity valuation in the US. However, due to the lack of computing power, this measure failed to threaten the dominance of other ratios. Despite improved computing power during the 60s, the method would not become popular until the late 1990s during the technology bubble (Rutterford, 2004). It constituted a great model for evaluating organizations that, despite experiencing negative earnings, had good growth prospects (ibid).

The discounted cash flow model values an organization using the time value of money concept. To derive the present value of all future cash flows, these are first estimated and then discounted using the cost of capital, i.e. WACC. The sum of these constitute the Discounted Cash Flow.

The formula is as follows:

$$DCF = CF^1/(1+dr)^1 + CF^2/(1+dr)^2 + \ldots + CF^n/(1+dr)^n$$

CF is the cash flow and dr is the discount rate (Koller, Goedhart & Wessels, 2015).

Residual Income (RI)	Operating Income – Cost of Capital
Economic Value Added (EVA®)	NOPAT – (Cost of Capital x Capital Invested)
Cash Flow Return on Investment (CFROI®)	Gross Operating Cash Flow / Capital Employed
Shareholder Value Added (SVA)	Cumulative Present Value of Cash Flows + Present Value of Liquidation at End of Forecast Period – Current Liquidation Value
Cash Value Added (CVA)	(CFROI – Cost of Capital) x Gross Investment
Discounted Cash Flow (DCF)	$CF^1/(1+dr)^1 + CF^2/(1+dr)^2 + \ldots + CF^n/(1+dr)^n$

Table 1: Economic value measures and formulas

2.3.7 Benefits of Economic Value Measures

The economic value measures incorporate the cost of capital, which increases the likelihood that managers' decision making is aligned with the objective of maximizing shareholder value (Venanzi, 2011). The present value obtained by discounting future cash flows with the cost of capital furthermore helps the organization understand whether it is destroying or creating value (Boston Consulting Group, 1996; Chen & Dodd, 2001; Henderson, 1979; Koller, Goedhart & Wessels, 2015). By actively considering the cost of capital, the managers also factor in the associated risk (Modigliani & Miller, 1958; Koller, Goedhart & Wessels, 2015). In addition, these measures view the entire organization as an entity and not part by part. This consequently drives goal congruence and helps the organization work toward common objectives (Chen & Dodd, 2001), as well as managing both short-term and long-term objectives (Panigrahi, Zainudden & Azizan, 2014). Furthermore, using the economic value measures may change managerial behavior in a positive direction by placing more focus on shareholder value creation (Ittner & Larcker,1998).

Even though some of the economic value measures are based on accounting conventions, such as EVA® and CFROI®, the adjustments should nonetheless make the measures more accurate than the accounting measures (Madden, 1999; Stewart, 2002; Venanzi, 2011). Because of these adjustments, benchmarking against other organizations using these measures should be more accurate (ibid).

2.3.8 Shortcomings of Economic Value Measures

The economic value measures require a large number of adjustments and estimates to calculate. This consequently leads to them being expensive and hard to implement (Chen & Dodd, 2001; Ittner & Larcker, 1998; Venanzi, 2011). The measures are additionally complex and often warrant extensive training or consulting to be implemented in the organization (Chen & Dodd, 2001; Cordeiro & Kent, 2001; Venanzi, 2011). The measures may therefore be regarded as hard to communicate both externally and internally.

Some of the economic value measures are based on accounting conventions, such as EVA® and CFROI®, which makes them backward looking much alike accounting measures. Both measures are additionally positively affected by keeping down the gross investment, which is counterintuitive (Venanzi, 2011).

2.4 Accounting Measures

Accounting measures, such as Return on Investment (ROI), Return on Assets (ROA), Return on Equity (ROE) and Earnings per Share (EPS), started to appear in the late 1910s (Epstein, 1925, 1930; Sloan, 1929). At the time of development, the decision making was mostly contained at the organizations' center and the responsibility boundaries for decision making was clearly defined (Knight, 1998). The accounting measures are most commonly used in organizations for the purposes of evaluating performance and determining compensation (Verbeeten, 2005).

EPS and ROI are the two most common accounting measures (Venanzi, 2011). The former simply measures earnings in relation to the average number of outstanding shares during the reporting period (Panigrahi, Zainudden & Azizan, 2014), while the latter provides indications as to whether an investment is profitable by putting the net value in relation to the investment cost (Phillips, 2011).

Other commonly used accounting measures are the different earnings measures EBIT, EBITA and EBITDA. They all consider the organization's performance on its core operations without taking tax and interest expenses into account. However, EBITA additionally adjusts for amortization and EBITDA adjusts for amortization and depreciation, seeing as these two components are merely accounting practices (Koller et al. 2015).

The final category of accounting measures comprises different return measures. They share the approach of placing some form of earnings measure in relation to equity, assets or employed capital. ROE uses shareholder's equity, which is the amount financed from common- and preferred shares in addition to share premiums and reserves (Koller, Goedhart & Wessels, 2015; Panigrahi, Zainudden & Azizan, 2014). In contrast, ROA puts earnings in relation to the total assets of the organization (Panigrahi, Zainudden & Azizan, 2014). Finally, ROCE puts earnings in relation to the employed capital, which constitutes total assets net of current liabilities (ibid).

Earnings Per Share	(Net Income – Dividends on Preferred Stock) / Average Outstanding Shares
Return on Equity	Net Income / Shareholders' Equity
Return on Assets	Net Income / Assets
Return on Capital Employed	EBIT / Capital Employed
Return on Investment	Net Value of Investment / Cost of Investment
EBIT	Net Income + Interests + Taxes
EBITA	Net Income + Interests + Taxes + Amortization
EBITDA	Net income + Interests + Taxes + Depreciation + Amortization

Table 2: Accounting measures and formulas

2.4.1 Benefits of Accounting Measures

Accounting measures can be perceived as easy to use, as Franklin, Graybeal and Cooper (2019) points out. They attribute this to the fact that many of them are available in company reports and are widely recognized. The availability consequently improves the ability to communicate the measures both internally and externally, and to benchmark them against other companies (Hart, 2014). Furthermore, they are considered cost efficient because the information required to use the measures already exist within the company (Marr, 2012). Finally, some of the accounting measures such as ROE, ROA and ROI, can be decomposed by using the DuPont analysis (Brigham & Ehrhardt, 2017). This allows for the measures to be more readily understood by being able to study the components (ibid).

2.4.2 Shortcomings of Accounting Measures

Accounting numbers can be manipulated by using alternative, but allowed, accounting practices. If a company were to change an accounting method the measures based on these accounting figures would correspondingly change. The new numbers may only be attributed to a change in practice and does not reflect an actual change in performance. This could lead to comparing "apples-to-oranges" when comparing the accounting measures between organizations (Chen & Dodd, 2001; Panigrahi, Zainudden & Azizan, 2014; Venanzi, 2011; Verweire, 2005). Organizations also run the risk of moral hazard when managers manipulate accounting numbers by exploiting accounting conventions to facilitate improved organizational performance, despite not actually achieving any improvements (Cordeiro & Kent, 2001; Venanzi, 2011). Furthermore, managers can be motivated to retain old assets and not replace them to improve the accounting measures – a type of short termism (Panigrahi, Zainudden & Azizan, 2014; Stewart, 2002; Venanzi, 2011). However, the main critique is that accounting measures do not take cost of capital into account (Ittner & Larcker, 1998; Venanzi, 2011). Therefore, despite the accounting measures being positive, it does not necessarily mean that the organization is achieving its ultimate objective of maximizing shareholder value (Chen & Dodd, 2001; Panigrahi, Zainudden & Azizan, 2014; Stewart, 2002; Venanzi, 2011; Yook & McCabe, 2001). Lastly, the accounting measures are backward looking since the numbers used in the calculations are historical values (Stewart, 2002; Verweire, 2005).

2.5 Value-based Management

Research on VBM dates back to early works by Fruhan (1979) and Rappaport (1981). These authors focused on the processes that drive organizational value. The development of a value-based approach is a result of management accounting evolving from a traditional emphasis on financially oriented decision-making and tight budgetary control to a new era characterized by a strategic approach to value creation by the identification, measurement and management of organizational innovation, customer value and shareholder returns (ibid). According to Copeland, Koller and Murrin (1994), the thinking behind VBM is straightforward; a single measure, *value,* is the only relevant metric for companies to consider (ibid).

A new set of management accounting techniques aimed at creating value have been developed to combat the inadequacies of accounting measures. They consist of balanced scorecards, strategic accounting systems and *economic value measures* (Ittner & Larcker, 1998, 2001). The latter subcategory is a part of VBM and measures the long-term shareholder value creation (Black et al., 1998; Copeland, Koller & Murrin, 1994; KPMG, 1999). Proponents of VBM argue for accounting measures to be entirely abandoned (Ehrbar, 1998) and that the economic value measures should be used from top-to-bottom in organizations (Black et al., 1998).

Ittner & Larcker (2001) created a VBM framework that builds on normative VBM literature with the aim of providing an integrated approach towards creating shareholder value (Ittner & Larcker, 2001). Despite VBM frameworks differing between firms, the authors conclude that they generally share six common steps as seen below (Figure 2). This framework additionally incorporates linkages from contingency theory. Furthermore, the authors suggest that the VBM framework extends previous management accounting and control research (e.g. Otley 1980) where the control package is perceived as a function of organizational objectives, strategies and the external environment. On the basis of this previous research, the framework creates a loop of financial value drivers, performance outcome and reassessment of objectives, strategies, and organizational design (Ittner & Larcker, 2001).
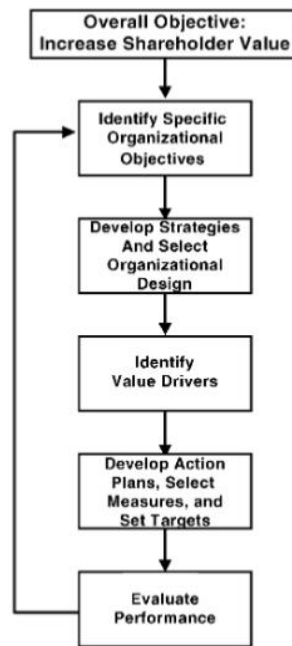
Figure 2: VBM framework (Ittner & Larcker, 2001)

The proposed model by Ittner and Larcker has received criticism from Malmi and Ikäheimo (2003) for not sufficiently incorporating decision-making. Instead, these authors argue that decision-making in organizations using a VBM framework should follow a specific logic. Moreover, they suggest four key elements of VBM:

1. Aim to create shareholder value.
2. Identify value drivers.
3. Connect performance measurement, target setting and rewards to value creation or value drivers.
4. Connect decision-making and action planning, both strategic and operational, to value creation or value drivers.

Moreover, Malmi and Ikäheimo (2003) stress that one should not expect all of these elements to be present in organizations. Rather, one can instead consider a minimum requirement of shareholder value being the primary objective and that either (1) decisions are made on a level using VBM or (2) performance measurement is based on economic value measures (ibid).

2.6 Contingency Factors and Financial Performance Measures

Despite performance measurement having received much attention in recent literature, studies concerning the relationship between factors affecting the adoption of financial performance measures are largely absent (Chenhall, 2006b; Ittner & Larcker, 1998; Rejc, 2004; Zaman & Yoon, 2016). Moreover, the mixed results regarding the superiority of economic value measures raise the issue of how these relate to different contextual factors (Chenhall, 2006b). Chenhall further maintains that there is a lack of evidence providing directions in how these contingency factors affect the use of economic value measures. However, he stresses that certain characteristics of the factors simultaneously provide indications as to the potential fit of economic value measures to different situations.

Firms pursuing a differentiation strategy tend to operate in relatively complex environments characterized by a high level of uncertainty. Despite economic value measures' ability to incorporate uncertainty by utilizing the cost of capital, the projection of future cash flows will be grounded in guesswork rather than objective numbers. Moreover, managers might benefit or be penalized if the economic value is higher/lower than expected (Chenhall, 2006b). As Ittner and Larcker (1998) noted, economic value measures may regularly be negative in cyclical industries despite managers taking correct actions.

If the primary focus of managers is to maximize economic value measures, they may be discouraged to make investments where positive cash flows lie relatively far in the future. Furthermore, it can be difficult to identify drivers of innovation and convert these into the economic value measures. Therefore, these measures may be more appropriate for companies emphasizing a cost leadership strategy and facing a less uncertain environment (Chenhall, 2006b).

Chenhall (2006b) additionally asserts that the effectiveness of economic value measures is contingent upon organizational structure. More specifically, he contends that managers will require authority over decisions that are directly related to value-drivers if the measures are to be used at an operational level. Consequently, the level of decentralization in an organization may affect the use of economic value measures. Chenhall (2006b) finally presents size as a likely contingency factor for adopting economic value measures. He contends that large organizations have the resources required and can adapt the systems to fit their specific needs. However, he does not provide a definition of what may be considered a large organization.

The previous discussion relating to ownership revealed that the ownership structure plays a role when organizations design a performance measurement system (Jones, 1992; Kamin & Ronen, 1978; Sandino, 2007; Whitley, 1999). Moreover, it revealed that public organizations tend to implement more sophisticated control systems as a result of stakeholder demands (Granlund & Taipaleenmäk, 2005). Haustein, Luther & Schuster (2014) additionally stress that an organization with dispersed ownership is characterized by placing more reliance on results controls. Despite ownership structure affecting the design of the performance measurement system and thereby the choice of financial performance measures, the direction of the adoption remains unclear.

What type of industry organizations belong to have been considered a factor that influences the choice of financial performance measures (Abdel-Maksoud, Dugdale & Luther, 2005; Bhimani, 1994). According to Ittner and Larcker (2001), financial performance measures should be adapted to fit industry-specific value-drivers and characteristics faced by organizations. However, no existing evidence suggests how the adoption of both types of financial performance measures differ between industries.
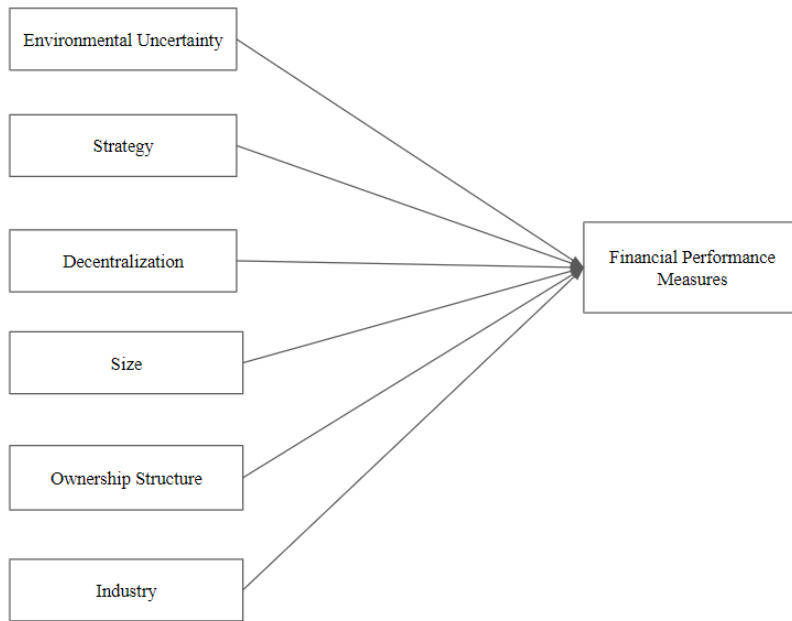
Figure 3: Contingency factors' potential relationship with financial performance measures

2.7 Research Questions

According to the above discussion relating to how contingency factors influence the adoption of financial performance measures within organizations, there is no empirical evidence that allows for definite predictions. Therefore, no hypotheses have been derived from our literature review. Instead, our study explores the following research questions:

1. Which of the following contingency factors might affect the use of different financial performance measures?
   a. Environmental Uncertainty
   b. Strategy
   c. Decentralization
   d. Size
   e. Ownership Structure
   f. Industry

2. What are the most important aspects that organizations consider that financial performance measures should reflect?

3. What are the organizations' perceptions of the different types of financial performance measures and how does this relate to benefits and shortcomings in previous research?

4. Are the different financial performance measures used for different purposes in organizations?

Chapter 3. Methodology

3.1 Research Design

A research strategy can be both qualitative and quantitative (Bryman & Bell, 2011). Since the objective of our study was to discern patterns of association between large amounts of data, a quantitative was deemed best suited for this purpose. Moreover, our study adopted a cross-sectional research design, which entailed collection of data on more than one case and at a single point in time (ibid). While interviews would have resulted in more detailed knowledge and allowed for follow-up questions, our purpose required utilizing a web-based survey in order to allow collection of large amount of data. Otherwise, it would have been impossible to study the relationships amongst the dependent variable and the independent variables.

Our study is positivistic as methods of social science were applied to study social reality (Bryman & Bell, 2011). Within the epistemological position of positivism, a deductive approach has been employed seeing as the research questions have been derived from previous research (ibid). As a result, previous research was applied to interpret and analyze the empirical findings.

3.2 Data Collection & Sampling

Primary data used in our study was collected by conducting a web-based survey on public organizations in Sweden. The questions were derived from previous literature produced in English and subsequently translated to Swedish. 24 questions in total were included in the survey and the basic structure followed that questions pertaining to studied variables were answered by selecting the appropriate value on a 7-point Likert scale. Furthermore, secondary data relating to the size of each organization was gathered by using the database *Retriever* (n.d.).

For the questions to be applicable, a prerequisite was that these organizations have a well-established and well-developed performance measurement system. As such, we formed the minimum-criterion for organizations to be relatively large to increase the likelihood of this occurrence. The entire population of 338 organizations were included in the sample - 101 on large cap, 131 on mid cap and 106 on small cap. To ensure that the respondent had sufficient

knowledge and insight to adequately answer the questions, our survey targeted CFOs within respective organizations. The process of gathering emails was conducted by persistent google searching and if unsuccessful, an external database named *rocketreach.co (n.d.)* was utilized. In case both methods did not yield an email of the CFO, the survey was sent to another member of the senior management. Out of the total population consisting of 338 organizations, we failed to find 26 emails of the CFO or other members of the senior management, thereby reducing the original sample to 312. Respondents were subsequently categorized according to the ICB classification employed on the Stockholm exchange (Nasdaq, 2011). Table 3 shows the distribution of respondents according to size and industry.

Demographic data	N	Percentage
ICB Classification		
Industrials	31	30.4 %
Financials	19	18.6 %
Health Care	18	17.6 %
Consumer Services	11	10.8 %
Technology	10	9.8 %
Consumer Goods	6	5.9 %
Basic Materials	5	4.9 %
Telecommunications	2	2 %
Number of Employees		
0-250	41	40.2%
251-500	10	9.8%
501-1000	10	9.8%
1001-2500	11	10.8%
2500+	30	29.4%

Table 3: Distribution and size of respondents

Participants were informed about the general purpose of the study both in the email sent out and in the short introduction in the survey itself. Moreover, participants were ensured anonymity and informed on how to provide answers. Data collection took place between the 20th of April and 8th of May. The first round of emails sent to the 312 organizations yielded 59 responses, a response rate of roughly 19 %. To increase the number of respondents, two reminders were sent out by email with intervals of one week. The second round of emails resulted in 18 more responses and the final reminder resulted in an additional 25 responses, generating a total amount of 102 with a response rate of roughly 33 %. Table 4 shows the distribution of respondents according to company position.

Position	N	Percentage
CFO	81	79.4 %
Financial Manager	5	4.9 %
Head of Group Accounting	3	2.9 %
Head of IR	3	2.9 %
Business Controller	3	2.9 %
Group Business Controller	2	2 %
CEO	1	1 %
CSO & CCO	1	1 %
Group Financial Controller	1	1 %
Head of Internal Control	1	1 %
Finance Trainee	1	1 %

Table 4: Distribution of respondents according to company position

3.3 Literature Review

As our study has a deductive approach and our foundation rests on previous research, a thorough literature review has been conducted. The first step was to obtain comprehensive knowledge on contingency theory in general and factors relevant to our study. Then followed an extensive review regarding the different types of financial performance measures. The final step of the review was to identify previous research studying how different contingency factors relate to the adoption of different financial performance measures. More emphasis was placed on certain renowned authors' published material within the fields of value-based management, performance measurement and contingency theory to increase the overall quality of our study.

3.4 Data Treatment

The authors were fully aware that the treatment of data needed to be managed carefully and meticulously in order for the empirical findings, analysis and consequent discussion/conclusion to be reliable. Therefore, the data collected through the survey was carefully reviewed to ensure satisfactory quality. Thereafter, the data was compiled into an excel sheet and coded in different ways to be applicable to the chosen data program for our statistical analysis, SPSS. Dichotomous and ordinal variables were transformed into numerical values, and questions allowing multiple answers were transformed to dummy variables. Finally, missing data was coded as 999 in SPSS and separate answers or "Do not know" answers were coded as an 8.

3.5 Data Analysis

General descriptive analysis was performed on all the data by compiling frequency tables and descriptive tables in SPSS. For the ordinal variables, the arithmetic mean, standard deviation, min, max, skewness and kurtosis were calculated. The data from the survey not subject to statistical analysis were subsequently analyzed in relation to previous research.

Since the collected data were categorical and not numerical, the data was not normally distributed (Saunders, Lewis & Thornhill, 2012). Consequently, non-parametric tests were administered. In order to study the relationship between the independent variables and the dependent categorical variable consisting of *Group 0* and *Group 1* (see below under Dependent Variables), bivariate and multivariate analysis were conducted in SPSS using a logistic regression model, which is deemed appropriate when the dependent variable is a categorical variable and for not normally distributed data. As a result, the relationship between the use of different types of financial performance measures and contingency factors that may affect the adoption could be studied.

In order to study the joint relationship of the independent variables and the dependent variables, all independent variables were subsequently included in the logistic regression model simultaneously. This methodology allows for determining if the interrelationship among the independent variables yield different results as opposed to studying them in isolation.

When performing a logistic regression with multiple independent variables, it is necessary to test for multicollinearity (Saunders, Lewis & Thornhill, 2012). The multiple linear regression model in SPSS offers the option of running multicollinearity diagnostics. However, this is not possible in a logistic regression model; therefore, Pearson Bivariate Correlation Matrix was utilized to determine the correlation amongst the independent variables. Different authors offer different critical values: Saunders, Lewis and Thornhill (2012) state that 0.9 is considered critical, while Leech, Barrett and Morgan (2005) set 0.5-0.6 as the critical value. If two variables suffer from multicollinearity, one of them should be excluded.

In addition, the logistic regression model does not provide a R squared value; instead, pseudo R squared values labelled *Cox & Snell R Square* and *Nagelkerke R Square* are provided (Leech, Barrett & Morgan, 2005). They are similar to R2 and thereby explain to what extent the model can predict the variance in the dependent variable (ibid). Moreover, SPSS provides an overall percentage value in the Classification Table. The received value indicates the percentage our model makes correct predictions. Overall, rigorous testing was performed with both models to ensure that the acquired results were indeed correct.

The statistical significance level was set at 5 % as it is most frequently used in this type of research. The chosen significance level determines how confident we can be that our results are generalizable to the population from which the sample was collected. It is impossible to be certain that a finding in a sample will exist within the entire population. The statistical significance level determines the risk of concluding that a relationship exists in our population despite it not actually existing. Hence, a 5 % level implies making the wrong conclusion 5 out of 100 times (Bryman & Bell, 2011).

3.6 Operationalization

3.6.1 Dependent Variable

The initial ambition was to analyze three dependent variables by dividing the respondents into three groups: one consisting of organizations using only accounting measures, one using only economic value measures and one using both types of financial performance measures. However, the results of our survey show that not a single organization exclusively used economic value measures. Therefore, the dependent variable comprises two groups and have been operationalized as follows:

Group 0 - Organizations using only accounting measures.

Group 1 - Organizations using both types of financial performance measures.

3.6.2 Independent Variables

Variable definitions and measurement

Environmental uncertainty	
Unpredictability	The inability to anticipate variations in firms' environment (Child, 1972; Dess & Beard, 1984; Miller & Friesen, 1983). Measured as the average of six items relating to customer, supplier, competitor, technology, regulatory and economic dimensions (Bedford & Malmi, 2015).
Turbulence	Rate of change and instability in firms' environment (Dess & Beard, 1984; Mintzberg, 1979). Measured as the average of six items relating to customer, supplier, competitors, technology, regulatory and economic dimensions (Bedford & Malmi, 2015).
Complexity	Range and diversity in the main factors relevant to firm operations (Child, 1972; Dess & Beard, 1984). Measured as the average of two items relating to customer requirements and competitor strategies (Bedford & Malmi, 2015).
Hostility	Degree of threat from competitors for market demand (Khandwalla, 1973). Measured as the average competition intensity pertaining to primary products/services (Bedford & Malmi, 2015).
Strategy	
Cost Leadership	Emphasis on competing through low price (Porter, 1980). Measured by a single item.
Differentiation	Emphasis on competing by offering products/services different from that of competitors (Porter, 1980). Measured by a single item.
Focus	Emphasis on competing by offering products/services to a narrow market segment (Porter, 1980). Measured by a single item.
Decentralization	Subordinates' influence on certain decisions (Abernethy, Bouwens & Van Lent, 2004). Measured as the average of 5 items relating to strategic decisions, investment decisions, marketing decisions, internal business processes and human resource decisions.
Ownership structure	
Institutional Investors	Dummy variable. Coded 1 if primarily owned by institutional investors.
Small individual Investors	Dummy variable. Coded 2 if primarily owned by small individual investors.
Venture Capitalists	Dummy variable. Coded 3 if primarily owned by venture capital firms/firms.
Family	Dummy variable. Coded 4 if primarily owned by family.
State	Dummy variable. Coded 5 if primarily owned by state.
Municipality	Dummy variable. Coded 6 if primarily owned by municipality.
Partners	Dummy variable. Coded 7 if primarily owned by partners.
Cooperative Association	Dummy variable. Coded 8 if primarily owned by cooperative association.
Strong Individual Investors	Dummy variable. Coded 9 if primarily owned by strong individual investors.
Other	Dummy variable. Coded 10 if firm chose other than above alternatives as primary owner.
Firm Size	Number of employees (Chenhall, 2006). Measured as the natural log of number of employees.
Industry	Dummy variables in accordance with ICB classification (Nasdaq, 2011).

Table 5: Independent variables

3.7 Reliability, replicability and validity

The reliability of a study concerns the questions whether the achieved results can be repeated and if the measures devised for certain concepts are consistent (Bryman & Bell, 2011). When designing a survey that contains multiple-item measures, it is possible that they lack coherence (ibid). Therefore, pre-testing was performed by consulting a former CFO with a great amount of experience to ensure that the translations and formulations of the questions were satisfactory. No faulty translations, formulations or difficulties in understanding the questions were identified. Moreover, seeing as all the questions have been derived from previous research and subsequently translated, the questions have in fact been tested. Finally, Cronbach Alpha tests were conducted to further enhance the internal reliability. This test was used for three applicable questions and yielded values between 0.762 and 0.801, suggesting that the questions are internally reliable. See table 6 in the appendix for more details.

Validity is concerned with the integrity related to the conclusions of a study. In relation to quantitative research, measurement validity concerns whether a measure devised for a concept really does reflect the intended concept. The concept of measurement validity is closely related to reliability insomuch that if a measure is unreliable, it cannot be providing a valid measure. Validity can readily be distinguished into *internal validity* and *external validity* (Bryman & Bell, 2011). Internal validity concerns the causal relationship between an independent variable and a dependent variable. More specifically, it concerns the level of certainty we can place on the fact x causes y and that no other element is responsible for producing this effect, termed *causality*. As is the case with cross-sectional research design, one must infer that the independent variable actually causes the other (Bryman & Bell, 2011). For that reason, one can derive previous theoretical ideas to make this assertion (ibid), which has been performed in our case. This consequently increased the internal validity to a satisfactory level.

External validity instead relates to whether the results are generalizable beyond the study's research context (Bryman & Bell, 2011). Seeing as the population has been selected by means of a minimum criterion, the results cannot readily be generalized to organizations not meeting the selection criteria. Moreover, every organization within the population was given the same probability of being included since it was sent to the entire population. Consequently, the external validity in our study was considered satisfactory.

Replicability concerns to what extent a study can be replicated by other researchers. In order for it to be replicable, the authors must provide great detail in procedures relating to, in our case of a cross-sectional design, the selection of respondents, designing measures of concepts, administration of the web-based survey and finally the analysis of data (Bryman & Bell, 2011). All these components concerning the overall procedure have been described in a detailed manner, thereby implying that the level of replicability is high. Consequently, researchers desiring to replicate our study should not encounter any major difficulties.

3.8 Methodology Criticism

3.8.1 Criticism on Research Design

Despite assuming causality between our independent and dependent variables, there was always the risk of the inferences in fact being incorrect. Moreover, the study faced a bias problem of non-respondents and organizations not contacted (because of inability to locate contact information) having significantly different answers to that of our respondents.

3.8.2 Criticism on Survey for Data Collection

Utilizing a survey-instrument for primary data collection entailed risks for errors. E.g. data processing errors might have occurred at some point. However, precautions were taken to minimize the amount of errors in order to ensure measurement validity. The questions in the survey were close ended which means that the respondents could only choose from a limited amount of answers. This could lead to a limited outcome since the respondents might have provided a different answer if the questions were open ended. Furthermore, interviews might have yielded more in-depth knowledge related to all questions. Moreover, our study faced the

risk of not receiving an adequate number of respondents in order to conduct statistical analysis on the data and consequently generalize the results to the entire population.

3.8.3 Criticism on Sample Selection

Our minimum criteria were somewhat arbitrarily determined, and only listed organizations were included in our sample. The results from the chosen sample might not reflect the actual practice and general perceptions of financial performance measures in Sweden.

3.8.4 Criticism on Missing data

Despite careful instructions to answer the penultimate question of the survey concerning the respondents' perceptions of economic value measures, some chose to ignore providing an answer. Perhaps it would have been a better option in retrospect to have made the last question compulsory. However, the missing data only amounted to roughly five percent.

3.9 Ethical Considerations

Two major potential ethical issues of our study were related to confidentiality and anonymity. The recipients of our emails received information regarding confidentiality, anonymity and the purpose of asking questions related to the respondents' organization. Moreover, several settings in our survey-instrument were changed to prohibit respondents from seeing previous answers.

4. Empirical results

4.1 Descriptive statistics

4.1.1 The use of accounting measures and economic value measures

Table 7 and 8 show the results of which financial performance measures that have been adopted by the organizations included in our sample. The data was gathered by asking organizations what measures they use by providing a number of the most common accounting measures and economic value measures. Below results stem from questions 2a, 2b, 2c, 3a, 3b and 3c (see appendix).

Measure	N	Relative rank	% Using
EPS	102	1	68.6 %
EBIT	102	2	64.7 %
EBITDA	102	3	52 %
ROI	102	4	48 %
ROCE	102	5	43.1 %
ROE	102	6	35.3 %
EBITA	102	7	34.3 %
Other	102	8	27.5 %
ROA	102	9	9.8 %
Total use:			100 %

Table 7: Adoption of accounting measures

Measure	N	Relative rank	% Using
DCF	102	1	47.1 %
CFROI®	102	2	20.6 %
EVA®	102	3	7.8 %
SVA	102	4	5.9 %
CVA	102	5	3.9 %
Other	102	6	2.9 %
Residual Income	102	7	2 %
Total use:			68 %

Table 8: Adoption of economic value measures

4.1.2 Perceptions on the accounting measures and economic value measures

In order to gain an understanding of how organizations perceive accounting measures and economic value measures, organizations were provided options derived from theory in questions 2d and 3d in the survey (see appendix). Table 9 and 10 show the respondents' perceptions on the two different types of financial performance measures. The reason for the lower "N" in table 10 is related to respondents providing a "Do not know" answer.

To what extent..	N	Relative rank	Mean	Std. Dev.	Min	Max
Easy to use	101	1	5.96	1.09	2	7
Widely accepted	99	2	5.83	1.1	3	7
Easy to communicate	102	3	5.66	1.2	2	7
Cost efficient	90	4	5.53	1.16	3	7
Easy to decompose	101	5	5.38	1.15	2	7
Based on historical values	95	6	5.36	1.58	1	7
Easy to benchmark	101	7	5.23	1.34	2	7
Dependent on accounting regulations	99	8	5.16	1.67	1	7
Considers shareholder value	101	9	5.12	1.38	2	7
Considers cost of capital	98	10	4.37	1.61	1	7
Short term	95	11	3.96	1.69	1	7
Considers risk	101	12	3.63	1.52	1	7

Table 9: Perceptions on accounting measures

Table 10: Perceptions on economic value measures

To what extent..	N	Relative rank	Mean	Std. Dev.	Min	Max
Considers shareholder value	74	1	5.5	1.22	1	7
Considers cost of capital	71	2	4.89	1.35	1	7
Based on historical values	75	3	4.73	1.67	1	7
Considers risk	75	4	4.43	1.51	1	7
Dependent on accounting regulations	74	5	4.42	1.5	1	7
Widely accepted	77	6	4.22	1.74	1	7
Easy to benchmark	77	7	4.12	1.78	1	7
Easy to use	79	8	4.11	1.78	1	7
Cost efficient	65	9	3.91	1.54	1	7
Easy to communicate	79	10	3.89	1.78	1	7
Easy to decompose	76	11	3.7	1.7	1	7
Short term	73	12	3.64	1.36	1	7

4.1.3 Aspects measures should reflect

Organizations might prioritize differently in terms of what aspects the financial performance measures should reflect. In order to determine what aspects organizations consider important when selecting financial performance measures, the respondents were provided several options derived from previous research in question 1n (see appendix). The results are shown in table 11.

Importance of reflecting..	N	Relative rank	Mean	Std. Dev.	Min	Max
Profitability	102	1	6.16	1.33	1	7
Growth	102	2	5.54	1.5	1	7
Shareholder value	101	3	5.43	1.53	1	7
Cost efficiency	102	4	5.37	1.53	1	7
Capital cost	102	5	4.37	1.75	1	7
Risk	102	6	4.08	1.49	1	7

Table 11: Relative importance of aspects financial performance measures should reflect

4.1.4 Areas of use accounting measures and economic value measures

Seeing as the two different types of financial performance measures are fundamentally different and have been different advantages/disadvantages, the two different types of financial performance measures can be used for different purposes and to a greater/lesser extent within organizations. Organizations were provided options derived from previous research when answering questions 2e and 3e. Table 12 and 13 show the results.

Importance of..	N	Relative rank	Mean	Std. Dev.	Min	Max
Supporting management decision making	100	1	5.85	1.22	2	7
Providing information to external parties	100	2	5.8	1.26	2	7
Supporting operative decision making	100	3	5.38	1.32	1	7
Supporting comparison between business units	100	4	4.98	1.68	1	7
Determining bonus to management	100	5	4.92	1.96	1	7
Determining bonus to managers or other employees	100	6	4.73	1.97	1	7

Table 12: Use of accounting measures

Importance of..	N	Relative rank	Mean	Std. Dev.	Min	Max
Supporting management decision making	83	1	3.88	2.07	1	7
Providing information to external parties	82	2	3.72	2.01	1	7
Supporting operative decision making	83	3	3.43	2.02	1	7
Supporting comparison between business units	83	4	2.93	1.94	1	7
Determining bonus to management	83	5	2.88	2.1	1	7
Determining bonus to managers or other employees	83	6	2.57	1.93	1	7

Table 13: Use of economic value measures

4.2 Bivariate statistics

Our results show that 100 % of the organizations use accounting measures and 68 % use both accounting measures and economic value measures. These two groups serve as the dependent variable. The relationship between the independent variables derived from previous research has been tested individually in a logistic regression model.

4.2.1 Results Bivariate Logistic Regression Model

The results in table 14 show that the variable "Cost leadership strategy" has a coefficient of 0.324 and is statistically significant with a p-value of 0.035. This consequently means that this independent variable has a positive effect on the dependent variable and that organizations pursuing this strategy are more likely to be using both economic value measures and accounting measures.

The variable turbulence is a component of environmental uncertainty and consists of six items. The variable has a coefficient of 0.5 and is statistically significant at the 5 % level with a p-value of 0.038. Hence, the more environmental turbulence faced by an organization, the more likely it is to use both accounting measures and economic value measures. However, the independent variable environmental uncertainty received a p-value of 0.195 and is thereby not statistically significant. The majority of the independent variables have a positive coefficient, but no other variables show statistical significance.

Variable	B (Coefficient)	Sig.
Cost leadership strategy	0.324	0.035*
Differentiation strategy	0.011	0.926
Focus strategy	-0.102	0.349
Environmental uncertainty	0.300	0.195
Unpredictability	0.364	0.095
- Customers	0.130	0.363
- Suppliers	0.226	0.130
- Competitors	0.288	0.061
- Technology	0.167	0.240
- Regulations	0.232	0.094
- Financial	-0.068	0.627
Turbulence	0.5	0.038*
- Customers	0.443	0.011*
- Suppliers	0.527	0.023*
- Competitors	0.233	0.140
- Technology	0.116	0.431
- Regulations	0.261	0.058
- Financial	0.113	0.409
Complexity	0.362	0.076
- Dif. in customers' demands	0.141	0.297
- Dif. in competitors' strategies	0.255	0.119
Hostility	0.011	0.933
Decentralization	-0.045	0.818
- Strategy	0.055	0.710
- Investments	0.068	0.643
- Marketing	0.006	0.969
- Internal processes	-0.253	0.107
- HR	0.019	0.886
Size (Natural log of employees)	0.195	0.341
Industry		
- Basic materials	1.386	0.280
- Industrials	0.460	0.530
- Consumer goods	1.609	0.203
- Health care	0.693	0.390
- Consumer services	0.182	0.835
- Telecommunications	21.203	0.999
- Financials	0.105	0.893
- Technology	-	0.856
Ownership structure		
- Large institutional investors	0.693	0.634
- Small individual investors	0.588	0.699
- Venture capital	0.405	0.810
- Families	0.547	0.709
- Members of a cooperative	-21.203	1.00
- Strong individual owners	-0.223	0.887
- Other	-	0.948

* indicates statistical significance at the 5% level

Table 14: Results bivariate logistic regression model

4.3 Multivariate statistics

Prior to the results of our multivariate logistic regression model are the results of the multicollinearity test. Thereafter follow the results of the multivariate logistic regression model in relation to the two identified groups.

4.3.1 Results Multicollinearity test

A Pearson bivariate correlation matrix (see table 15 in appendix) is used in order to exclude high correlation among the independent variables. Leech, Barrett and Morgan (2005) determine 0.5-0.6 (or similar negative values) or above (below) as having too high correlation and advice for creating a composite variable or simply excluding one of the variables in case of this issue. Our results indicate no multicollinearity as the highest (lowest) correlation value is -0.36.

4.3.2 Results Multivariate Logistic Regression Model

This model tests all the variables simultaneously to determine the joint effect of all independent variables on the dependent variable consisting of the two different groups. As seen in table 16, none of the independent variables show statistical significance at the 5 % level. Cost leadership previously had a p-value of 0.035 when tested independently, but now has a value of 0.108. Same applies for turbulence, whose p-value now amounts to 0.168. The majority of the independent variables still have positive coefficients, but the model no longer shows any statistically significant relationships.

The Nagelkerke R2 value amounts to 0.265, suggesting that approximately 27 % of the variance in the dependent variable is attributed to the independent variables. Another similar indication on the predictive power of the model is given in the classification table. The value of 71.9 % suggests that the model make correct predictions 71.9 % of the time.

Variable	B (Coefficient)	Sig.
Cost leadership strategy	0.298	0.108
Differentiation strategy	0.005	0.978
Focus strategy	0.007	0.961
Unpredictability	0.461	0.110
Turbulence	0.455	0.168
Complexity	0.298	0.229
Hostility	-0.233	0.204
Decentralization	-0.032	0.899
Size (natural log of employees)	0.192	0.594
Ownership structure		
- Large institutional investors	0.677	0.686
- Small individual investors	0.641	0.715
- Venture Capital	-0.193	0.919
- Families	0.856	0.619
- Members of a cooperative	-22.01	1.00
- Strong individual owners	-0.031	0.986
- Others	-	0.953
Industry		
- Basic materials	0.514	0.723
- Industrials	0.215	0.809
- Consumer goods	1.328	0.348
- Health care	0.214	0.831
- Consumer services	0.394	0.722
- Telecommunications	19.14	0.999
- Financials	-0.058	0.952
- Technology	-	0.991
Nagelkerke R2 value		0.265
Classification table value		71.9 %

Table 16: Results multivariate logistic regression model

Chapter 5. Analysis

5.1 Descriptive Statistics

As shown in table 7, the most used accounting measures are EPS, EBIT and EBITDA. This is consistent with previous research stating that organizations and investors are obsessed with earnings and adopt measures accordingly (Venanzi, 2011). The DCF (table 8) is the most widely used economic value measure by far. This too is consistent with previous research where its popularity has been attributed to its rich historical background and to the fact that the newer economic value measures are modelled upon the DCF (ibid). However, a non-exhaustive list for both categories of measures is included in the study and the results should be interpreted with some caution. Nonetheless, the respondents were provided with the option to specify other measures they considered important to their organization.

With regards to how the respondents perceive the accounting measures and economic value measures, the views are in general consistent with the benefits and shortcomings derived from the literature review. "Easy to use" and "widely accepted" ranked highest in terms of accounting measures (table 9). This corresponds with previous research since they are frequently communicated in organizational reports (Franklin, Graybeal & Cooper, 2019). The traits that rank the lowest, "considers the cost of capital", "short term" and "considers risk", are also what could be expected since previous research criticize accounting measures for these reasons (Chen & Dodd, 2001; Panigrahi, Zainudden & Azizan, 2014; Stewart, 2002; Venanzi, 2011; Yook & McCabe, 2001).

In terms of the perceived benefits and shortcomings of economic value measures (table 10), the trait that rank highest is "considers shareholder value". This is consistent with previous research seeing as the ultimate objective in VBM is to motivate managers to focus on shareholder value and the economic value measures intend to measure value creation (Ittner & Larcker, 1998). The next top-ranked trait is "considers cost of capital", which preceding research suggests that economic value measures incorporate as opposed to accounting measures (Boston Consulting Group, 1996; Chen & Dodd, 2001; Henderson, 1979; Koller, Goedhart & Wessels, 2015).

"Easy to decompose" rank low, suggesting that organizations perceive the economic value measures as complex, which previous research also indicates (Chen & Dodd, 2001; Cordeiro & Kent, 2001; Venanzi, 2011).

As seen in table 11, the responding organizations place great emphasis on measures to reflect profitability. This might explain why organizations use earnings measures to a great extent - the aforementioned *earnings obsession* (Venanzi, 2011) seems to prevail in this respect. Moreover, this observation is consistent with Kald and Nilsson's (2000, 2002) findings where profitability ranked above other aspects. Cost efficiency is another high-ranking aspect consistent with their findings.

The most interesting result is that organizations want financial performance measures to reflect shareholder value; the mean found in our study is 5.43 compared to 2.83 in Kald and Nilsson (2000, 2002). This implies a serious shift in attitude among organizations towards a greater acceptance for economic value measures and the ultimate objective of VBM. This is reflected in the popularity of the economic value measures among Swedish organizations.

In terms of the different areas of use for both types of measures, they serve similar purposes. Decision support at top management levels score high in both categories, while the use for determining bonuses receives lower scores. Our findings are consistent with that of Venanzi (2011), where economic value measures have seen modest use for bonuses. However, what is highly interesting is the fact that the means are comparatively lower for economic value measures; e.g. decision support at top management level is top ranked in both cases, but the mean for accounting measures are 5.85 but only 3.88 for economic value measures, with a high standard deviation of 2.07. The lower means in general for the economic value measures suggest that organizations place relatively less emphasis on these measures and use them for more specific purposes or as complements to accounting measures.

5.2 Bivariate Analysis

5.2.1 Environmental Uncertainty
The uncertainty in organizations has been measured using several items, namely unpredictability, turbulence, complexity and hostility. As seen in table 14, turbulence is the only component with statistical significance, thereby suggesting that organizations using both accounting measures and economic value measures tend to face a turbulent environment. However, environmental uncertainty measured by all items did not generate statistical significance. Hence, the choice to use both types of measures is not positively associated with environmental uncertainty, despite a positive coefficient of 0.3.

By considering previous research on environmental uncertainty, it is difficult to predict how the environment affects the adoption of financial performance measures. Thompson (1967) originally concluded that relying on results control is inappropriate when the environment is characterized as uncertain, and Chenhall (2006b) projected that economic value measures should fit better in less uncertain environments. However, Chong and Chong (1997) and Chenhall (2006) conclude that more sophisticated accounting systems and more reliance on results control may improve decision-making in uncertain environments. Nonetheless, our results are consistent with Chenhall's (2006b) prediction - an uncertain environment will force the organizations to make constant revisions to the economic value measures, thereby reducing their fit.

However, it is very interesting that organizations operating in turbulent environments use both measures to a greater extent - the fact that constant revisions might be required do not seem to deter organizations. This may be caused by organizations attempting to include more measures as some sort of reassurance that serious actions are taken to mitigate the turbulence.

5.2.2 Strategy
In our empirical results (table 14), differentiation strategy did not provide any statistical significance. Chenhall (2006b) makes a serious amount of connections among environmental characteristics in which organizations operate, the strategy adopted and how these relate to the choice of using economic value measures. He argues that it may be hard for organizations pursuing a differentiation strategy to identify value drivers of innovation and translate these

into economic value measures. In addition, he contends that these organizations typically operate in highly uncertain environments and that these measures would therefore require continuous revisions in order to remain relevant. With reference to the results, we found no statistical significance to suggest otherwise. As such, our results are consistent with Chenhall's (2006b) prediction in this regard.

Cost leadership is statistically significant at the 5 % level as seen in table 14, meaning that a cost leadership strategy is positively associated with using both types of measures. This result is consistent with the prediction of Chenhall (2006b). He claims that the economic value measures are best suited for organizations pursuing a cost leadership strategy because these organizations, more generally than not, operate in relatively predictable environments that allow for accurate predictions of future cash flow. However, this result might also be somewhat counterintuitive; as presented in the literature review, economic value measures may require extensive training and extra resources, thereby making them more expensive (Chen & Dodd, 2001; Ittner & Larcker, 1998; Venanzi, 2011). This should subsequently not be entirely compatible with trying to minimize costs.

Focus incorporates either differentiation or cost leadership, but organizations pursuing a focus strategy instead target a narrow market segment. There is no previous research suggesting the directional effect of this strategy on the financial performance measures used within organizations. Our results suggest, seeing as the coefficient is -0.102, that as organizations target more specific customers, they resort more towards only using accounting measures. However, the relationship is not statistically significant. Seeing as focus incorporates either of the two other strategies, it is somewhat difficult to analyze this finding. Nonetheless, it is possible that a narrower segment entails less competition, thereby reducing the hostility and consequently the need for adopting more financial performance measures.

5.2.3 Decentralization

Our results do not show a statistical significance between decentralization and the use of both types of measures. Since the coefficient is negative, a higher level of decentralization will in general lead to organizations relying more on accounting measures. This is somewhat inconsistent with previous research in our literature review; as stated previously, result controls (including performance measures) are used to a greater extent in decentralized organizations (Bruns & Waterhouse, 1975).

According to Abernethy, Bouwens and Van lent (2004), decentralization increases the number of divisional performance measures. Moreover, an increasing amount of performance measures may offer the advantages of delegation and coordination of decision-making (Dossi & Patelli, 2008).

Chenhall (2006b) asserted that managers must have authority over decisions relating to value-drivers for the economic value measures to fit at operational levels. However, this does not mean that the measures may be unfit at the top-management level in a centralized organization, which may partially explain the results. Moreover, it is possible that organizations experience difficulties in communicating the economic value measures to other than members of top-management; e.g. as Venanzi (2011) states, critics consider EVA® too complex for use by frontline managers.

5.2.4 Size

As shown in table 14, size is not significant in terms of its impact on using both types of measures despite having a positive coefficient. In reference to previous research, Chenhall (2006) contends that large organizations are more likely to adopt more sophisticated control systems. The term sophisticated in this context is somewhat ambiguous and it is therefore difficult to make predictions as to how size affects the use of financial performance measures. In another research paper, Chenhall (2006b) maintains that size might affect the choice to adopt economic value measures seeing as larger organizations have the ability to adapt the systems and additionally have the resources necessary.

Our result might be attributed to the fact that all of the organizations included in our sample are relatively large; hence, the distribution of size might not be broad enough to encompass a significant impact on the choice of using both types of measures or only accounting measures. In addition, Chenhall (2006b) did not define what characterizes a large organization. The results would perhaps be fundamentally different if smaller organizations were included in the sample.

5.2.5 Ownership Structure

No results obtained indicate that the primary type of owner influences the choice of whether to adopt both types of measures, with p-values ranging from 0.203 to 0.999. In the literature review, several sources were presented on the effect of ownership structure. First, previous research indicates that the ownership structure influences the design of a performance measurement system (Jones, 1992; Kamin & Ronen, 1978; Sandino, 2007; Whitley, 1999) and that public organizations tend to emphasize more sophisticated systems as a result of stakeholder demands (Granlund & Taipaleenmäk, 2005). However, this did not provide the direction of adoption on either of the two types of measures. Nonetheless, it is reasonable to assume that different ownership structures will impact how the organization is managed and thereby the chosen performance measures - a venture capital firm may pose very different demands on the management team than e.g. a family, which might then be reflected in the adopted financial performance measures. However, no such results were found. This may be attributed to the fact that our study includes seven different ownership categories and that the distribution of organizations within these categories vary quite significantly. A larger or more evenly distributed sample among these categories may have provided different results.

The coefficients for ownership dummy variables diverge greatly from the coefficients from previous independent variables. The reason for this is that the coefficients for the dummy variables are only comparable within the group and the absent coefficient for technology is attributed to it being the reference variable. In addition, the coefficient of -21.203 relates to the category "members of a cooperative" only having one respondent and this organization only uses accounting measures.

5.2.6 Industry

The type of industry an organization belongs to is the final factor that our study considers, as previous research establishes industry type as a factor influencing the adoption of financial performance measures (Abdel-Maksoud, Dugdale & Luther, 2005; Bhimani, 1994). E.g. Ely (1991) found that the use of accounting measures differs between industries. However, as seen in table 14, our results do not show statistical significance for any of the industries. As such, it is not possible to determine that industry belonging affects the choice of using both types of financial performance measures. While Ely (1991) may have provided evidence for accounting measures, no similar results were found in terms of the choice of using both types of measures as opposed to merely using accounting measures.

Seeing as Ittner and Larcker (2001) argue for financial performance measures to be tailored to fit specific characteristics and value drivers of industry types, it would not be surprising if the design of financial performance measures differs between industries. However, the results may suffer from similar problems discussed in terms of ownership structure; the sample size is likely to affect the analysis amongst these groups. Moreover, the distribution of organizations between industries may additionally skew the results. Finally, the reason for the diverging coefficients is similar to that of ownership variables.

5.3 Multivariate Analysis

As seen in table 16, not a single independent variable shows statistical significance in the regression model testing all independent variables simultaneously. In addition, the coefficients are very similar to previous results with two exceptions: when venture capital ownership is present and as hostility in the environment increases, our results instead find negative coefficients. This suggests that an increasing level of hostility and venture capital ownership make the use of only accounting measures more likely. However, the results are not significant.

The joint effect amongst the independent variables results in no statistically significant relationships when tested simultaneously. Consequently, whether an organization uses both types of financial performance measures or solely accounting measures is not attributed to either of the independent variables included in our model. While these results are consistent with some results found when testing each independent variable in isolation, the fact that cost leadership no longer is statistically significant contradicts Chenhall's (2006b) prediction that organizations pursuing this strategy are more likely to use both types of measures. In addition, the results no longer support the notion that organizations operating in a turbulent environment tend to use both measures. This is however consistent with his predictions (ibid).

Chapter 6. Discussion and conclusion

6.1 Discussion and conclusion

The overall results of our study show that organizations can be divided into two groups: one using both accounting measures and economic value measures, and another solely using accounting measures. When analyzing whether contingency factors influence the group belonging, the results from analyzing the independent variables in isolation suggest that both cost leadership strategy and a turbulent environment are positively associated with using both types of measures. This suggests that economic value measures may be more suitable for organizations pursuing a cost leadership seeing as no or few revisions are necessary, the difficulty of incorporating drivers of innovation can be ignored and cash flows are more predictable as proposed by Chenhall (2006b). However, no statistical significance is shown when studying all independent variables simultaneously in our logistic regression model.

The findings further suggest that the benefits and shortcomings of both types of measures derived from the literature review are consistent with the organizations' perceptions. Moreover, the two types of measures are used for roughly the same purposes and organizations accept the VBM objective of creating value for shareholders seeing as they place great emphasis on measures to reflect shareholder value in addition to profitability and growth. However, the means for economic value measures' areas of use score significantly lower compared to accounting measures. It is therefore possible to assume that they serve an overall lower use and are used for more specific purposes. This might in turn be attributed to the economic value measures being hard to implement and communicate, complex, resource demanding and requiring a large number of adjustments. As suggested by Venanzi (2011), accounting measures such as EPS are more readily understandable and comparable. However, it may simply be attributable to organizations not being familiar with the economic value measures.

As mentioned earlier, a vast number of contingency factors exist that may affect the adoption However, the study only explores six of them; including additional factors may improve how good the model is at determining what factors that affect the choice of using one type or both

types of the measures. As it stands, it is possible that the contingency factors may provide better predictions for when organizations adopt financial- or non-financial performance measures as opposed to one category of financial performance measure versus both categories.

While organizations consider measures reflecting shareholder value important and accept the VBM objective of creating shareholder value, our results from testing all independent variables simultaneously contradicts the VBM framework developed by Ittner & Larcker (1998). This framework suggests that adopted measures are a function of contingency factors relevant to the organization. Moreover, there is not a single organization that only uses economic value measures. This is in stark contrast to the proponents of VBM that criticize accounting measures for not capturing the determinants of shareholder value creation and argue for them to be completely abandoned (Ehrbar, 1998). Where does this leave us? Despite organizations considering shareholder value important when choosing financial performance measures, it leaves us to conclude that the economic value measures have shortcomings that make them unable to fully replace accounting measures. At best, they seem to constitute complementary measures that serve more specific purposes. However, our results are confined to public organizations in Sweden and the results may have been entirely different if conducted in another country.

6.2. Contributions to research

Our study investigates the contemporary use of different financial performance measures in Swedish organizations and if certain contingency factors might influence the adoption. Moreover, it explores how the many theoretical benefits and shortcomings of the measures presented by Ittner and Larcker (1998) and Venanzi (2011) actually relate to practice by examining the adoption rate of economic value measures. In addition, it investigates whether the measures are used for different purposes and finally how organizations rank certain aspects when choosing financial performance measures. As opposed to the results found by Kald and Nilsson (2000, 2002), shareholder value is seemingly considered more important and organizations consequently use economic value measures to a greater extent than when their research was conducted. The study thereby presents a more up-to-date view on the current financial performance measure practice and provides information on the directional progress of the field of VBM.

The empirical results show that not a single organization included in the study solely use accounting measures. These results directly contradict the proposed abandonment of accounting figures when VBM has been implemented as suggested by Ehrbar (1998). As such, our study provides researchers and academics with new practical insights into the VBM knowledge by providing evidence that contradicts the author's suggestion.

Our study additionally explores the research proposition by Ittner and Larcker (1998) as it examines different factors that may potentially affect the adoption of economic value measures. More specifically, it extends contingency theory by selecting a number of contingency factors deemed relevant for the research purpose. While Chenhall's (2006b) predictions and other factors failed to provide guidance to the adoption when studying all factors simultaneously, the extension of contingency theory to VBM provides new evidence that may help researchers understand what motivate organizations to adopt different financial performance measures.

6.3 Future Research

The six contingency factors when applied simultaneously failed to explain the adoption of the different financial performance measures. Our study thereby warrants researchers to explore other contingency factors in order to fully understand the motivations behind using different measures. As such, it would be possible to identify factors that affect the adoption and if not, researchers can pursue other possible explanations. It is additionally likely that the practice of financial performance measures and attitudes on VBM differ between countries, thereby calling for similar studies to be conducted elsewhere.

As the primary objective of financial performance measures is to measure performance, it would be interesting to compare the performance implications of the two groups identified in our study. If a similar study conducted elsewhere was to identify a third group of organizations solely using economic value measures, the comparisons among these three groups in terms of performance is of great interest to the fields of performance measurement and VBM. Lastly, it would be interesting for future research to study the performance implications between using different economic value measures, as this could once and for all settle the debate among consulting firms over which measure is superior.

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Appendix

Question	Cronbach Alpha
1a. Please fill out your company name.	n/a
1b. Please fill out your name.	n/a
1c. What is your company position?	n/a
1d. How many years have you worked within the organization?	n/a
1e. How many years have you had your current position?	n/a
1f. To what extent do you agree with the following statements regarding strategy?	n/a
1g. How predictable have the changes been in the last three years when it comes to the following aspects?	0.762
1h. How many changes has occurred in the last three years with a significant impact on your business when it comes to the following aspects?	0.748
1i. To what extent does your customers' demands differ when it comes to your products/services?	n/a
1j. To what extent does your main competitors' strategies differ from each other?	n/a
1k. How intense is the competition regarding your main products/services?	n/a
1l. What influence does subordinates have on the following types of decisions?	0.801
1m. What type of owner has the most influence on your business?	n/a
1n. How important are the following aspects for your use of financial performance measures?	n/a
2a. Which of the following accounting measures does your organization use?	n/a
2b. Do you have any plans on changing the use of any of the following accounting measures?	n/a
2c. Which is the "other" measure from the preceding question?	n/a
2d. To what extent do you consider accounting measures to…?	n/a
2e. For which of the following purposes do you use accounting measures?	n/a
3a. Which of the following economic value measures does your organization use?	n/a
3b. Do you have any plans on changing the use of any of the following economic value measures?	n/a
3c. Which is the "other" measure from the preceding question?	n/a
3d. To what extent do you consider economic value measures to...?	n/a
3e. For which of the following purposes do you use economic value measures?	n/a

Table 6: Survey questions and Cronbach alpha

Pearson bivariate corr.	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Cost leadership strategy(1)	1										
Differentiation strategy (2)	-0.22	1									
Focus strategy (3)	-0.04	0.15	1								
Unpredictability (4)	0.08	0.11	0.01	1							
Turbulence (5)	0.01	-0.01	-0.15	0.34	1						
Complexity (6)	0.07	0.17	-0.06	0.12	0.28	1					
Hostility (7)	0.17	-0.19	-0.20	0.11	0.24	0.17	1				
Decentralization (8)	0.03	0.15	0.05	0.11	-0.09	-0.02	0.15	1			
Industry (9)	-0.11	-0.05	0.08	0.08	0.04	0.06	0.02	-0.05	1		
Size (Natural log of employees) (10)	0.14	0.08	-0.35	-0.01	-0.02	0.28	0.35	0.19	-0.36	1	
Ownership structure (11)	-0.21	0.14	0.06	-0.01	-0.01	0.07	-0.08	-0.02	0.08	-0.12	1

Table 15: Pearson bivariate correlations matrix