Performance success factors of non-financial performance measurement, a literature review

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Abstract: This thesis seeks to analyse and synthesize the different literature regarding the effect of non-financial performance measures on financial performance. Three potential reasons for a performance increase are examined: strategic fit, leading prediction of financial performance and the Balanced Scorecard approach. A consensus is found on the dangers of purely financial measurement and the need to balance it with non-financial performance measures. These intangible measures are found to be most commonly categorised by dichotomies regarding ownership, origin, people involvement and subjectivity or objectivity. A strategic fit or alignment of performance measures was not found to be positively associated with an increase of performance. However Balanced Scorecard usage is associated with better performance due to its strategic consideration. Non-financial measures are found to be leading indicators for financial performance. In addition, different measures predict different aspects of financial performance and seem to be interacting with one another. Lastly, differences were found in the way financial performance was defined, caution is advised in the way perceived performance is used as opposed to using verifiable economic performance.

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Table of contents

1. Introduction

Measurement of employee and business performance is a topic of central interest for both managers and management accounting researchers (Otley, 1999). The management accounting practice however has historically been focussed on financial performance. Wilson and Sangster (1992) argue that IT automation is of great benefit to the accounting industry by improving the quality of financial information, this creates opportunities to look beyond standard financial bookkeeping. With the rise of value based management (VBM) the management accounting discipline shifted its focus from traditional accounting information to a value creating focus (Ittner & Larcker, 2001). This can be seen in performance measures such as Kaplan's Balanced Scorecard (BSC) and Economic value added (EVA™).

With the rise of VBM comes the need for more than simple financial performance indicators (Ittner & Larcker, 2001). This shift in focus from traditional cost accounting method has been described to take cost of activities into account and its impact on other functions such as customer service, asset utilization, productivity and quality (Gunasekaran, Patel & Tirtiroglu, 2001). Neely (1999) poses that this shift is caused by the changing business environment, organisational roles and external demands. Low and Siesfield (1998) stress the need for non-financial performance measures. These are for example customer satisfaction, product quality and development, environmental impact and market share (Anthony et al., 2014). A disadvantage of using non-financial measures is not knowing which of the many measures to use (Medori & Steeple, 2000). This research will include a review of this new method of performance measurement and indication, and finding out different categories of non-financial indicators.

This need for non-financial indicators can also be attributed to other factors such as financial myopia and the reliance on short term profit. Financial myopia refers to excessive short–term orientation on the part of the managers (Merchant, 1990). At the same time, financial indicators should not be discarded entirely and remain a part of management control (Melkers & Willoughby, 2005). There are many different reasons and goals for measuring non-financial performance that are to be considered and that will be analysed in this thesis.

There is a lot of ambiguity and debate surrounding the actual impact of measuring and focusing on non-financial performance. Ittner, Larcker & Randall (2003) find that firms making use of a wide range of financial and non-financial indicators have higher measurement system satisfaction and stock market returns. A different approach is looking at how confident organisations are about their performance measures and their predictability for future performance (Anthony et al., 2014). Reliance on non-financial performance measures is associated with an increase in performance if the level of environmental uncertainty is high (Hoque, 2005). Banker, Potter and Srinivasan (1999) state that nonfinancial measures of are associated with future financial performance and contain additional information that is not reflected in past financial measures. On the other hand, Ittner and Larcker (1998) found that there is no positive and significant links between using non-financial measures financial performance. Lastly, Verbeeten & Boons found no evidence regarding the claim that aligning performance measures to the strategic perspective of the firm positively affects performance. These benefits are a topic of debate and one important to explore, does a non-financial perspective really improve performance? This research will focus on reviewing the goals and effects of a non-financial perspective in performance measurement. Ultimately a major debate is about financial performance, this will be analysed by reviewing different arguments for and against the view that non-financial indicators benefit performance. Similarities and gaps will be highlighted by way of synthesis in the form of a literary review.

With all of this in mind, the following research question is central to this thesis:

What is the effect of non-financial performance measurement on financial performance?

In turn this research question consists of a few sub-questions that I would like to explain in order to answer the main research question.

- What are the different types of non-financial performance indicators?
- What is the effect of a strategic fit of performance measures on financial performance?
- Are non-financial measures better predictors of financial performance?
- Does the Balanced Scorecard Improve performance?

Lastly, an important topic to consider is the different ways financial performance can be defined. Ittner (2003) defines it broadly and simply as “economic and accounting performance”. On the other hand, Singleton-Green (1993) views profit as an example for financial performance. Profit itself is undefined as well, this can be expressed in many different ways like Direct profit, Controllable profit and Earnings before interest expenses and taxes (EBIT) (Anthony et al, 2014). Therefore by leaving the definition broad, it is possible to examine the different ways and gaps that authors define financial performance in relation to non-financial performance measurement.

2. Methodology

The thesis will follow the Literature review methodology. The purpose of a literature review research design is to collect, verify, and generate evidence from the published documents that aids in finding answers to the research questions and in general meeting the set research objectives (Booth, Williams & Colomb, 2008). There is an extensive amount of research available to examine the effect of non-financial performance indicators on financial performance. Analysis of performance indicators will be structured in a way that makes it possible to compare the different arguments given by different authors and identifying the most important components and reasons to use them.

Before research can take place however, the boundaries of this literature review scope will be constructed by identifying the key variables of the reviewed topic (Webster & Watson, 2002). Then with sufficient amount of key literature a review will be discussed to create a full picture of the topic. In this way existing research is summarized by identifying patterns, themes and issues (Seuring & Müller, 2008). Literature pieces will be chosen based on the quality of the author and journal. Major contributions are likely to be in the leading journals (Webster & Watson, 2002). Leading journal are chosen from the top 20 frontier of management accounting journals from Lowe & Locke (2006), this will aid the boundary of the thesis in a qualitative and structured manner. Relevancy is based on how an article relates to the topic of performance indicators. Finding literature itself will be done through Scopus, Erasmus University library and Google Scholar. Web of Science is used to evaluate the quality of the article and the journal in question.

With an established body of literary pieces and their key points discussed the research can move on synthesis. Synthesis means weaving the research together to focus on core issues to move beyond simply reporting on past discussion (Torraco, 2005). For this topic it entails finding common ground and differences in arguments for and against non-financial measurement. This chapter of the thesis brings forth the conclusion to answer the research question. In addition, tables are presented in the appendix of this thesis to help compare and understand the different literature.

The next section of this thesis will set the boundaries and definitions of the literature review. After that the literary review will take place by defining the effects and goals of using non-financial performance measures. The goal here is to answer the different sub-questions to later answer the main research question by synthesis. The conclusion section will answer the research question and provide research implications and limitations of this research.

3. Definitions and boundary of review scope

A difficulty of performance measurement is that 'performance' itself is an ambiguous term and hard to define (Otley, 1999). Lebas (1995) defines performance as *"the potential for future successful implementation of actions in order to reach the objectives and targets"*. The key point to note here is that a performing organisation is one that will achieve its goals, not one that has already met them. Contradictory to this is that indicators only show the past and serve only to extrapolate itself to the future under the same circumstances (Lebas, 1995). Performance measurement is in this way a management tool for an organisation to shape its future.

There are two main subdivisions performance measurement can be interpreted by (Bourne et al., 2000). Firstly, measurement of performance allows firms to effectively describe and implement strategy, guide employee behaviour, assess managerial effectiveness, and provide the basis for incentive rewards (Malina & Selto, 2004). Second, the information and feedback from the measures should be used to challenge the assumptions and test the validity of the strategy (Feurer & Chaharbaghi, 1995). Therefore, strategic implementation and revision is key to performance measurement and management.

The value based management movement emphasises transforming organisational objectives into value drivers and measuring matched set targets (Ittner & Larcker, 2001). VBM focusses on the identification of value drivers that lead to increased shareholder value. Identification of these drivers and their interrelations is expected to improve resource allocation, performance measurement, and the design of information systems by identifying the specific actions or factors that cause costs to arise or revenues to change. Non-financial value drivers include Customer, Employee and Environmental performance (Ittner & Larcker, 2001).

The VBM framework suggests that performance measurement choices should be chosen dependently on what value drivers the organisation has identified (Ittner & Larcker, 2001).

Evaluation is key to performance measurement (Feurer & Chaharbaghi, 1995). In order to achieve learning, the performance measurement system in use should reflect the value system of all the organization's stakeholders while establishing the right compromise between conflicting goals. The choice of performance measures is a function of the organization's competitive environment, strategy and organizational design (Ittner & Larcker, 2001). For instance, non-financial performance indicators for a manufacturing company could include: on time delivery, number of customer complaints, product defects, reduction in set-up times, rate of introduction of new products, number of product returns (Perera, Harrison & Poole, 1997).

The learning part of performance measurement refers back to the last step of the VBM framework that involves performance evaluation (Ittner and Larcker 2001). Prior studies have assumed that the goal of performance evaluation and compensation is to motive employees to act in the organisations best interest. This ignores the potential to attracting and retaining employees. The knowledge gained by performance measurement needs to be transformed to be of benefit to overall value chain of the organisation (Johanson, Mårtensson & Skoog, 2001). In turn this signifies if the organisation is on track to achieve set objectives or if it needs to adjust its strategies.

An issue with non-financial performance, also referred to as intangibles is a lack of clear definition (Johanson, Mårtensson & Skoog, 2001). Intangibility refers back to the fact that these indicators cannot be stored in a warehouse or easily traded as currency. Johanson (1999) suggests that the most common classification for intangibles would consist of the following dichotomies:

- legal ownership or not by the organisation of the item in question
- External purchasing or internal production
- People dependent or people independent

The classification above allows for simple and quick categorisation. For instance: customer satisfaction is not legally owned, but is internally established and people dependant. This helps decide how the organisation can influence and improve indicators. Another classifications is Haanes' and Lowendahl's (1997) whereby intangibles are categorised into competence and relation recourse. Competence refers to the ability to achieve a given objective using knowledge, skills technologies, methods, procedures and so on. Relational recourses refers to reputation and client loyalty. A last classification to look at is from Van der Stede, Chow & Lin (2006) and involved subject and objective non-financial performance measures. Qualitative subjective measures are for example the degree of knowledge sharing across departmental borders. Quantitative objective measures are easier to determine and confirm like the amount of defective products.

Another way of looking at new developments in performance measurement is used by Hyvonen (2007). New non-financial performance measures, qualitative measures, and performance measurement system frameworks are brought together under the umbrella term 'contemporary' performance measures. Performance measurement frameworks are control models that prescribe a set measures or perspective to benefit performance measurement and management (Anthony et al., 2014).

William Thomson, often referred to as Lord Kelvin famously stated: "If you cannot measure it, you cannot improve it". Specialised firms have great difficulty in restructuring their performance measurement to include non-financials (Meyer, 2003). This could be caused by problems with identifying true 'value drivers' (Bourne et al., 2003). Other reasons include the time and expenses required, the excessive number of measures diluting the overall impact and the need for a highly developed information system.

To sum up, performance measures are a way of translating strategy into key objectives and indicators. In addition this is dependent on the organisation's external environment and internal context such as structure, culture and management style (Bourne & Kennerley, 2005). Non-financial measurement is a way of looking beyond traditional measurement by identifying 'value drivers' and translating those into indicators.

Lastly as stated in the research question, non-financial performance measurement will be linked to financial performance. Financial performance or economic performance is a very broad term and will be left open to identify gaps. Traditional financial indicators include return on assets (ROA) and stock returns (Davilla & Venkatachalam, 2004). The last section of the literature review will focus on this.

In the next section the literature review will start with an analysis of the goals of using non-financial performance indicators. After that the impact of non-financial measurement on financial performance will be reviewed. The final review section will focus on the definition of financial performance in relation to non-financial performance measurement.

4. The goals of non-financial performance measurement

There is a variety of reasons for utilising the non-financial side of performance measurement. Consensus is hard to find on a single reason why a company should decide on broadening its performance measurement. A place to start is looking at what was already in place and reasons to expand on this, the financial side of performance measurement and its problems.

4.1. Problems with traditional financial performance measurement

Performance measurement has traditionally been focused on financial information (Vaivio, 1999). Questions arose near the end of the last century asking if this part management control is more than keeping track of the financial position. The shift in performance measurement came about with the VBM movement and expanded the viewpoint to include non-financial perspectives Reason for this change is the need for a way to incorporate new innovations that can help mitigate problems with traditional performance measurement. Vaivio (1999), agrees with Kaplan & Norton (1996) that a call for non-financial measures has happened to compliment the old system and link a company's long-term strategy with its short term actions. Managers changing into a more customer oriented perspective found this to be 'a way of turning strategy into reality'.

The original focus on financial information is often criticised, with claims of it leading to short sightedness on quick profit (Anthony et al., 2014). This phenomenon is described by the term "financial myopia" or "management myopia". These problems have been discussed by Ittner (2008) and Merchant (1990). Another prevalent problems is how financial indicators are vulnerable to manipulation and can lead to earnings management as noted by Ibrahim & Lloyd (2011).

4.1.1. Financial myopia

Managerial control is often characterised by detailed planned budgets and measurement (Abdel-Maksoud, Dugdale & Luther, 2005). Comparing planned performance against actual performance is a style with the following slogan 'what you measure is what you get'. This refers back at the function of setting targets by performance indicators. Otley (1999) outlines in his performance measurement framework that management accounting has restricted itself to financial performance and theories drawn from the discipline of economics. Hussain & Hoque, state that emphasis on traditional performance measures such as Return on Investment (ROI) distract the organisation away from non-financial indicators. The idea is that if companies only measure financial performance, their focus will only be financial and ignore other value generating indicators (Ittner & Larcker, 2001).

On the topic non-financial performance measurement Ittner (2008) points out two ways to evaluate the importance of intangible asset measures. The first approach is aimed to assess the diversity in the types of performance measures used by the organisation, holding the view that greater measurement diversity ensures that the information from a wide variety is not gone unnoticed. The second idea is to examine the weight or reliance on financial measures relative to non-financial measures. The assumption of this approach is the belief that over-reliance on traditional financial measures could potentially make organisations myopic and ignore development of intangible assets.

Merchant (1990), argues that traditional control systems have been criticised for their short sightedness and discouraging effect on the creation of new ideas. He argues that traditional financial measurement is open to data manipulation and other forms of gamesmanship. The negative side effects of financial controls were examined by survey of sizeable organisations. The results merchant found was that financial controls put significant pressure on employees to meet targets. So according to merchant, financial measurement and control could cause myopia and pressure to achieve targets. Merchant's research included a follow-up interview with the analysed firm's controller. He stated that 'if the manager can't swing the short term, he can't swing the long term'. However the firm has since shifted away from heavy weighted financial measures in performance evaluation.

4.1.2. Data manipulation and earnings management

To continue from Merchant's (1990) research. Conventional financial controls are susceptible to pressuring of targets. This in turn affected decisions being made in profit centres by pulling income and pushing expenses from upcoming years to achieve planned profit, otherwise known as earnings management or manipulation. An implication from these findings would be that financial measurement indirectly leads to earnings management through financial myopia.

Ibrahim & Lloyd (2011) stress the dangers of earnings management in the use of performance measures. Their study was done by looking at the type of performance measures used by firms in the S&P 500 index. The hypothesis was based on the idea that the use of non-financial performance measures for executive short-term cash bonus compensation reduce the incentive that executive to engage in earnings management. This is in contrast to firms that use purely financial performance measures. The authors find that firms using non-financial performance measure have lower discretionary accruals compared to organisations that don't. This implies that non-financial performance measurement reduces earnings management. However, they do not find any significant differences in the degree of earnings smoothing in relation to the choice of performance measures. In addition it is not found that the use of non-financial performance measurements increases the quality and accuracy of the forecasts. The implications of this study state that earnings management can be curtailed by using a mix of financial and non-financial performance measures in top management compensation. Lastly, the authors note that this potential reduction in earnings management might come at a cost of fair compensation to executives.

A clarification is due at this point. The criticism given on financial performance measures is aimed at a system where this is the only kind of indicator in use. Banker, Potter & Srinivasan (2000) argue that non-financial measures contain additional information that is not reflecting in an analysis from past financial measures. Instead of abandoning this side of performance measures they argue for an incentive plan that includes both financial and nonfinancial performance measures. Said, HassabElnaby & Wier (2003) find support for the idea that firms should use both kinds of performance measures.

To sum up, using purely financial performance measures could be a potential threat to the organisation. According to Merchant (1990), financial controls induce a short sighted view and pressure managers to achieve their targets. This could in turn lead to data manipulation and earnings management. However moving away from these controls entirely could be harmful and Ibrahim & Lloyd (2011) advice a combined set of performance measures to prevent this.

5. Review on effect of non-financial measurement on financial performance

There have been a wide range of research studies reporting mixed results concerning the link between non-financial performance measurement and financial performance (Hoque, 2005). The majority of research on this topic agrees on the fact that intangible measurement has an effect on performance. Banker et al. (2000), Dikolli & Sedatole (2007) and Riley, Pearson & Trompeter (2003) seem to be in agreement that it is a positive effect. However causes for this effect is a topic of debate. First of all, a factor of linking performance measures to strategy is for many authors a main contributor to the success of non-financial performance measures. This includes assessing if a performance measure is a good fit for the organisation (Hyvonen, 2007). This is a more advanced approach that attempts to determine the 'fit' between the firm's sources of competitive advantage and its reliance on non-financial performance measures (Ittner, 2008).

Secondly primary reason often suggested for the use of non-financial performance measures is that these kind of measures are a better indication of future financial performance (Banker et al., 2000). On top of this, studies like Ittner & Larcker (1998) and Lambert (1998) have addressed the topic of non-financial indicators being lagging or leading indicators of financial performance.

Lastly there are authors like Davis & Albright (2004) that examine the effect of using performance measurement systems on performance. This analysis will focus on research that asses the success of the Balanced Scorecard on Performance In this approach, survey research is used to analyse the measures related to the four BSC perspectives (Ittner, 2008).

In addition to discussing the different literature in the next section, the appendix section contains tables to help compare and synthesize the literature review. These tables are categorised by topic similarly to the review sections.

5.1. Linking objectives to strategy

Managerial accounting at the end of the 20th century has evolved to include a more strategic approach to include identification of value drivers and stakeholder value (Ittner, Larcker & Randall, 2003; Anthony et al., 2014). Otley (1999) describes in his framework the need to connect control systems to strategy. Performance measurement should reflect the aims of an organization and the plans to achieve them. He stresses that instead of building new techniques and methods, the overall control system requires redesigning. The overall idea that performance measures should fit strategy to improve performance is called the performance alignment theory (Van der Stede et al., 2006)

Ittner et al. (2003) asks the question if organizational performance is positively associated with extend to which performance measurement is aligned with the firm's strategy and value drivers. Strategic performance measurement holds the belief that control systems must be in line with firm strategy (Fisher, 1995). Ittner et al. (2003) use a sample of US financial service firms to test their hypothesis. They chose financial services firms specifically to control for the wide range of variables that can impact the results found from a multi-industry study and because this industry is actively debating their choice of performance measures. By developing a benchmark model to assess the extent of strategy alignment they found little to no support that strategy and value driver alignment lead to greater organizational performance. Potential explanation stated is that the success strategy performance measurement systems is mostly captured in the long term rather than the short term. On top of that, average measurement practices of firms pursuing similar strategies or value drivers currently are not optimally designed in this industry. However they found that a wide and diverse set of financial and non-financial performance measures is positively associated with performance.

Similarly, Hyvonen (2007) found that firms that follow a customer-focused strategy do not enhance their performance through use of contemporary performance measures. In addition they found the opposite to be more plausible, when a firm does not follow a customer focused strategy contemporary management accounting systems are related to high performance. This is contrary to the belief that aligning strategy with performance measures increases performance. Hyvonen states that these findings are in line with the belief that managers find it difficult to make use of contemporary performance measures in complex business environments such as customer strategies. Stating that if ineffective performance measures are used in combination with expensive information technology the outcome will result in lower performance.

Ittner (2008) made a rebuttal to the findings that linking performance measures to strategy does not pose a significant effect on performance. He poses there are a variety of reasons for the lack of economics gains from improving intangible measurement. First off, an ineffective strategy could distort the positive effect of linking performance measures to strategy. This means the firm's chosen strategy has to be consistent with the chosen internal objectives and value drivers (Ittner & Larcker, 2001). Other than that Ittner (2008) mentions poor choice of measures and improvement targets, potential gaming of performance measures and the issue of organizational barriers. He concludes that a positive relation between non-financial measurement and improvements in intangible performance departments does not always imply an improvement of economic performance.

Van der Stede et al. (2006) found in their analysis that manufacturing firms who employ more extensive performance measurement systems have higher performance. They also partly find evidence that support the alignment view of strategy. The choice of performance measures and their 'fit' into strategy positively affects performance. This effect is found to be only present with extensive use of subjective derived measures opposed to objective obtained non-financial measures.

The effect of a strategic fit might not be purely reflecting in financial information. Perera, Harrison & Poole (1997) examined if manufacturing firms holding a customer focused strategy also place emphasis on non-financial measures and if this emphasis is associated with higher performance. Through questionnaire survey they found support that customer focused firms align their chosen strategy with performance measures but a positive effect on organisational performance for this relation was not found. Several reasons are mentioned for the absence of this effect. They stress that an operation-based change in performance measurement to fit strategy may be reflecting in manager affective results like motivation, increase in satisfaction and reduced stress rather than an increase in direct performance.

Similarly, Verbeeten & Boons (2009) find in a survey of Dutch firms that firms aiming for specific strategic priorities tend to use non-financial performance measures. In addition, that this link is associated with institutional factors such as firm size and organisational culture. However they find no support for the alignment theory for an improvement in performance. Measurement of a specific performance indicator might see increase of that performance, but not for the objective accounting performance of sales growth and return on capital employed. The author's advice caution in how much each performance measure should be used relative to other measures if the goal is to increase performance.

The alignment of goals to performance measures could have unwanted consequences as pointed out by Burney, Henle & Widener (2009). In their path model they analysed the use of non-financial measures and their compensation of employees. Concern is expressed in the way linking measures to strategy could lead to basing compensation on an incomplete performance measurement system and results gaming by employees. The way that non-financial performance measures are often subjectively derived is another stressed concern as it could lead to favouritism and bias. This would be in contrast to the work of Van der Stede et al. (2006), whereby it is expressed that subjectively derived performance measures improve performance. However Burney et al. (2009) imply that an observation of fairness and justice in performance compensation by employees can mitigate the aforementioned problems. In turn firms can improve their performance by linking incentive contracts to non-financial performance measures if fairness and justice perception is taken into account.

To sum up, strategic fit and alignment theory is are important aspects of non-financial performance measurement. There is a general consensus that firms placing emphasis on strategic objectives accommodate this view with non-financial performance measures (Perera et al., 1997; Verbeeten & Boons, 2009). However the supposed positive effect on performance from the alignment theory is controversial. Ittner (2003), Hyvonen (2007) Perera et al., (1997) and Verbeeten & Boons (2009) find little or no support for this theory. Van der Stede et al. (2006) find support for the alignment theory with firms using subjective performance measures. And Burney et al. (2009) find an increase in performance if firms watch out for fairness and justice perception. The lack of support is likely to be because of a couple of reasons mentioned above.

First, success in performance could be captured in long-term success, not in short term profit Ittner et al. (2003). Second, suboptimal design in performance measurement systems could prevent the positive effect coming to fruition. Third, a wrong Identification of value drivers could lead to a wrong choice of performance measures (Ittner, 2008). Fourth, managers find it difficult using results from non-financial measurement to improve financial performance (Hyvonen (2007). Fifth, a success in non-financial areas does not imply a success in overall performance (Perera et al., 1997). And lastly a misplaced weight on certain performance measures in relation to other measurements could distort the positive effect on financial performance. (Verbeeten & Boons, 2009)

5.2 Better prediction of performance

Banker et al. (2000) set their sights on performance measurement to investigate the supposed effect of non-financial performance measures on future financial performance indication and financial performance. To answer this they investigate if non-financial performance measures are leading indicators of financial performance. Using a time-series field analysis of 18 hotel chains they find that customer satisfaction is associated with long term performance instead of immediate results. A positive association between current nonfinancial performance and future revenues was found. Banker et al. (2000) state this effect is mainly driven by a volume effect (an increase in hotel room occupancy) rather than a price effect (increased price rate).

Certain performance measures may also be better in predicting certain kinds of financial performance. Behn & Riley (1999) test the proposition that timely non-financial performance indicators are useful in predicting financial performance in the airline industry. Measures such as in-flight service and mishandled baggage was used as a proxy for non-financial measures that reflect customer satisfaction. They found the non-financial measures load factor, market share, available ton miles (miles travelled multiplied by tons of carrying capacity) and customer satisfaction to be associated with operating income and revenues. In addition that customer satisfaction and available ton miles to be associated with expenses. Using monthly non-financial data they find that non-financial measures to be useful in predicting quarterly income, revenue and expenses. A limitation to this study is the fact that is specified to measurements that are specific to the airline industry. This may deny the evidence that non-financial performance measures are a better prediction of financial performance for industry outside the airline business. Riley et al. (2003) continued this research in the airline industry by looking at the value relevance of financial measures to investors and financial performance. They find a positive relation for these variables but for a more long-term profitability approach.

Davila & Venkatachalam (2004) examined the relation between non-financial performance measures and executive compensation. By looking at an important measure, passenger load factor in the airline industry, they find that non-financial measurement is positively associated with CEO cash compensation when controlling for stock returns and return on assets. This implies that non-financial measures also are of benefit to top management positions beyond financial performance measures.

Ittner & Larcker (1998) also asked the question if non-financial measures are a leading indicator of financial performance. After analysis of customer and business-unit data they find modest support for that customer satisfaction measures are leading for accounting performance. However, it is stated the customer behaviour and financial results are constant over the levels of customer satisfaction and only changing after certain thresholds of customer satisfaction. This could imply that a certain level of high satisfaction convinces customers to engage in spending. Ittner & Larcker (1998) mention an issue that non-financial measures are often seen as exogenous variables. Consequently if all firms select customer satisfaction levels based on exogenous factors, no statistical relation between customer satisfaction and performance should be found if the exogenous determinant is controlled. This raises the question of validity of the results. On top of this it is mentioned that the analysis is limited to only customer satisfaction, non-financial measures spread a broad range of topics and one metric is not accountable for the overall non-financial perspective.

Working from Ittner and Larcker's paper, Lambert (1998) states that customer satisfaction is a leading indicator of financial performance under the right circumstances and with proper measurement. This relation is stated to be non-linear. This is explained by pointing out that if customer satisfaction reaches a certain low point, the customer will take all of his business elsewhere. The conclusion is in line with Ittner & Larcker's (1998) research implying that non-financial performance has effect on certain thresholds. Lambert points future research to measurement of customer satisfaction, understanding other factors that affect the strength of the leading indicators and understanding the functional form of the relation.

Lastly non-financial measures may influence performance indirectly by interacting with other measures. Wiersma (2008) tested the information content and predictability of two non-financial measures, namely absence frequency and on-time delivery. The author finds that these two measures have important information content that goes beyond financial measures to predict future costs and revenues. However, it is also stated that these two measures have different lags for costs and revenues implying that non-financial measures do not have a uniform lag period. In addition, the value of non-financial measures could also depend on the interaction between the different measures. This would imply that careful consideration is required when deciding to implement a diverse set of performance measures.

Non-financial measures seem to be useful in predicting future financial performance although the cause of this phenomenon seems disputed. Banker et al. (2000) claim this to be a volume effect, a rise in non-financial performance causes more to be sold. Behn & Riley (1999) state that different non-financial factors affect different aspects of financial performance like expenses and revenues. Davila & Venkatachalam (2004) show that non-financial performance is also beneficial for senior management positions. Ittner & Larcker (1998) and Lambert (1998) confirm that non-financial measures are leading indicators of financial performance but admit that more research has to be done beyond measurement of customer satisfaction. Wiersma (2008) poses a different idea stating that not only should firms look beyond one type of measure, but also the interaction between them and the time for the effects to show in financial performance.

5.3 Performance measurement systems and frameworks

Heralded as developers of the Balanced Scorecard (BSC) Kaplan & Norton have published numerous papers regarding success of their performance measurement system (Nørreklit, 2003). The BSC includes four perspectives one of which being financial and the other three non-financial. This management control model has the explicit intention of linking performance measurement to strategy with an outward and even forward looking focus (Anthony et al., 2014).

Kaplan & Norton (2001a, 2001b) explains this strategic nuance in a two part paper. Explaining that the BSC was made to counteract the downside of a purely financial performance measurement system by promoting a long-term value approach. Kaplan & Norton find several firms achieving a performance breakthrough within two or three years of implementation. This delay is explained to be caused by the complexity and required adjustments of the BSC. However it would also be in line with Ittner & Larcker (1998) and Lambert (1998) stating that non-financial measurement is a lagged indicators of financial performance.

De Geuser, Mooraj & Oyon (2009) asks the question if the BSC approach adds value and contributes towards organisational performance. Using survey analysis they found that the BSC is positively associated with performance. This is mainly explained in how the BSC translates strategy into operational terms, this strategizing in turn becomes a continuous process and it aligns various processes, services, competencies and units of an organisation into objectives.

This strategic component can be interpreted in different ways. Banker et al. (2004) conducted a survey experiment to assess how individual evaluation of manager performance depend on the strategic link of BSC measures. They find that managers will rely more on strategically linked measures when they have detailed strategy information. On top of this, managers must understand this link between strategy and performance measures in order to benefit from the BSC.

Davis & Albright (2004), investigated in a quasi-experimental study the effect of BSC implementation on financial performance of banks. This was done by means of comparing banks that do and do not use a BSC system. They find support that BSC implementation improves common financial performance, and an increase of the measures on the financial perspective of the BSC. These findings support the claim that non-financial measures are associated with improved measures. Contrary to this, Ittner et al. (2003) find a negative association with BSC implementation and return and assets. On top of that they find a positive relation between firms that rely on business modelling and return on assets. In addition it is stated that firms using BSC systems do not rely on causal business models. Davis & Albright (2004) disputes this results by saying that understanding causal assumptions between measures is a critical part of properly designed Balanced Scorecards. Because of this improperly obtained data the lack of reported financial increase from BSC usage is not entirely unexpected.

Furthermore the positive effect of the BSC might be caused by certain firm characteristics. Hoque & James (2000) examines the relation between BSC use organisation size, product life cycle, market share and organisational performance using a survey of Australian manufacturing companies. Their results indicate that larger firms find a greater performance increase using BSC than smaller firms. This implies greater organisations incorporate broader measures to accompany their growing size. In addition, a positive association between reliance on the BSC and early life-cycle stage products. The BSC could therefore help firms measure a broad aspect success of a new product. Hoque and James find no relation between market share and BSC reliance. They imply that this could be because firms with a low market share seek to improve their organisations through BSC measurement. Lastly a positive relation between BSC usage and performance is observable. However this association is not implied to depend on organisation size, product life cycle or market share. This is stated to be caused by wrong BSC usage after implementation.

Overall, Balanced Scorecard usage seems to be positively associated with organisational performance. Kaplan & Norton (2001a, 2001b) claim that the non-financial perspectives help firms look beyond financial information and towards a long term value creating focus. This effect might be delayed due to difficulty of implementation, or that non-financial measures have a lagged effect on performance (Ittner & Larcker, 1998; Lambert, 1998; De Geuser et al., 2009). Hoque & James (2000) find that this positive effect is not dependant on firm size, life cycle state of the product or market share. Banker et al. (2004) stress the need to understand the link between strategy and performance measures in order to benefit from them. This strategic fit seems to be working differently for the Balanced Scorecard rather than performance measurement as a whole.

6. Review on definition of financial performance in relation to non-financial measurement

A major research design issue is how performance outcomes are measured and described (Ittner, 2008). This is done in a variety of ways which could pose harm to the overall research design. The most common way expressed is stated as simply organisational performance or economic performance. This can be seen in the research previously discussed by Ittner et al. (2003), Perera et al. (1997) and Behn & Riley (1999). This definition has the advantage of being the easiest to interpret, a clear economic increase in performance is a good incentive for firms to employ non-financial measures.

Another way of looking at performance is a more indirect approach. Ittner, Larcker & Randall (2003) express that a diverse set of performance measures improves stock returns with non-financial measurement. Maines et al., (2002) recommends disclosure and auditing of non-financial measures to increase investor perceived reliability of these measures. Increase in stock prices indicate investor interest in more than standard financial performance disclosure. This definition therefore relies on the investor perception of performance.

A different way performance is assessed is using managers' perceptions of performance, this is often on a subjective basis (Ittner, 2008). Perera et al. (1997) uses a five-point scale for responders to rate their performance against industry average. A limitation is stated that self-rated measures are occasionally criticised for causing a leniency bias leading to a potential inflation of results. This is rejected by stating this kind of bias is generic and ratings are used relative rather than in an absolute way. In their conclusion the author's state that their use of the performance variable may have resulted in not finding support for the alignment theory and that a more long term performance variable could have better reflected their hypothesis.

Hoque and James (2000) find in their BSC analysis a significant positive relation between use of the diverse set of measures of the BSC and perceived performance. Ittner (2008) observes that most BSC studies testing perceived performance find a positive association. This could be caused by the often considered 'persuasive rhetoric' from Kaplan and Norton, often described as management gurus rather by Nørreklit (2003). She explains that the success of the BSC is a form of performance art due to its abundance of metaphors, analogy and drama in instructive papers of Balanced Scorecards. Resulting in an increase of faith rather than actual performance. De Geuser et al. (2009) also warns of the rhetorical arguments of the BSC but still find a performance increase due the translation of strategy.

Overall, studies of non-financial measurement should be careful of using perceived performance results in their research. Although this research method has proven to be valid and reliable, this approach could lead to a potential leniency bias or promote rhetoric behaviour. Empirical financial results might be more reliable in confirming the positive effect of non-financial measurement and help convince firms to change their performance measures.

7. Discussion and Conclusion

This thesis paper has the goal of understanding non-financial performance measurement and its effect on financial performance through literature review of management accounting research regarding this topic. A purely financial performance measurement system could be harmful to the organisation. This is mainly caused by financial myopia and focus on short term profit, another reason is the exposure to data manipulation and earnings management. Considerable to note is that organisations should not shut out financial performance entirely but balance it with non-financial measures. The different types of non-financial measures are able to be distinguished by dichotomies. Most prominent of these are if the item in question is legally owned or not, internally produced or externally purchased, people dependent or people independent and if the indicator is subjectively or objectively derived.

A major research topic of non-financial measures is if a strategic fit of performance measures improves performance. The alignment theory of performance measures is supported in the sense that companies do indeed align their measures to fit their strategic objectives. However the effect on performance is ambiguous and disputed, mainly by suboptimal design of performance measurement system and a wrong identification of value drivers. However for the Balanced Scorecard approach, strategic fit of performance measure choice does appear to be beneficial for performance. Strong support is present that BSC does improve performance. The delay of this effect is caused by either non-financial performance being a lagged indicator of financial performance, or by the often lengthy implementation phase that is caused by the new perspectives that the BSC brings with it. All in all this implies that managers need to have a proper understanding of the importance of strategy when designing their performance measures in order to benefit from them.

The idea that non-financial measures are a better predictor of performance and if they are leading indicators of financial performance is a supported in this research. In addition different measures are able to predict different aspects of financial performance, and that measures seem to be influencing other measures. Although more research for this interaction is needed, this would imply careful consideration is recommended of the chosen measures based on financial situation and interaction and not simply based of on value driver identification.

A major research gap found was the different ways financial performance was interpreted and researched on this topic. This review found three primary criteria for financial performance. Namely direct economic performance reflected in actual financial performance indicators, indirect financial performance through stock prices and investor judgement and lastly perceived performance by managers. Researchers should be cautious when making implications when using perceived performance as it might not be as reliable as clear economic financial performance.

8. Limitations and future research

There are several limitations of this research worthy of note. First of all is the fact that this thesis only looked at several potential benefits of non-financial performance that can influence financial performance. Another benefit to be explored involves the social aspect of corporate social responsibility, this involves more of a stakeholder approach to benefit the organisation by looking beyond financial measures (Anthony et al, 2014). The next limitation is that the reviewed literature is not specified to a certain sector, this paper focussed mostly on the most prevalent research of non-financial measurement regardless of sector. More attention could be given to the aforementioned financial service customer focussed manufacturing sectors and airline sector. In this way it can be addressed if different non-financial measures work in different business environments. Another recommended area of research is the differences between strategic fit for the Balanced Scorecard and performance measurement overall, whereby the Balanced Scorecard seemed to benefit more from a strategic fit. In addition, the Balanced Scorecard was chosen to represent performance measurement systems and frameworks due to its prominence and wide discussion, other systems like the performance prism and ISO 9000 should also be analysed for its use of non-financial performance measures. Lastly, future research should analyse the different interpretations of financial performance to reduce the haze and fill the gaps regarding this topic.

Appendix, Table 1: Strategic fit of non-financial performance measures

Topic	Author(s) and year of publication	Research Method	Key findings
Strategic fit of performance	Ittner et al. (2003)	Survey analysis of financial service firms	Little to no support for alignment theory leading to greater organizational performance. The success is mostly captured in the long term rather than the short term. And that value drivers currently are not optimally designed in the financial service industry. A wide and diverse set of financial and non-financial performance measures is positively associated with performance.
	Hyvonen (2007)	Survey analysis of customer focused firms	Firms that use a Customer-focused strategy do not improve their performance through contemporary performance measures. This is stated to be caused by the difficulty of making use of performance measures in a complex business environment.
	Ittner (2008)	Literature review	Ineffective strategy and improper identification of value drivers distorts the positive effect of alignment theory.
	Van der Stede et al. (2006)	Survey analysis of manufacturing firms	Using a diverse set of performance measures improves performance. Strategic fit positively affects performance for subjectively derived performance measures.
	Perera et al.	Survey analysis of manufacturing firms	Customer focused firms align their chosen strategy with performance measures but this does not have a positive effect on organizational performance. Effect of a strategic fit may be reflected in managerial results like motivation, increase in satisfaction and reduced stress rather than an increase in direct performance.
	Verbeeten & Boons (2009)	Survey analysis of customer oriented Dutch firms	Firms aiming for specific strategic priorities use non-financial performance measures but don't increase their performance in this way. Measurement of a specific performance indicator could increase that performance but not objective accounting performance in turn. The author's advice caution in how much each performance measure should be used and weighted relative to other measures.
	Burney et al. (2009)	Path model examination and survey analysis	Perception of fairness and justice in performance compensation by employees mitigates gaming of measures and reduces bias of compensation. Firms can improve their performance by linking incentive contracts to non-financial performance measures if fairness and justice perception is taken into account.

Table 2: Prediction of financial performance by non-financial measures.

Topic	Author(s) and year of publication	Research Method	Key findings
Prediction of financial performance	Banker et al. (2000)	Time series data analysis of hotels	Customer satisfaction is associated with long term performance opposed to immediate results. There is a positive association between current nonfinancial performance and future revenues. This effect is mainly driven by a volume effect rather than a price effect.
	Behn & Riley (1999)	Linear regression model of airline industry quarterly data	Non-financial measures such as load factor, market share, available ton miles and customer satisfaction are associated with operating income and revenues. Customer satisfaction and available ton miles to be associated with expenses. Showing that different measures predict different aspects of financial performance.
	Davila & Venkatachalam (2004)	Cross sectional analysis of CEO-compensation	Non-financial measurement is positively associated with CEO cash compensation when controlling for stock returns and return on assets.
	Ittner & Larcker (1998)	Customer and business-unit data analysis of customer satisfaction.	Modest support that customer satisfaction measures are leading for accounting performance. This effect is visible for certain thresholds of customer satisfaction.
	Lambert (1998)	Follow up research and examination of the work of Ittner & Larcker (1998)	Customer satisfaction is a non-linear indication of financial performance. Distortion of this effect is causes by improper management and wrong understanding of the functional form of the relation.
	Wiersma (2008)	Exploratory field study of two non-financial performance measures	Absence frequency and on-time delivery measures go beyond financial measures to predict future costs and revenues. In addition, these two measures have different lag periods for financial performance and possibly have interaction value.

Table 3: Performance measurement systems and financial performance

Topic	Author(s) and year of publication	Research Method	Key findings
Balanced Scorecard and financial performance	Kaplan & Norton (2001a, 2001b)	Discussion and instructions of Balanced Scorecard Approach	The Balanced Scorecard counteracts the downside of a purely financial performance measurement system by promoting a long-term value approach and improving efficiency. Delay in financial performance is caused by extensive implementation adjustments.
	De Geuser et al. (2009)	Survey analysis of European companies using the Balanced Scorecard	Balanced Scorecard usage increases performance because it translates strategy into operational terms in a continuous process and aligning various processes services competencies and units of an organisation into objectives.
	Banker et al. (2004)	Survey analysis of perceptual performance in the retail clothing industry	Managers rely more on strategically linked measures when they have detailed strategy information. Managers must understand the link between strategy and performance measures in order to benefit from the Balanced Scorecard.
	Davis & Albright (2004)	Quasi-experimental study of banks	Support that balanced scorecard implementation improves financial performance.
	Hoque & James (2000)	Survey analysis of Australian manufacturing firms	Larger firms find a greater performance increase using balanced scorecard than smaller firms. Positive relation between balanced scorecard usage and performance. However this association is not implied to depend on organisation size, product life cycle or market share. This could be caused by wrong balanced scorecard usage after implementation.

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