博士論文

Contextual Factors, Management Accounting Practice and Performance in Small and Medium Enterprises: A Contingency Approach

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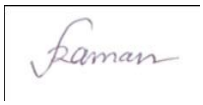
Declaration

I, Farhana Zaman, certify that the PhD thesis entitled “Contextual Factors, Management Accounting Practice and Performance in Small and Medium Enterprises (SMEs): A Contingency Approach” is a work of mine alone. Any intellectual work done by third party is acknowledged properly. No substance of the thesis is presented for any other academic degree in whole or in part. The work done in this thesis is carried since the official commencement of the Doctoral Program in University of Shizuoka under Graduate School of Management & Information of Innovation. I followed all the relevant ethics procedure and guidelines to prepare the thesis.



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Publications from the Thesis

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List of Abbreviations

AMP : Advanced Management Practices

ANOVA: Analysis of Variance

BSC : Balanced Scorecard

CAM : Computer Aided Manufacturing Process

PCBs : Printed Circuit Boards

PMM : Performance Measurement and Management

PM : Performance Measures

NFPM : Nonfinancial Performance Measures

ROA : Return on Investment

RET : Return on Equity

SEM : Structural Equation Modeling

SPMS : Strategic Performance Measurement

SPM : Strategic Performance Measures

SFNFPMs : Shop Floor Nonfinancial Performance Measures

Summary of the Thesis

This thesis contains four research issues of one particular component of Management Accounting Practice, namely, multi-perspective performance measurement in Small and Medium Enterprises in Japan. In recent years, there has been a continuous interest in analyzing why firms adopt different management accounting practices. Contingency–based research suggests that there is no universal management accounting practice for any organization and management accounting practice depends on the context within which an organization operates. Considerable research has augmented our knowledge of how contextual variables such as size, strategy, organizational structure, characteristics of the external environment, firm's technology etc. has influenced the use and effectiveness of Management Accounting Practice in organizations.

The first research aspect of this study explores the internal and external contextual factors that affect the 'decision to adopt' Multi-Perspective Performance Measures of Japanese SMEs. To conduct this part of the study, a questionnaire survey was conducted and data were collected from 320 SMEs. Using the logistic regression model, the result of this part of the study shows that decision to adopt multi-perspective performance measures by SMEs is significantly affected by organizational size, structure and functionality of information systems. However, the two control variables, market competition and industry type do not have any impact on the decision to adopt multi-perspective performance measures. The result of the study indicates that when a firm is large enough and delegate decision making authority to lower level managers they are more likely to adopt Multi-Perspective Performance Measures. The result for size is consistent with the argument that large enterprises have the resources and necessity to adopt multi-perspective performance measurement practice. Furthermore, information systems' functionality is also important to adopt Multi-Perspective Performance Measures. When a firm possesses a functional information system, they do not have to invest resources to make their information system functional enough to adopt any new management accounting

technique. The result about organizational structure is consistent with the argument that more delegation of authority to lower level managers makes control more necessary. By evaluating organizational performance based on multiple measures top managers can easily force the lower level managers to be more accountable to the top level management. Qualitative data analysis also shows a similar type of result. The result of this part of the study will help academics, practitioners and managers of SMEs who are involved with SMEs in many different capacities to make better decision to adopt Multi-Perspective Performance Measures based on the internal and external contextual factors relevant to the business of SMEs.

In the next part of this study, I explore the internal and external contextual factors that affect the 'extent of use' of Multi-Perspective Performance Measures. To carry out this part of the study, I run multiple- regression model on those 155 SMEs that use Multi-Perspective Performance Measures to evaluate their business performance. The result of this part of the study shows that functionality of information system, market competition and industry type have a significant influence on the 'extent of use'. Although organizational size and structure have a positive impact on 'extent of use', they do not have a significant influence. The result of this part of the study suggest that SMEs in Japan use Multi-Perspective Performance Measures to a greater extent if they have a functional information system, experience more intense competition in the market and operate in manufacturing industry. The result of this part of the study also indicates that after adopting the multi-perspective performance measurement practice, other contextual factors act as a primary determinant of the secondary decision regarding 'extent of use'. This part of the study will assist the SME owners and managers to broaden and update their existing performance measures based on the internal and external context of their firm.

In the third part of the study, I examined the effect of external environmental factors on the nature of Multi-Perspective Performance Measures'

use. I conducted multiple- regression analysis on those sample firms who use Multi-Perspective Performance Measures. The result of this part of the study reveals that environmental dynamism positively and significantly affects the diagnostic use of performance measures and environmental hostility does not have any impact on diagnostic use. This result indicates that when SMEs operate their business in a dynamic and changing environment, they need to keep track on their day to day activities and monitor results with predetermined goals and it triggers the diagnostic use of performance measures. On the other hand, interactive use is positively and significantly related to environmental dynamism. However, environmental hostility has a negative impact on interactive use of performance measures. The result of this part indicates that when owners or managers of SMEs face intense competition regarding their main products and services, and face difficulties in acquiring necessary inputs, they become more cautious about the financial performance of their firm and want to use performance measures only as a diagnostic tool to monitor results and keep track on outcome with expectation. The result of this part of the study will be beneficial for the managers and owners of start-up SMEs to use the performance measures efficiently to survive in a dynamic and competitive business environment.

Finally this study shows that those firms who are using Multi-Perspective Performance Measures experiencing superior performance than those firms who are not using Multi-Perspective Performance Measures. However, after conducting the interview with owner and manager of five Japanese SMEs, it does seem that performance is not dependent on the use of performance measures rather performance acts as an independent factor. Those SMEs who are performing well financially have the resource and capacity to have a functional information system and prefer to use a variety of performance measures to get better information about their day to day activities. This finding has an important implication for researchers and academics. Instead of considering performance is dependent on the adoption and use of performance measures, they could consider

performance itself as an independent factor which influences the use of performance measures.

I believe that the research issues addressed in this thesis paper is demanding, particularly in the context of SMEs. However, there is still a lot more to learn about the interrelation between contextual factors and performance measurement practice. This thesis is just a step to further the knowledge about performance measurement practice and contextual factors. There still remains much unexplored substance to explore.

CHAPTER 1
INTRODUCTION

1.1. Brief Overview of the Thesis

This thesis paper focuses on four research aspect of one particular component of management accounting practice, namely, multi-perspective performance measurement in Small and Medium Enterprises in Japan. First, this thesis paper investigates the influence of internal and external contextual factors on the decision to adopt Multi-Perspective Performance Measures. Second, this thesis paper tries to examine the impact of internal and external contextual factors on the extent of Multi-Perspective Performance Measures' use. Third, this thesis paper tries to analyze the impact of external factors on the nature of performance measures' use. Fourth, this thesis paper tries to explore whether any difference in organizational performance exists between firms that adopt multi-perspective performance measurement practice and that do not adopt this particular practice. This thesis paper tries to research on these four issues using a quantitative and qualitative approach. The reason behind choosing these four research issues is discussed in the next section.

In this thesis paper the term 'contextual factors', 'contextual variable', 'contingent factor' and 'contingent variable' have been used interchangeably and synonymously. In this thesis paper, multi-perspective performance measurement practice means to use a combination of financial as well as nonfinancial performance measures including customer measures, internal business process and learning and growth measures to evaluate organizational performance by firms. The following sections of this chapter provide an overview of the motivation of this thesis, research design, contribution of this thesis paper to research and practice, and an outline of the organization of remaining chapters.

1.2. Motivation of the Study

There has been a continuous interest in analyzing why firms adopt different management accounting practices(Abdel-Kader & Luther, 2008).Contingency–based research suggests that there is no universal management accounting practice for any organization and management accounting practice depends on the context within which an organization operates. Considerable research has augmented our knowledge of how contextual variables such as size, strategy, organizational structure, characteristics of the external environment, firm's technology etc. has influenced the use and effectiveness of Management Accounting Practice in organizations (Chenhall, 2003; Otley, 2016).

In recent years, one component of management accounting practice, namely, multi-perspective performance measurement has received significant attention from academics and researchers (Brignall& Modell, 2000; Hussain & Hoque, 2002; Cavalluzzo & Ittner, 2004; Bourne, Neely, Mills& Platts, 2003).Organizational performance is a multi-dimensional concept which changes both over time and between stakeholders. In this thesis paper, I focus on multi-perspective performance measurement because it has been acknowledged that performance measurement is critical for the effective and efficient management of any business (Melnyk, Bititci, Platts, Tobias& Andersen, 2013).In addition, the use of performance measures is commonly suggested for assisting strategy implementation and improving organizational performance (Davis & Albright, 2004).

However, as mentioned before, contingency factors may have an effect on the adoption and use of multi-perspective performance measures by a business organization. Particularly, compare to large enterprises SMEs are more vulnerable to internal and external environmental factors. Hence, the performance measurement practice of SMEs is dependent on the internal and external contingencies faced by them. Consequently, it is important to know from a contingency perspective the effect of many common internal contextual factors

such as organizational size, structure, functionality of information systems and external contextual factors such as market competition, environmental hostility and dynamism on performance measurement practice of SMEs.

Moreover, previous studies in this line of research strive to understand the extent and style of performance measures use (Nilsson & Kald, 2002; Tuomela, 2005; Wouters, 2009) and the drivers of different use (Henri, 2006[b]; Hoque & James, 2000; van Veen-Dirks, 2010; Verbeeten & Boons, 2009).In this thesis paper, I consider that the development of performance measurement practice consists of two phases. The primary phase is the 'decision to use' and the secondary phase is the 'extent and style of use' for any business organization. The primary decision, pertaining to whether business organizations are willing to evaluate their performance based on Multi-Perspective Performance Measures or not, is nonetheless more important than the extent and style of use. Most of the previous studies ignore that simple fact and concentrate only on those organizations that are already using Multi-Perspective Performance Measures to evaluate their organizational performance. The present study is intended to fill that gap in the contingency-based management accounting literature by focusing on the 'decision to use', 'extent of use' and 'nature of use' as well.

I select Small and Medium Enterprises (here after SMEs) of Japan as an experimental setting for this study. SMEs account for 99.7% of all businesses and 33.61 million people are employed by SMEs in Japan (Small and Medium Enterprise Agency, 2016). So, the efficient management of SMEs is crucial for the overall economic and social development in Japan. Besides that, Japanese SMEs posses some unique characteristics compare to the SMEs of other developed countries such as 'enterprise networking' in the forms of vertical network (commonly known as 'keiretsu' in Japan) and horizontal network. In vertical network SMEs work with large enterprises as a subcontractor and large enterprises perform the role of principal contractor. This type of relationship with large enterprises helps the Japanese SMEs to minimize business risk and to have a long term business relationship with large enterprises. However, after the long

term recession in 1991, the relationship between SMEs and large enterprises has been changed. The long term recession forced the large enterprises to decrease the number of their local suppliers and outsourced the parts and components from other cheap markets in Asia. As a result, the local SMEs in Japan are compelled to improve their efficiency by implementing a variety of innovative management technique. Thus, it is important to have a comprehensive knowledge about the performance measurement practice of Japanese SMEs and the impact of contextual factors on performance measurement practice of Japanese SMEs.

In addition, most studies in performance measurement practices have been conducted in western countries (Hussain & Hoque, 2002). A good number of studies on performance measurement for SMEs has been carried out in countries like Australia (Barnes et al., 1998), Finland (Laitinen, 2002) the UK (Bhimani, 1994; Bititci, Turner & Begemann, 2000) and Denmark (Hvolby & Thorstenson, 2000). Performance measurement practices by Japanese firms, particularly by SMEs are still not investigated thoroughly. In addition, SMEs are not small version of large enterprises and it is very likely that the contextual factors that are identified in the literature for large enterprises may not have the same effect on performance measurement practices for SMEs. After analyzing the literature on Performance Measurement Systems for SMEs, Garengo, Biazzo and Bittici (2005) find a small number of theoretical and empirical studies in this area. They suggest that empirical study trying to find out the relationship between contextual factors and the performance measurement practices in SMEs will be noteworthy in this area of study (p. 41).

Therefore, the aim of this study is to examine, from a contingency perspective, the effect of contextual factors on the decision of 'adoption and extent of use' multi-perspective performance measures to evaluate organizational performance. Furthermore, academics and practitioners are interested to know about the external environmental factors that affect the nature of performance measures' use by managers. The various performance measurement techniques could be applied either diagnostically or interactively (Simon, 1995; 2000).

Simons (2000) suggests that whether to use a management accounting technique diagnostically or interactively should depend on the level of uncertainty faced by an organization. Two mostly investigated external environmental factors in contingency-based research are environmental dynamism and hostility faced by an organization (Chenhall, 2003).In this thesis paper, I also aim to investigate the effect of these two external environmental factors on the nature of performance measures' use. Further, this study aims to investigate whether any difference in organizational performance exists or not between firms that adopt Multi-Perspective Performance Measures to evaluate their performance and that do not adopt such practice.

To investigate the above mentioned research issues, I developed a research method combining quantitative and qualitative approach. The next section focuses on the development of the research methods for this study.

1.3. Research Design

In this thesis paper, I utilized a research design of mixed methodology. Mixed method research helps researchers to take benefit of both the quantitative and the qualitative paradigms and reduces the limitations that are likely to be derived from a single methodological design (Bryman, 1996). The first phase of this thesis paper utilizes quantitative method and quantitative analysis of research variables. Then, in second phase I applied qualitative method and conducted qualitative analysis of research variables.

To conduct this study, I collected survey data from 320 SMEs in Japan. Out of these 320 SMEs, 155 SMEs do use Multi-Perspective Performance Measures and 165 SMEs do not use Multi-Perspective Performance Measures to evaluate their organizational performance. I consider that the multi-perspective performance measurement practice consists of two stages, the primary stage is the 'decision to use/adopt' and the secondary stage is the 'extent of use'. Here, the term 'decision to use/adopt' replicates the decision by a firm to use a combination

of financial and nonfinancial performance measures to evaluate organizational performance. The term 'extent of use' refers to the intensity of financial and nonfinancial performance measures' use. In this study, I investigate these two stages separately by using logistic and multiple regression models. Further, to elucidate the nature of Multi-Perspective Performance Measures use, I applied Simon's (1995) taxonomy of diagnostic and interactive use. In addition, by using independent sample t-test, I also analyze the difference in performance and other contextual factors between the two groups of firms, that is, those firms that adopt Multi-Perspective Performance Measures and those firms that do not adopt such measures.

At last, to validate and cross- check the quantitative results of the study; I collected qualitative data through interviewing five owners or managers of SMEs in Japan. The qualitative data are organized in a form of five case studies and then compare to find out the variables that influence the performance measurement practice of these five SMEs. The detailed research method applied to investigate the respective research issues is discussed in details in chapter six.

1.4. Contribution to Research and Practice

The findings of the study reveal that the primary determinant of 'decision to use' is organizational size, structure and functionality of information systems. However, the 'extent of use' is determined by functionality of information systems, intensity of market competition and industry type. The results of this study also revealed that external environmental factors recognized by contingency-based research are important determinant for nature of performance measures' use. In particular, I find that both diagnostic and interactive uses are significantly affected by environmental dynamism. Finally, those firms that do use Multi-Perspective Performance Measures for organizational performance evaluation are performing better than those firms that do not use such measures.

Therefore, this study has several practical and theoretical implications in management accounting literature; first, it provides an account of the factors that affect the decision to use Multi-Perspective Performance Measures in SMEs. Second, I identify the important factors that affect the extent of Multi-Perspective Performance Measures' use in Japanese SMEs. Third, depending on the external environmental factors faced by an organization the nature of performance measures' use will be different and this study sheds light on those factors which have an influence on different use of performance measures. Fourth, the academics and practitioners who are supporting the SMEs will get an idea about the impact of environmental uncertainty and hostility on the nature of performance measures' use and hence, they could assist SMEs appropriately. Moreover, in a dynamic and competitive business environment, it is indeed very important for the owners, managers and advisors of start-up SMEs to know about the appropriate style of performance measure' use. The result of this study will be beneficial for the managers and owners of start-up SMEs to use the performance measures efficiently to survive in a dynamic and competitive business environment. Finally, the results of this study will be useful to academics and practitioners supporting the owners of SMEs to adopt and use Multi-Perspective Performance Measures in order to improve organizational performance.

1.5. Organization of Remaining Chapter

This thesis is consists of eight chapters including the introduction chapter of the thesis. I organize rest of chapters as follows:

In Chapter 2, I provide an overview of Japanese SMEs. In this chapter, I present the definition and characteristics of SMEs in general, and definition and characteristics of SMEs in Japan. Then, I discuss about the present condition of Japanese SMEs in section 2.4. In this section, I discuss on the number of SMEs, their entry and exit status and their financial status over the last few years. In section 2.5 of the same chapter, I explain the socio-economic significance of SMEs in Japan. I explain the importance of SMEs in terms of employment

generation and value addition. After that, I discuss the reasons behind choosing Japanese SMEs as an experimental setting for this thesis paper.

Chapter 3 presents the literature review on performance measurement. In this chapter, I provide the definition of performance measurement and the different types of performance measures used by business organization. Then, I discuss about the literature review process of this thesis paper. After that I explain the findings of literature review and future research gap in the field of performance measurement research.

Chapter 4 presents the theoretical perspective of the thesis paper. In this chapter, I discuss about the frameworks of performance measurement. Then in section 4.3 of the same chapter, I present the Simon's Lever of Control Framework. I also discuss the contingency based research approach in this chapter. Finally, I synthesize the theory and performance measurement framework for this study.

Chapter 5 explains the hypotheses development of this study. The hypotheses are grouped into two parts. In section 5.2, I discuss the hypotheses development for adoption and extent of multi-perspective measures use. In section 5.3, I discuss hypotheses development for nature of use. In section 5.4, I explain the control variables of the study.

Chapter 6 gives details about the research methodology used in this thesis paper. This thesis employs quantitative and qualitative method which is commonly known as triangulation approach to address the research issues. In this chapter, I discuss on the research strategy in section 6.2.In section 6.3, I discuss about the quantitative method used in this thesis paper. In that particular section, I discuss about the sample and data, questionnaire design, empirical model for 'decision to adopt', 'extent of use' and 'nature of use'. In section 6.4, I discuss about measurement of research variables. Test of and remedies for measurement error are discussed in section 6.5. In section 6.6, I discuss about the qualitative

method employed in this thesis paper. I conducted five interviews with SME owner/manager in Japan. The interview process is discussed in details in section 6.6.1.

Chapter 7 presents the results and analysis of this thesis paper. The result and analysis chapter is divided into two parts. In section 7.1, quantitative results of the study are discussed. This section dissertate the respondents demographic characteristics, firms characteristics, quantitative results on 'decision to use', 'extent of use' and, 'nature of use' of Multi-Perspective Performance Measures. In section 7.2, qualitative results of the study are presented. Based on the interview data, five case studies were prepared and presented in this section. Finally in this section, a comparative analysis of five case studies is presented.

Chapter 8 focuses on the discussion and conclusion of the thesis paper. In this chapter, I discuss in details about the results and analysis of the study, contribution of this thesis paper in theory and research, managerial implication of this thesis paper. Finally, I discuss about future research avenues and limitations of this thesis paper.

CHAPTER 2

OVERVIEW ON SMALL AND MEDIUM ENTERPRISES (SMEs) OF JAPAN

2.1. Introduction

This chapter renders in detail about the experimental setting of this thesis. Small and Medium Enterprises (SMEs) of Japan is the focal point of this thesis and hence, it is pertinent to discuss the general characteristics of SMEs and the particular characteristics of Japanese SMEs. This chapter explains the growth and development of Japanese SMEs in a chronological order. SMEs in Japan account for 99.7% of all businesses and 33.61 million people are employed by SMEs in Japan (Small and Medium Enterprise Agency, 2016). Therefore, this chapter shed light on the social and economic contribution of Japanese SMEs. Although the SMEs in Japan are contributing a lot to the overall development of Japanese economy, they are facing a lot of challenges. This chapter also discuss about the challenges currently faced by the Japanese SMEs. Finally, this chapter elucidates the motivation behind choosing Japanese SMEs as an experimental setting for this thesis. The next section discusses the various aspects of SMEs in Japan.

2.2. Definition of SMEs

The definition of a SME reflects economic, as well as cultural and social dimensions of a country. Therefore, different practices are used across countries to define SMEs. According to OECD,

> "Some countries tend not to make a distinction between legal and statistical definitions. This is the case for Canada, Greece, Portugal, Mexico and the Slovak Republic. The definition can be based on a threshold in revenue, like it is the case in Canada, it can be based on number of employees, as in the UK, or it can combine the number of employees and turnover for legal and statistical purposes like in

Portugal. The Slovak Republic, Mexico and Greece use the number of employees as criterion [p.10]."

However, in Japan capital or total amount of investment together with the number of employees is used to define SMEs. Although the same criteria are used, the definition of SMEs varies across different industry. According to the Article 2, Paragraph 1 to 4, Small and Medium-sized Enterprise Basic Act of Japan, "Small and Medium Enterprises" is referred to (1) For manufacturing, mining and transport industries- any company with a maximum capital of 300 million yen, or a company or individual with regular employees of 300 or less ; (2) For wholesale industry, any company with a maximum capital of 30 million yen, or a company or individual with regular employees of 100 or less; (3) For retail and service industries - any company with a maximum capital of 10 million yen, or a company or individual with regular employees of 50 or less; Similarly, "Small Enterprises" is referred as (1) For manufacturing, mining and transport industries- companies with no more than 20 regular employees; and (2) For wholesale, retail and service industries, companies with no more than 5 regular employees. The above mentioned definition is presented in short below:

Table 1. Definition of SMEs

	SMEs		Small enterprises
Business type	Stated capital or number of employees		Number of employees
Manufacturing industry and others	300 million yen or less	300 or fewer	20 or fewer
Wholesale trade industry	100 million yen or less	100 or fewer	5 or fewer
Service industry	50 million yen or less	100 or fewer	5 or fewer
Retail trade industry	50 million yen or less	50 or fewer	5 or fewer

In this study, I used the above mentioned classification of “Small and Medium Enterprises” and “Small Enterprises” and I used the number of regular employees as a criterion to classify a firm as SME.

2.3. Characteristics of SMEs

SMEs possess some distinctive characteristics which differentiate SMEs from large enterprises. Welsh and White (1981) mention that ‘‘a small business is not a little big business’’ (p.18) and according to Lo´pez and Hiebl (2015) SMEs have “distinct resources, but also face distinct difficulties compared to large enterprises” (p.82). For example, SMEs are more flexible than large enterprises because of their simple organizational structure (Aragón-Sánchez & Sánchez-Marín, 2005).Most of the SMEs are owner-controlled and there is less separation between ownership and management. Nonetheless, SMEs have less employees and small scale of operations with fewer levels of management (Berthelot & Morrill, 2016). In addition, SMEs are more adaptable and flexible which makes them suitable for the niche opportunities (Mitchell & Reid 2000; Aragón-Sánchez & Sánchez-Marín, 2005). However, SMEs have scarcity of resources and thus, do not have the capability to take advantage of economies of scale (Aragón-Sánchez & Sánchez-Marín, 2005).

According to Garengo et al. (2005), “Small and large firms are fundamentallydifferent from each other in three central aspects: uncertainty, innovation and evolution” (p.26). Previous studies emphasize that small firms face greater external uncertainties than large firms. However, small firms are more consistent with their actions than large firms (Storey, 1994). Practitioner literature also supports these basic differences between SMEs and large enterprises. According to the Committee of Sponsoring Organizations (COSO, 2006), smaller companies are different from large companies in key features including: 1) small companies have simple product lines and processes; 2) a small group of owners dominates the management of small companies; 3) informal communication is effective in small companies, hence control and coordination is

easier; however, 4) small companies have limited access to resources both in terms of capital and employees. Consequently, small companies cannot enjoy the economies of scale like the large enterprises.

Besides the above mentioned features of SMEs, Japanese SMEs possess some unique characteristics compared to the SMEs in other countries. The main organizational characteristic of Japanese SMEs is enterprise networking. "Enterprise networking can be defined as the interrelation of firms with clear interdependence among them" (Agola& Wakabayashi, 2000, p.55). In addition, there are two types of enterprise networking. The first type is vertical enterprise network which is known as "keiretsu" in Japan. The second type is horizontal network, mainly consists of several SMEs sharing their knowledge about production and management technology (Agola & Wakabayashi, 2000). However, Hopper, Koga and Goto (1999) identify that in Japan some SMEs prefer to maintain their independence rather than working within a keiretsu, some SMEs have a preference to be entrepreneurial and innovative while others, particularly in services and retailing, serve traditional markets.

The underlying strengths of SMEs support the Japanese large enterprises to compete globally. Moreover, in Japan SMEs and large enterprises do not compete directly. According to the SME Agency's *Fact-finding Survey on Business Management Strategy* in 2002 approximately 68% of manufacturing SMEs identified SMEs and approximately 26%identified large enterprises as their competitors. In 1984, SME Agency's *Survey of Small and Medium Enterprise Business Activities* made inquiry of a similar question and approximately 70% of SMEs identified SMEs and approximately 20% identified large enterprises as their principal competitors. Regardless of the passage of almost 20 years, these percentages are almost the same as in 2002.In fact, instead of competing with each other in the same market, SMEs and large enterprises in Japan do business in their own separate niches within the same market (Small and Medium Enterprise Agency, 2003).

2.4. Present State of SMEs in Japan

The present condition of SMEs is portrayed in terms of number of SMEs in Japan, the entry and exit of SMEs over the years and the financial status of SMEs compare to the large enterprises. In the following sections these three aspects are discussed in detail.

2.4.1. Number of SMEs

According to the 2009 economic census, in Japan 4.20 million (99.7%) were considered SMEs and among them, 3.67 million (87.0%) were considered small enterprises with fewer than 20 employees (five or few employees for wholesale, retail, and service industries). In brief, most of the firms in Japan are SMEs. Furthermore, by international standards, Japan has a relatively large number of SMEs per capita; while the US has just 5.9 million SMEs or .019 per capita, and Germany has just 1.7 million SMEs or .020 per capita, Japan has .033 SMEs per capita (Shimizu, 2013).

In table 1, total number of enterprises (SMEs and large enterprises) is presented. According to Small and Medium Enterprise Agency, 2017 "the number of enterprises in Japan has been consistently declining since 1999, and decreased by 390,000 enterprises over the five years from 2009 to 2014." In terms of enterprise size, there is a decrease of 410,000 small enterprises, an increase of 20,000 medium enterprises, and a decrease of some 800 large enterprises has occurred during that period.

Table 2. Number of Enterprises by Industry and Size (Private, non-primary industry, 2009, 2012 and 2014)

		SMEs				Large enterprises		Total	
				Of which small enterprises					
Industry	Year	No.	% of total	No.	% of total	No.	% of total	No.	% of total
Mining and quarrying of stone and gravel	2009	2,059	99.8	1,844	89.4	4	0.2	2,063	100.0
	2012	1,676	99.9	1,489	88.7	2	0.1	1,678	100.0
	2014	1,454	99.7	1,284	88.1	4	0.3	1,458	100.0
Construction	2009	519,259	99.9	499,167	96.1	280	0.1	519,539	100.0
	2012	467,119	99.9	448,293	95.9	291	0.1	467,410	100.0
	2014	455,269	99.9	435,110	95.5	284	0.1	455,553	100.0
Manufacturing	2009	446,499	99.5	394,281	87.9	2,036	0.5	448,535	100.0
	2012	429,468	99.5	373,766	86.6	2,044	0.5	431,512	100.0
	2014	413,339	99.5	358,769	86.4	1,957	0.5	415,296	100.0

Electricity, gas, heat supply and water	2009	786	96.7	528	64.9	27	3.3	813	100.0
	2012	657	96.1	410	59.9	27	3.9	684	100.0
	2014	1,000	97.2	708	68.8	29	2.8	1,029	100.0
Information and communications	2009	49,503	97.6	34,526	68.1	1,222	2.4	50,725	100.0
	2012	44,332	98.9	29,558	65.9	508	1.1	44,840	100.0
	2014	45,254	98.8	29,993	65.5	533	1.2	45,787	100.0
Transport and postal activities	2009	81,373	99.7	62,361	76.4	251	0.3	81,624	100.0
	2012	74,316	99.7	55,287	74.2	245	0.3	74,561	100.0
	2014	73,136	99.7	53,255	72.6	251	0.3	73,387	100.0
Wholesale and retail trade	2009	1,047,079	99.6	869,196	82.7	4,224	0.4	1,051,303	100.0
	2012	919,671	99.6	751,845	81.4	3,917	0.4	923,588	100.0
	2014	896,102	99.5	712,939	79.2	4,182	0.5	900,284	100.0
Wholesale trade	2009	241,917	99.3	175,592	72.1	1,693	0.7	243,610	100.0
	2012	225,599	99.3	163,713	72.1	1,508	0.7	227,107	100.0
	2014	227,908	99.3	162,533	70.8	1,575	0.7	229,483	100.0
Retail trade	2009	805,162	99.7	693,604	85.9	2,531	0.3	807,693	100.0
	2012	694,072	99.7	588,132	84.4	2,409	0.3	696,481	100.0
	2014	668,194	99.6	550,406	82.1	2,607	0.4	670,801	100.0
Finance and insurance	2009	34,672	99.3	33,546	96.0	258	0.7	34,930	100.0
	2012	30,184	99.2	29,187	95.9	253	0.8	30,437	100.0
	2014	29,959	99.1	28,821	95.4	259	0.9	30,218	100.0
Real estate and goods rental and leasing	2009	352,548	99.9	345,065	97.8	303	0.1	352,851	100.0
	2012	325,803	99.9	318,962	97.8	276	0.1	326,079	100.0
	2014	319,221	99.9	311,568	97.5	296	0.1	319,517	100.0
Scientific research, professional and technical services	2009	203,060	99.7	174,375	85.6	582	0.3	203,642	100.0
	2012	185,730	99.7	159,400	85.6	550	0.3	186,280	100.0
	2014	188,455	99.7	160,861	85.1	622	0.3	189,077	100.0
Accommodations, eating and drinking services	2009	604,050	99.8	524,811	86.7	936	0.2	604,986	100.0
	2012	543,543	99.9	475,183	87.3	718	0.1	544,261	100.0
	2014	544,281	99.9	464,989	85.3	759	0.1	545,040	100.0
Living-related and personal services and amusement services	2009	404,764	99.9	373,089	92.1	543	0.1	405,307	100.0
	2012	383,059	99.9	357,806	93.3	512	0.1	383,571	100.0
	2014	382,304	99.9	353,250	92.3	542	0.1	382,846	100.0
Education, learning support	2009	110,895	99.9	100,213	90.3	124	0.1	111,019	100.0
	2012	103,867	99.9	92,619	89.1	121	0.1	103,988	100.0
	2014	107,479	99.9	94,409	87.7	129	0.1	107,608	100.0
Medical, health care and welfare	2009	194.822	99.9	143,584	73.6	243	0.1	195,065	100.0
	2012	195,088	99.9	140,484	71.9	232	0.1	195,320	100.0
	2014	210,326	99.9	146,427	69.5	258	0.1	210,584	100.0
Compound services	2009	3,617	99.9	3,604	99.6	2	0.1	3,619	100.0
	2012	3,476	100.0	3,461	99.5	1	0.0	3,477	100.0
	2014	3,492	100.0	3,478	99.6	1	0.0	3,493	100.0
Services (not elsewhere classified)	2009	146,278	99.4	105,171	71.5	891	0.6	147,169	100.0
	2012	144,945	99.4	105,064	72.0	899	0.6	145,844	100.0
	2014	138,157	99.3	96,393	69.3	1,004	0.7	139,161	100.0
Non-primary industry total	2009	4,201,264	99.7	3,665,36	87.0	11,926	0.3	4,213,190	100.0
	2012	3,852 934	99.7	3,342,81	86.5	10,596	0.3	3,863,530	100.0
	2014	3,809,228	99.7	3,252,25	85.1	11,110	0.3	3,820,338	100.0

Source: Small and Medium Enterprise Agency, White paper on Small and Medium Enterprises in Japan-2017.p. 674

2.4.2. Exit and Entries of SMEs

"Entries and exits by enterprise size reveal that there were more exits than entries among small enterprises, with 546,000 entries and 1,027,000 exits, but more

entries than exits among medium enterprises, with 111,000 entries and 99,000 exits (Small and Medium Enterprise Agency, 2017, p.25)."

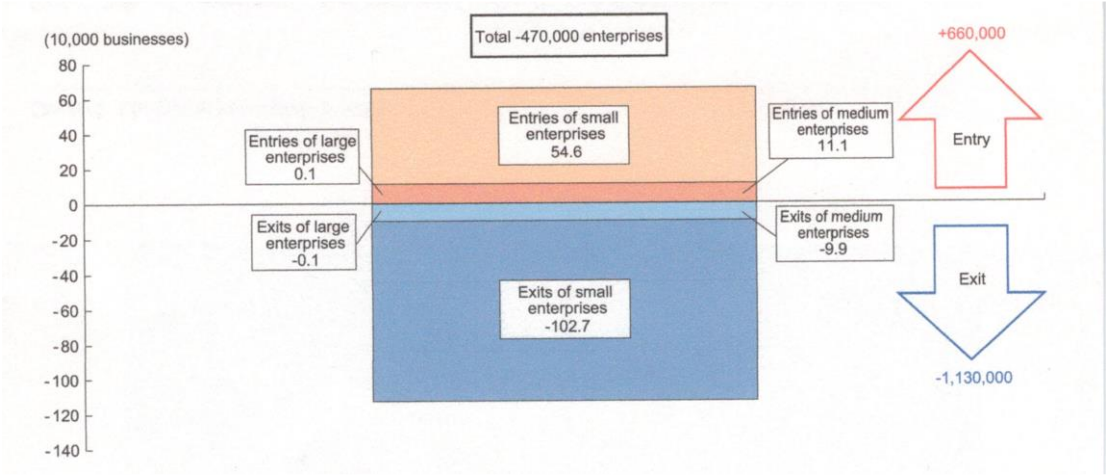

Fig. 1 Breakdown of Entries and Exits by Enterprise Size (2009 – 2014)
Source: Small and Medium Enterprise Agency, White paper on Small and Medium Enterprises in Japan-2017. p. 26

2.4.3. Financial Status of SMEs

From table 3 below, the financial condition of SMEs can be perceived. There is an upward trend in sales and value added among SMEs of all kind. However, there is an increasing trend in the personnel costs among all SMEs with an increasing trend in labor productivity also.

Table 3. Financial Status, Profit Status and Key Financial Indices of Corporate Enterprises (Median Values)

(Unit: ¥ million)

Item		Size	SMEs				Large enterprises			
		FY	2011	2012	2013	2014	2011	2012	2013	2014
Finances and profits	Sales		44,150	45,500	45,300	47,800	2,510,800	2,568,450	2,673,850	2,732,900
	Total assets		57,900	57,900	58,900	60,850	2,159,600	2,245,700	2,314,400	2,336,500
	Value added		10,800	11,100	11,300	11,900	501,250	510,800	526,650	532,900
	(Personnel costs)		8,100	8,000	8,200	8,400	343,750	355,500	354,350	359,600
	(Interest expenses)		100	100	100	100	2,900	2,600	2,200	2,000
	No. of employees (including officers)		19	19	19	20	576	585	574	574
Key financial indices	Quick ratio		106.3	109.5	110.5	111.9	90.5	92.3	93.7	93.7
	Equity ratio		33.1	33.7	34.7	36.2	41.6	43.5	44.1	44.9
	Ratio of operating profit to total capital		1.7	1.8	1.9	2.1	3.4	3.5	3.9	3.9
	Ratio of ordinary profit to sales		1.8	2.1	2.3	2.5	3.1	3.4	3.8	3.9
	Total capital turnover		1.0	1.0	1.1	1.1	1.2	1.2	1.2	1.2
	Interest rate on borrowing		1.3	1.2	1.1	1.0	1.4	1.3	1.2	1.1

	Value-added ratio	26.3	26.3	26.1	26.2	22.1	21,8	22.0	21.9
	Labor productivity	523	526	533	542	824	840	872	888
	Capital-labor ratio	458	448	435	443	755	752	751	730
	Ratio of fixed assets to long-term capital	58.6	58.1	56.7	55.2	58.7	57.7	57.5	57.2
	Debt redemption period (years)	11.5	10.9	10.2	9.2	3.7	3.5	3.3	3.2

(2) Manufacturing

	Size	SMEs				Large enterprises			
Item	FY	2011	2012	2013	2014	2011	2012	2013	2014
Finances and profits	Sales	125,100	122,700	122,200	129,900	3,676,250	3,718,600	3,761,700	3,850,900
	Total assets	125,500	122,000	123,000	129,600	3,765,800	3,872,850	3,933,250	4,034,400
	Value added	27,500	25,600	25,600	27,700	717,900	698,950	724,650	753,800
	(Personnel costs)	22,200	21,200	20,900	22,300	527,400	519,550	526,850	526,400
	(Interest expenses)	200	200	200	200	5,600	5,100	4,700	3,800
	No. of employees (including officers)	50	48	48	49	788	794	783	778
Key financial indices	Quick ratio	107.8	110.0	109.0	111.3	91.2	92.5	95.4	96.5
	Equity ratio	34.0	34.5	35.7	36.9	48.0	49.4	50.6	51.8
	Ratio of operating profit to total capital	2.2	2.0	2.1	2.3	3.0	3.1	3.7	3.6
	Ratio of ordinary profit to sales	2.1	2.1	2.3	2.5	3.7	4.1	4.9	5.2
	Total capital turnover	1.1	1.1	1.1	1.1	0.9	0.9	0.9	0.9
	Interest rate on borrowing	1.3	1.2	1.1	1.0	1.3	1.2	1.1	1.0
	Value-added ratio	24.9	24.5	24.6	24.8	21.1	21.1	21.5	21.4
	Labor productivity	544	543	544	556	898	897	944	970
	Capital-labor ratio	594	591	583	581	1,075	1,088	1,072	1,066
	Ratio of fixed assets to long-term capital	57.0	56.8	56.9	54.5	62.9	62.5	61.5	61.9
	Debt redemption period (years)	8.9	9.2	9.0	8.0	3.3	3.4	3.2	3.0

(3) Wholesale and retail trade

	Size	SMEs				Large enterprises			
Item	FY	2011	2012	2013	2014	2011	2012	2013	2014
Finances and profits	Sales	50,871	55,400	50,450	56,500	3,003,000	3,044,500	3,199,000	3,304,100
	Total assets	37,500	36,700	34,950	39,550	1,718,700	1,772,600	1,854,900	1,867,400
	Value added	7,200	7,000	7,200	7,400	339,400	343,000	334,100	342,200
	(Personnel costs)	5,700	5,700	5,700	5,821	209,300	214,600	219,600	220,900
	(Interest expenses)	100	100	39	43	3,000	2,600	2,500	2,100
	No. of employees (including officers)	14	14	14	15	385	389	384	392
Key financial indices	Quick ratio	95.4	100.9	101.1	101.9	80.0	80.9	81.6	80.8
	Equity ratio	22.7	24.6	25.4	26.7	32.8	34.6	34.0	35.2
	Ratio of operating profit to total capital	1.3	1.4	1.4	1.4	3.4	3.2	3.5	3.2
	Ratio of ordinary profit to sales	0.8	0.9	0.9	1.0	2.1	2.0	2.2	2.0
	Total capital turnover	1.7	1.7	1.7	1.7	1.9	1.8	1.9	1.8
	Interest rate on borrowing	1.2	1.2	1.0	0.9	1.4	1.2	1.1	1.0
	Value-added ratio	13.3	13.2	13.2	12.7	13.5	13.1	12.9	13.0
	Labor productivity	482	496	479	484	759	755	784	774
	Capital-labor ratio	254	238	206	231	604	627	665	624
	Ratio of fixed assets to long-term capital	46.3	42.9	41.8	42.9	56.8	55.3	55.2	56.0
	Debt redemption period (years)	20.5	21.0	18.6	18.2	5.3	5.6	5.2	5.5

Source: Small and Medium Enterprise Agency, White paper on Small and Medium Enterprises in Japan-2016.p. 590

2.5. Socio-economic Significance of SMEs in Japan

The socio economic significance of SMEs in Japan will be discussed in terms of employment and value added by the SMEs. One reason behind Japan's relatively low unemployment rates is the employment demand created by SMEs. "As early

as 1953, 73.5% of Japan's entire work force in manufacturing was employed in firms with fewer than 300 employees. In 1972, shortly before the first oil shock, 78.4% of the total non-agricultural labor force worked for SMEs. This number peaked at 81.7% in 1981 despite the slowdown in economic growth after the two oil shocks of the 1970s which hit SMEs especially hard" (Shimizu, 2013).

"Over the last two decades of slower economic growth, SME employment in Japan has remained unusually high relative to other developed countries, making up 66.0% of the non-agricultural labor force in 2010. Among Japan's 42.97 full time workers, 28.34 million work for SMEs, of which 9.12 million work for small firms. In the manufacturing and service sectors, each of which employ roughly a quarter of Japan's workers, the share of the labor force working for SMEs is much larger than in the major Western industrial nations"(Shimizu, 2013). In terms of employment generation, Japanese SMEs play a significant role, almost 70% employment in Japan is generated by SMEs in Japan (see table 3) and in manufacturing more than 50% value are added by the SMEs (see table 4).

Table 4.Number of Regular Employees by Industry and Size (Private, non-primary industry, 2009, 2012 and 2014)

		SMEs				Large enterprises		Total	
				Of which small enterprises					
Industry	Year	No. of regular employees	% of total	No. of regular employees	% of total	No. of regular employees	% of total	No. of regular employees	% of total
Mining and quarrying of stone and gravel	2009	19,581	81.3	9,647	40.0	4,507	18.7	24,088	100.0
	2012	15,948	90.1	7,198	40.6	1,761	9.9	17,709	100.0
	2014	14,560	77.5	6,597	35.1	4,231	22.5	18,791	100.0
Construction	2009	2,647,321	85.9	1,580,988	51.3	434,462	14.1	3,081,783	100.0
	2012	2,383,4.60	85.2	1,411,548	50.5	413,238	14.8	2,796,698	100.0
	2014	2,467,738	85.7	1,400,733	48.7	410,487	14.3	2,878,225	100.0
Manufacturing	2009	5,469,317	59.3	1,393,577	15.1	3,751,514	40.7	9,220,831	100.0
	2012	5,689,006	57.3	1,399,410	14.1	4,247,936	42.7	9,936,942	100.0
	2014	5,681,828	62.0	1,343,064	14.6	3,487,977	38.0	9,169,805	100.0
Electricity, gas, heat supply and water	2009	31,695	15.9	3,331	1.7	167,599	84.1	199,294	100.0
	2012	27,021	13.9	2,500	1.3	166,959	86.1	193,980	100.0
	2014	31,975	16.2	3,371	1.7	164,840	83.8	196,815	100.0
Information and communications	2009	655,129	45.7	72,781	5.1	777,308	54.3	1,432,437	100.0
	2012	850,340	60.8	60,538	4.3	547,325	39.2	1,397,665	100.0
	2014	880,620	60.6	63,958	4.4	573,628	39.4	1,454,248	100.0
Transport and postal activities	2009	1,975,693	63.9	286,171	9.3	1,117,826	36.1	3,093,519	100.0
	2012	1,953,552	67.0	271,896	9.3	964,253	33.0	2,917,805	100.0
	2014	2,084 844	72.3	276,857	9.6	800,064	27.7	2,884,908	100.0
Wholesale	2009	5,462,645	60.7	1,006,547	11.2	3,536,291	39.3	8,998,936	100.0

and retail trade	2012	5,072,244	59.6	847,814	10.0	3,441,971	40.4	8,514,215	100.0
	2014	5,643,075	61.2	850,130	9.2	3,583,164	38.8	9,226,239	100.0
Wholesale trade	2009	2,101,156	70.3	283,278	9.5	887,346	29.7	2,988,502	100.0
	2012	1,906,462	68.7	260,206	9.4	868,141	31.3	2,774,603	100.0
	2014	2,090,910	70.5	264,850	8.9	876,437	29.5	2,967,347	100.0
Retail trade	2009	3,361,489	55.9	723,269	12.0	2,648,945 '	44.1	6,010,434	100.0
	2012	3,165,782	55.2	587,608	10.2	2,573,830 [1]	44.8	5,739,612	100.0
	2014	3,552,165	56.8	585,280	9.4	2,706,727	43.2	6,258,892	100.0
Finance and insurance	2009	160,064	13.2	66,266	5.5	1,055,313	86.8	1,215,377	100.0
	2012	144,249	12.3	60,095	5.1	1,025,982	87.7	1,170,231	100.0
	2014	170,361	14.4	64,410	5.5	1,010,992	85.6	1,181,353	100.0
Real estate and goods rental and leasing	2009	648,054	75.2	296,512	34.4	214,194	24.8	862,248	100.0
	2012	598,952	74.0	258,781	32.0	209,970	26.0	808,922	100.0
	2014	684,658	75.6	276,582	30.5	220,985	24.4	905,643	100.0
Scientific research, professional and technical services	2009	756,175	70.8	237,476	22.2	311,715	29.2	1,067,890	100.0
	2012	692,926	67.6	213,830	20.9	332,271	32.4	1,025,197	100.0
	2014	751,933	66.8	215,485	19.1	373,431	33.2	1,125,364	100.0
Accommodations, eating and drinking services	2009	2,345,422	63.3	613,656	16.6	1,358,606	36.7	3,704,028	100.0
	2012	2,280,585	63.7	600,893	16.8	1,299,681	36.3	3,580,266	100.0
	2014	2,738,473	68.7	618,333	15.5	1,247,530	31.3	3,986,003	100.0
Living-related and personal services and amusement services	2009	1,273,599	75.8	298,740	17.8	406,134	24.2	1,679,733	100.0
	2012	1,217,936	75.5	325,103	20.2	395,118	24.5	1,613,054 J	100.0
	2014	1,345,409	77.8	330,449	19.1	382,994	22.2	1,728,403	100.0
Education, learning support	2009	339,809	76.7	68,867	15.6	102,948	23.3	442,757	100.0
	2012	338,486	76.0	60,220	13.5	107,033	24.0	445,519	100.0
	2014	413,400	80.6	65,307	12.7	99,410	19.4	512,810	100.0
Medical, health care and welfare	2009	991,180	89.8	265,454	24.0	112,957	10.2	1,104,137	100.0
	2012	1,089,299	86.1	255,174	20.2	175,811	13.9	1,265,110	100.0
	2014	1,356,495	88.2	265,541	17.3	182,005	11.8	1,538,500	100.0
Compound services	2009	3,370	2.1	3,247	2.0	160,187	97.9	163,557	100.0
	2012	3,866	2.4	3,355	2.1	156,625	97.6	160,491	100.0
	2014	3,975	1.0	3,616	0.9	406,903	99.0	410,878	100.0
Services (not elsewhere classified)	2009	1,925,640	63.5	148,335	4.9	1,108,015	36.5	3,033,655	100.0
	2012	1,972,751	67.1	147,196	5.0	966,049	32.9	2,938,800	100.0
	2014	2,197,332	64.7	136,184	4.0	1,197,946	35.3	3,395,278	100.0
Non-primary industry total	2009	24,704,694	62.8	6,351,595	16.2	14,619,576	37.2	39,324,270	100.0
	2012	24,330,621	62.7	5,925,551	15.3	14,451,983	37.3	38,782,604	100.0
	2014	26,466,676	65.2	5,920,617	14.6	14,146,587 ,	34.8	40,613,263	100.0

Source: Small and Medium Enterprise Agency, White paper on Small and Medium Enterprises in Japan-2017.p. 682

Table 5.Value Added by Industry and Size (Private, non-primary industry, 2011)

	SMEs				Large enterprises		Total	
			Of which small enterprises					
Industry	Value added (100 million yen)	% of total	Value added (100 million yen)	% of total	Value added (100 million yen)	% of total	Value added (100 million yen)	% of total
Mining and quarrying of stone and gravel	1,135	81.8	427	30.8	253	18.2	1,388	100.0
Construction	121,735	78.2	72,574	46.6	33,966	21.8	155,700	100.0
Manufacturing	284,459	50.5	69,971	12.4	278,466	49.5	562,925	100.0
Electricity, gas, heat supply and water	2,838	10.2	767	2.7	25,105	89.8	27,943	100.0
Information and communications	49,938	39.5	4,181	3.3	76,615	60.5	126,553	100.0

Transport and postal activities	76,160	54.6	12,769	9.2	63,302	45.4	139,462	100.0
Wholesale and retail	263,533	60.1	61,689	14.1	175,187	39.9	438,719	100.0
Wholesale trade	140,426	63.6	26,161	11.8	80,503	36.4	220,929	100.0
Retail trade	123,107	56.5	35,528	16.3	94,684	43.5	217,790	100.0
Finance and insurance	15,619	10.6	6,802	4.6	131,561	89.4	147,180	100.0
Real estate and goods rental and leasing	56,901	70.1	32,910	40.5	24,306	29.9	81,207	100.0
Scientific research, professional and technical services	51,632	54.5	16,650	17.6	43,139	45.5	94,771	100.0
Accommodations, eating and drinking services	49,877	68.4	16,643	22.8	22,997	31.6	72,874	100.0
Living-related and personal services and amusement services	46,602	74.9	13,704	22.0	15,620	25.1	62,222	100.0
Education, learning support	8,393	67.7	1,667	13.4	4,004	32.3	12,397	100.0
Medical, health care and welfare	39,846	87.2	12,890	28.2	5,868	12.8	45,714	100.0
Compound services	136	2.0	120	1.8	6,685	98.0	6,821	100.0
Services (not elsewhere classified)	63,160	63.6	9,686	9.8	36,166	36.4	99,325	100.0
Non-primary industry total	1,131,964	54.5	333,449	16.1	943,240	45.5	2,075,204	100.0

Source: Small and Medium Enterprise Agency, White paper on Small and Medium Enterprises in Japan-2017.p. 689

2.6. Reason for Choosing Japanese SMEs as Experimental Setting

The socio economic significance of Japanese SMEs shows that continuation of Japanese economic growth depends largely on the productivity, efficiency and earning power of SMEs. The efficient management of Japanese SMEs will help overall economy of the East Asian territory. Besides that, as mentioned before Japanese SMEs have some distinctive features, such as, long term relationship between SMEs and large enterprises commonly known as keiretsu in Japan. In keiretsu relationship large enterprises act as a principal contractor and SMEs work as a subcontractor for large enterprises. As subcontractors SMEs play an important role to supply parts and components to large enterprises. In 2014 around 60% SMEs in Japan are doing business with large enterprises as subcontractors and among all other industries manufacturing SMEs are highly dependent on large enterprises with the highest transaction volume (Small and Medium Enterprise Agency, 2016).

However, after the long term recession in 1991, Japanese SMEs have been facing crisis. Since then, the relationship between large enterprises and SMEs has undergone major changes in Japan. Figure 2 shows subcontractor enterprises' dependence on principal contractors in the subcontracting relationship. Here it can be seen that in 1991 roughly 80% of businesses had an over 30% dependency on principal contractors. This percentage has dropped over the years, sinking to around 60% in 2014.

The long term recession forced the large enterprises to reduce the number of their local suppliers and outsourced the parts and components from other cheap markets in Asia. According to Hopper et al. (1999), SMEs within a ''Keiretsu'' are forced to improve their production capability according to the quality, cost, and lead-time tolerances specified by the core manufacturer. As a result, SMEs are pressured to increase their production efficiency. Moreover, the restructuring of the procurement process by the large enterprises has led to the selection of only the efficient subcontractors. While efficient SMEs selected by large enterprises are able to get more orders and improve their capacity, the inefficient SMEs are unable to capture business opportunities and cannot survive (Uchikawa, 2009). Thus, the efficient management as well as improvement of performance is pivotal for the continued existence of Japanese SMEs.

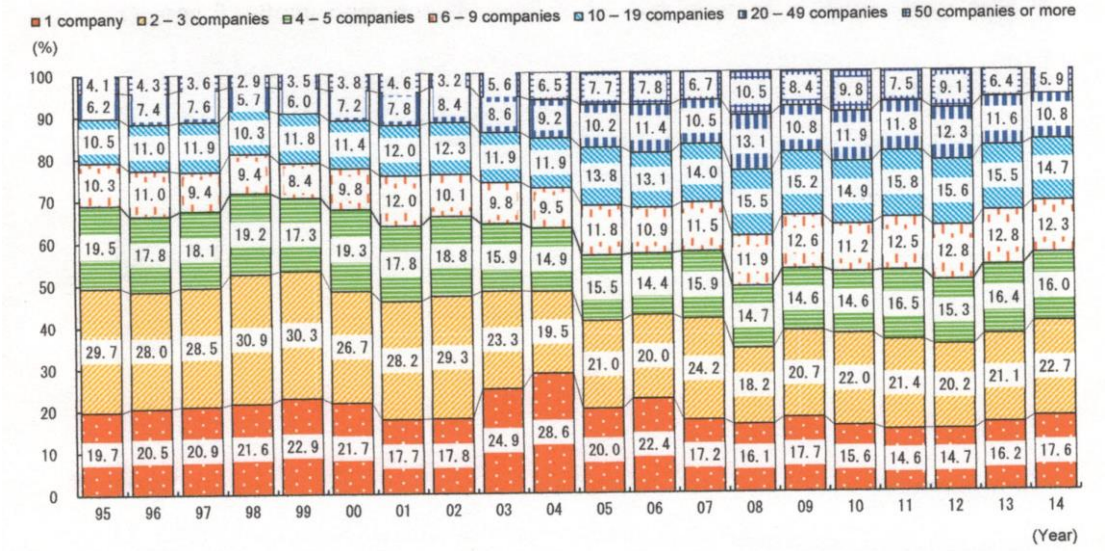

Fig.2.Numbers of Principal Contractors with which Subcontractor Enterprises are doing Regular Business

Source: Small and Medium Enterprise Agency, White paper on Small and Medium Enterprises in Japan-2016.p. 90

The distinctive features and the socio-economic importance of Japanese SMEs make it as an apparently interesting research setting. Furthermore, in support to choose SMEs as the experimental setting; I pursue the argument of King et al. (2010).Considering the argument of King et al. (2010), I could expect that for some SMEs the cost to adopt and use Multi-Perspective Performance Measures will be higher than the perceived benefit while the opposite argument will also be true for other SMEs. Thus, this setting gives me the opportunity to explore a complete phenomenon regarding the decision of adoption as well as extent of multi-perspective performance measures' use. Therefore, the selection of Japanese SMEs as an experimental setting to conduct this study is permissible.

2.7. Concluding Remarks

This chapter gives an overview of the present condition of Japanese SMEs and the social and economic importance of Japanese SMEs. SMEs are very vital for the sustainable economic growth in Japan in terms of employment generation and value addition. However, SMEs in Japan are facing crisis because of the changing pattern of the transactional relationship with large companies and continuing pressure to improve efficiency both from market competition as well as large

enterprises. As a result, efficient management of Japanese SMEs is crucial for their survival. However, efficient management depends on the use of many management and accounting tools that large enterprises use to improve their efficiency. However, because of resource limitation many SMEs cannot afford to adopt and use the modern management accounting technique that may help them to improve efficiency. Therefore, it is important to know about the factors that influence the SMEs to adopt and use the management accounting technique to improve efficiency. This chapter justifies the choice of Japanese SMEs as an experimental setting.

The next chapter will discuss the relevant literature pertaining to performance measurement in general and Multi-Perspective Performance Measurement in particular.

CHAPTER 3
LITERATURE REVIEW ON PERFORMANCE MEASUREMENT

3.1. Introduction

How to determine organizational success or measure organizational performance - has generated much discussion over the years in management and accounting literatures. It has been acknowledged that use of multiple performance measures has a beneficial impact on organizational performance (Davis & Albright, 2004; Hoque & James, 2000). However, uses of performance measures are affected by many internal or external factors. Therefore, it is important to have a comprehensive knowledge about the contextual factors related to the use of performance measures. This review chapter is an attempt to extend the scant body of extant literature in this area.

The specific purpose of this chapter is to summarize research findings on contextual factors associated with the use of performance measures. A number of review articles have already published on contextual factors related to use, implementation and design of several management accounting practices. For example, Chenhall (2003) identified size, strategy structure, environment, technology as determinant of management control systems' design in organizations. Recently, Otley (2016) mentioned strategy, environmental uncertainty, and national culture as contextual factors related to the use and implementation of management accounting and control practices. However, there is no comprehensive literature review on contextual factors solely associated with the use of performance measures. This chapter is going to fill that gap in the literature. This chapter also tries to address some future research avenues in this field of study. A systematic literature review (Tranfield, Denyer & Smart, 2003) is conducted to synthesize the scattered research findings on the contextual factors that affect the use of performance measures.

The findings of this literature review revealed some unusual contextual factors, for example, nature of performance measures' use (Henri, 2006[b]), product lifecycle stage (Hoque,2000), human resource factors (Widener, 2006) etc. that influenced the use of performance measures. Researchers and practitioners need to consider those factors before adopting and using different performance measures to evaluate organizational performance.

The rest of this chapter is structured into five sections. In the next section, definition and categories of performance measures are discussed. In the third section, the review process for conducting the literature review is presented. The fourth section is centered on the findings of the literature review. The final section presents future research avenues identified from the synthesis of previous literature, implications of the findings of this review chapter for academics and researchers and limitations of this review chapter.

3.2. Definition and Categories of Performance Measurement

Substantial management time and significant research efforts by academics is being devoted on how to measure organizational performance (Kennerley & Neely, 2002). According to Neely, Gregory and Platts (1995) "a performance measure can be defined as a metric used to quantify the efficiency and/or effectiveness of action" (P.1229). However, Melnyk et al.(2013) differ slightly with the definition of Neely et al. (1995); Melnyk et al. (2013) differentiate between a performance measure and a metric and define performance measure as "an instrument used to quantify the efficiency and/or effectiveness of action" (p.175).In this review paper, performance measures are considered as "just indicators of performance and not real performance" (Bourne, Melnyk, Bititci, Platts & Andersen, 2014,p.118). Traditionally organizational performance is measured by using financial measures. It is desirable to measure organizational performance in financial terms as the strategy of most organizations aims at financial success. In addition, financial measures are objective, reliable, verifiable and less costly to use (Tuomela, 2005).In spite of their extensive use, financial

performance measures are criticized as being too historical and backward-looking, narrow in focus, lack predictive capability to give details of future performance, reward temporary or incorrect behavior of managers and provides incomplete information (Kaplan & Norton, 1992, 1996; Chenhall, 1997; Perera, Harrison & Poole, 1997; Ittner, Larcker & Rajan, 1997; Ittner &Larcker, 1998;Otley, 1999; Banker, Potter& Srinivasan, 2000). However, many studies provide evidence that nonfinancial measures can be leading indicators of financial performance (for example, Banker et al., 2000; Ittner &Larcker, 1997). This has led to the development and popularity of nonfinancial performance measures. Recently, many firms are adopting a diverse set of nonfinancial performance measures to supplement financial metrics that are deemed to provide better information on strategic progress and success (Ittner, Larcker & Randall, 2003).

To support this endeavor of many firms, numerous performance measurement models relying on a mix of financial and nonfinancial measure have been developed, such as the 'Balanced Scorecard' (hereafter BSC) (Kaplan and Norton, 1992), the 'Performance Pyramid' (Lynch &Cross, 1991) and the 'Results and Determinants Framework' (RDF: Fitzgerald, Johnston, Brignall, Silvestro &Voss,1991). Among these models, BSC suggested by Kaplan and Norton (1992, 1996) has been adopted widely around the world and implemented as a superior combination of nonfinancial and financial measures of performance. The measures of the BSC reflect on four areas of business success: financial performance, customer relations, internal business processes, organization's learning and innovation activities. However, in recent years strategic performance measures are also getting importance by many business organizations.

In this review chapter, I identified four types of performance measures to elucidate the findings and classify the reviewed articles (table 6).I classified Strategic Performance Measures (hereafter SPM) individually because organizations sometimes use financial or nonfinancial performance measures only as performance indicators without explicitly or implicitly connected those measures with strategy whereas SPM must be explicitly or implicitly connected

with strategy. So SPM is different from other measures and I classify these measures separately.

Table 6. Types of Performance Measures

Types	Examples
Financial measures (FM)	Return on investment, Economic Value Added (Malmi & Brown, 2008)
Non-Financial measures(NFM)	Customer relations, internal business processes, organization's learning and innovation activities(Kaplan &Norton,1992)
Hybrid/Multiple measure(MM) [1]	Combination of Financial and nonfinancial measures of performance
SPM	Financial and nonfinancial performance measures explicitly or implicitly linked to strategy (Ittner et al., 2003). For example, Balanced Scorecard(Kaplan &Norton,1996)

3.3. Review Process

The methodology for conducting the review is based on a synthesis of various broad and comprehensive literature reviews performed by Franco-Santos, Lucianetti and Bourne (2012); Hoque (2014);Atkinson et al. (1997); Shields (1997). This chapter follows a systematic literature review process (Tranfield et al., 2003) to articulate the research findings. Nonetheless, this chapter reviewed the articles published from January, 1995 to December, 2015. In this chapter, 1995 was chosen as a cut-off point because of the introduction of Balanced Scorecard in 1992. The use of nonfinancial and multidimensional measures of performance instigated after 1992 with the advent of BSC. The literature review is conducted in five main steps.

First, I chose the relevant journals as the major source of this study . I used 6 highly ranked journals on accounting and 4 highly ranked journals on business

[1]Multiple performance measures are synonymously used for integrated performance measures, comprehensive performance measures and diversity of measurement in this paper.

and management. The selected journals are: Accounting, Organization and Society; The Accounting Review; Management Accounting Research; Behavioral Research in Accounting; British Accounting Review; Journal of Management Accounting Research, Long Range Planning; European Management Journal; Journal of Operations Management; International Journal of Operations and Production Management. I chose these journals because according to our study of previous literature reviews, they are more likely to publish research on performance measures and they are considered as being of high quality journals (Franco-Santos et al. ,2012; Hoque, 2014)

Second, I identified appropriate search terms to identify the relevant studies. The keywords used to find out the relevant studies are: "performance measure", "performance measurement systems", financial performance measure", "non-financial performance measure", "Balanced Scorecard" and "management control". I selected those keywords because those keywords are used in former literature reviews to identify the research papers on performance measures. (Franco-Santos et al.,2012; Hoque, 2014)

Third, I searched various electronic databases to access the identified journals and they are EBSCO, Emerald, Business Source Elite, Science Direct, Springer, JSTOR, Emerald, Wiley and Co. I searched the title of the papers in the selected journals. The papers matched the keywords identified earlier were downloaded.

Fourth, I read the abstract and keywords of the downloaded paper and selected those papers that met my research objectives. The articles included in the review had to provide empirical evidence regardless of the qualitative or quantitative nature of their data. If some sections of an article met my research objectives and others did not, only the sections that met the criteria were included in the review. The sections that did not meet my research objectives were omitted. Articles that discussed about the design, conceptual framework or other issues not

relevant to my research objectives were excluded from the final sample of the papers.

Fifth, as a last step I created a summary table based on categories I derived from previous literature reviews (Franco-Santos et al., 2012; Hoque, 2014; Atkinson et al., 1997; Shields, 1997) and synchronized with my own idea. The summary table contained information regarding authors' names, date of the study was published, key issues addressed, determinants of performance measures use, theory and performance measurement frameworks, data collection method and country of data collection. I organized the studies in alphabetical order based on the name of the first author. Figure 3 presents the review process used in this thesis paper in brief.

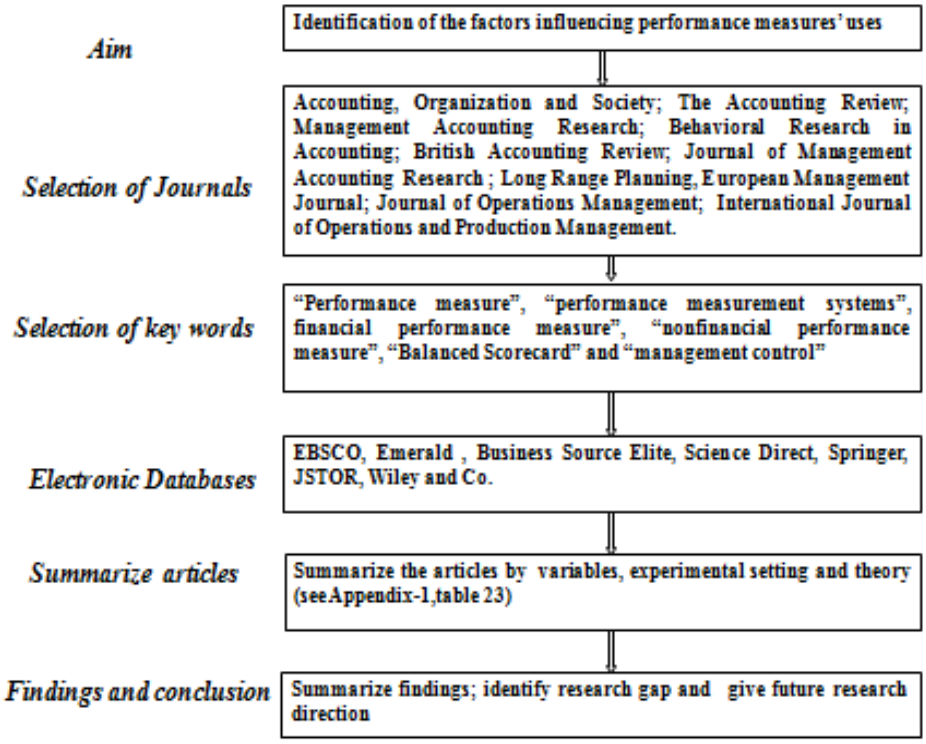

Fig 3. Review Process

3.4. Findings of Literature Review

I identified a good number of papers that met our research objectives. Appendix-1(table 23) classifies the studies and determinants identified in those studies. In the following section, I will discuss the findings of this review chapter briefly.

3.4.1. Determinants of Performance Measures' use

3.4.1.1. Organizational Size

Researchers have investigated the effect of organizational size on BSC usage. Researchers suggest that larger companies use BSC more than smaller companies. For example, Speckbacher, Bischof and Pfeiffer, (2003) found a significant association of size and BSC usage. The research finding of Speckbacher et al. (2003) complements the findings of Hoque and James (2000) who surveyed 66 Australian manufacturing companies and found that BSC usage is positively associated with organization size. From the findings of these two studies, it can be presumed that larger companies are more likely to use innovative performance measurement techniques than smaller companies.

3.4.1.2. Strategy

In 1980s business strategy emerged as an important contextual variable influencing many systems in business organizations. Researchers conceptualized strategy based on the strategic choices of business. Some strategic choices are: (i) market positioning: low cost versus product differentiation (Porter, 1980), strategic pattern: prospector versus defender (Abernethy & Guthrie, 1994; Hoque, 2004;), or (iii) strategic priorities: customization, quality, flexibility, customer focus etc.(Abernethy & Lillis, 1995; Chenhall & Langfield-Smith, 1998; Ittner et al., 2003).

A good number of empirical studies were conducted to elucidate the association between strategy and use of different categories of performance measures. For example, Perera et al. (1997) attempted to know about firms

pursuing a customer-focused manufacturing strategy and their emphasis on the use of nonfinancial performance measures. Evidence of the study suggested that firms pursuing a customer-focused manufacturing strategy place greater emphasis on nonfinancial performance measures. They chose manufacturing firms in Sydney, Australia as their experimental setting.

Lillis and van Veen-Dirks (2008) also found that use of efficiency measures differ with the strategic emphasis on low cost. Dekker, Groot and Schoute (2013) did a similar study to explore the implication of mixed strategy on the variety and nature of performance measures used for evaluating managerial performance. Analyses of their results support that, firms pursuing mixed strategies use more integrated performance measures as compared to firms pursuing archetypal strategies (low cost versus product differentiation). The findings support the notion that use of different performance measures is associated with the pursuit of different strategies.

van Veen-Dirks (2010) also studied the determinants of the importance attached to different uses of financial and nonfinancial performance measures: evaluation versus reward of managers. The result of this study found that an emphasis on differentiation through product performance strategy has a negative effect on the importance of financial performance measures for reward but has no influence on evaluation. However, the emphasis on nonfinancial measures increases both for periodic evaluation and for reward when the strategic emphasis increases for differentiation through delivery/flexibility.

Besides, the above studies which are based on firms strategic pursuits, Ho, Wu and Wu(2014) examined how consensus on strategy implementation between operational-level managers and employees affects the usefulness of performance measures. Field-based archival and survey data from a Taiwanese financial services company is used in the study. Ho et al. (2014) revealed that “the incentive effect of using performance measures in performance evaluation and promotion decisions is greater for employees with a higher level of consensus on

strategy implementation" (p. 51). The finding of their study indicates that consensus on strategy implementation among employees within an organization would affect the effectiveness of performance measures.

Findings of the above studies support the long-held view that strategy is an important contextual factor for the use and implementation of any management accounting and control practices in organizations and use of performance measures is also not an exception.

3.4.1.3. Organizational Structure

Organizational structure is regarded as a key contextual variable for a range of management accounting systems design, use, and implementation. However, only one study conducted by Lee and Yang (2011) examined the effect of organizational structure on the use of performance measures. The results of their study demonstrate that organizational structure is significantly associated with the use of multiple performance measures. They found that organic organizations make greater use of multiple performance measures compared to mechanistic organizations.

3.4.1.4. Market Competition

Researchers found mixed result about the effects of market competition on the use of performance measures. The study conducted by Hoque, Mia and Alam (2001) revealed a positive and significant association between the intensity of market competition and use of multiple measures for performance evaluation. Abdel-Maksoud, Dugdale and Luther (2005) also found a strong association between the importance of six aspects of competition (quality, innovation, customer service, price, delivery, flexibility) and the five nonfinancial measures of shop-floor performance (measures of efficiency and utilization, delivery performance, human resource, product quality, customer satisfaction). However, Lee and Yang (2011) did not find any significant influence of market competition on the use of

performance measures. The research findings are inconclusive, and hence, researchers need to analyze this contextual factor more rigorously.

3.4.1.5. Product Life-cycle Stage

Only one study is found on the relationship between product life-cycle stage and use of performance measures. Hoque and James (2000) argued that at early stages of products, financial outcomes are less certain and results of important decisions may be realized in the future. Therefore, nonfinancial measures like new product development and customer satisfaction can be leading indicators of future financial performance. To verify their argument, Hoque and James (2000) surveyed 66 Australian manufacturing companies and found a positive relationship between early product life-cycle stage and a greater use of BSC. However, further investigation using each perspective of the BSC separately revealed that firms that launched more new products have a greater tendency to rely on measures related to new products.

3.4.1.6. Industry Type

Industry type may influence the importance and use of performance measures. However, researchers found mixed result regarding the association between industry type and use of different performance measures. For example, Speckbacher et al. (2003) did not find any significant difference among industries who adopted BSC and who did not. However, Abdel-Maksoud et al.(2005) found a significant result about existence and importance of shop floor nonfinancial performance measures across industry sectors.

3.4.1.7. Human Resource Factors

In a dynamic and changing business environment, firms' reliance on intangible resources is increasing to accomplish a competitive advantage. Using archival data from 177 firms, Widener (2006) found that labor intensive firms emphasize more on the use of financial and nonfinancial measures and this association is moderated by firms' pay structure. Only one study is found about the influence of

human capital on the use of performance measures. So there is still a lack of analysis of this contextual factor.

3.4.1.8. Organizational Culture

According to Henri (2006[b]) "culture is an omnipresent factor which affects practically all aspects of organizational interactions" (p. 97). Henri (2006[b]) conducted a study to find out the association between organizational culture and use of multiple performance measures by top management teams. Organizational culture is conceptualized by firms having control or flexibility values. The result of this study explored that top managers of firms having flexibility values tend to use more performance measures than top managers of firms having control values.

3.4.1.9. Nature/type of PMS use

Henri (2006[b]) also investigated the use of performance measures as another contextual factor that influences the diversity of measurement. He identified four types of performance measures use: monitoring, attention focusing, strategic decision-making and legitimization. The findings of the study demonstrated that performance measures used for attention-focusing and strategic decision-making positively influenced the diversity of measurement. In another study, van Veen-Dirks (2010) found a difference in the weight attached to performance measures for evaluation and reward of production managers. The importance attached to a set of financial and nonfinancial measures is higher for the evaluation than for rewards of managers.

3.4.1.10. Departmental Interdependence

van Veen-Dirks (2010) also found that departmental interdependence decreases the importance attached to financial measures for rewards of production managers but not for evaluation. In case of nonfinancial measures, departmental interdependence has only a positive effect for evaluation but no effect for rewards.

3.4.1.11. Individual Manager Effects

Performance measures usage at firm level may not be same as managerial level. Wiersma (2009)conducted a study on the managers of 19 Dutch firms to examine the effect of manager's evaluation style and receptiveness to new information on the usage of BSC.

Wiersma (2009) classified evaluation style of managers as: "(1) appropriateness of using financial versus nonfinancial measures; (2) appropriateness of using qualitative versus quantitative measures; and (3) rigidity or flexibility of the evaluation" (p.246). The result of study exhibited that BSC used for coordination of activities in the workgroup and self monitoring is negatively associated with rigidity versus flexibility of the evaluation. The other two dimensions of evaluation style are not associated with BSC usage. However, the receptiveness of managers to new information is positively associated with BSC usage for both decision-making and decision-rationalizing, and coordination.

From these results, it can be comprehended that managers' usage of BSC is not only a rational choice but also a matter of individual managerial preferences.

3.4.1.12. Use of other Control Alternatives

Wiersma (2009) also investigated whether "alternative controls, such as action controls and personal or cultural controls, are complements to or substitutes for BSC usage" (P.246). The result of the study showed that BSC usage is related to the other type of controls exercised in the organizational unit. It is found that BSC usage for decision-making and decision-rationalizing is higher when the organizational unit employs more action controls.

3.4.1.13. Employee Perceptions of Fairness

Lau and Martin-Sardesai (2012) revealed an attention-grabbing finding regarding the employees' perception of organizational fairness and choice of comprehensive

performance measures. They found that Organization Concern for Workplace Fairness significantly affects the choice of performance measures. Data were collected from Australia and the United Kingdom through questionnaire survey to test hypotheses of the study.

3.4.1.14. Technology Related Factors

Hoque, Mia and Alam (2001) found that use of multiple measures of performance is positively and significantly associated with organizations' applications of computer-aided manufacturing processes. However, Abdel-Maksoud et al.(2005) found few significant correlations between Advanced Manufacturing Technology (AMT) and use of shop floor nonfinancial performance measures (hereafter SFNFPMs).

Furthermore, Abdel-Maksoud et al. (2005) found that stock handling technologies are correlated with measures of delivery performance and customer satisfaction but not with measures of efficiency, human resource or quality. On the other hand, computer-based production scheduling software is highly associated with an emphasis on several shop-floor measures.

van Veen-Dirks (2010) also found that technological complexity influence negatively the weight attached to nonfinancial measures for rewards but has no significant influence on evaluation. However, technological complexity did not increase the importance attached to financial measures.

3.4.1.15. Others

Abdel-Maksoud et al.(2005) demonstrated that innovative management practices, such as Total Quality Management, Just in Time etc. are highly correlated with SFNFPMs. However, competitive management practices, such as strategic management accounting and customer profitability analysis are not correlated with product quality and customer satisfaction measures. Moreover, the extent of upward communication is significantly correlated with all aspects of SFNFPMs.

On the other hand, the size of employees shows a negative correlation with measures of human resource but 'Annual average shop-floor wages and salaries' shows a significant correlation with efficiency and customer satisfaction measures.

Furthermore, Ittner et al. (1997) found that use of nonfinancial performance measures increased with the level of regulation and the noise in financial measures in CEO bonus contracts. Moreover, Said et al. (2003) explored that firm's operational and competitive characteristics affected the use of nonfinancial measures.

3.5. Research Gap

The findings of this chapter have numerous implications. First, this chapter synthesizes the findings of different research papers on same contextual variables and presents a common overview. In future, the researcher will get condensed knowledge on the relationship between different contextual variables and use of performance measures. Consequently, this chapter will help the future researcher to formulate more refined hypothesis than before. Second, this review chapter presents the contextual factors already identified by some researcher. Therefore, the future researcher could know which variables are over analyzed and which variables need further rigorous analysis. Third, practitioners and managers will get a complete idea about the diverse contextual variables that affect the use of performance measures. Nonetheless, they can take effective decisions before the use and adoption of performance measures.

As for the future research avenues, this chapter explored the following future research opportunities. First, organizational structure is very important contextual factors for design, use and implementation of different performance measures. Only one study identified this variable as contextual factor was found. Moreover, no study was found on a number of important contextual factors like the influence of functionality of information systems, managerial or leadership

style on the use of performance measures. It can be enumerated that the association between many unusual contextual factors and use of different performance measures are still overlooked.

Second, after analyzing the sample papers, I did not find any replicated study. It seems that researcher in this field are still trying to find out some new contextual factors and are not very interested in replicated study. Nonetheless, according to Dyckman and Zeff (2014) "a positive replication would suggest that the result is well- grounded and can be relied upon or quoted. Furthermore, future efforts might perhaps be better directed toward making extensions or to addressing new topics. A failed replication, on the other hand, would warn the reader not to accept, quote, or use the results as basis for extension until the matter is clarified (pp.698-699)."

Third, regarding empirical setting I did find only a few studies that chose SMEs as their experimental setting. There is still a lack of research on SMEs as an empirical setting. Moreover, most of the studies in this field are conducted in Anglo American countries (e.g., USA, UK, Australia,) compared to Asian countries [see Appendix-1(table 23)]. The contextual factors identified for Anglo American context may have a different impact on the use of performance measures in Asian context.

Fourth, it is a stirring finding that nature or type of use of performance measures has some impact on its usage. It indicates that influence of various contextual factors on performance measures usage would be different based on purpose of its use. In most of the reviewed paper, researchers did not clarify the purpose of performance measures' use. Only Henri (2006[b]); Lee and Yang (2011); Wiersma (2009) mentioned the types, purpose or nature of performance measures' use and the impact of different contextual variables on performance measures' use. Researchers need to explicitly clarify the purpose of performance measures' use before considering the impact of contextual factors on its use. The

effect of same contextual factors may be different depending on the different purpose of its use.

While looking at the theories and methodologies, I found that contingency theory [see Appendix-1(table 23)] and quantitative method are widely adopted by the researchers to explain the research findings. A mixed method research approach may produce some new insights.

3.6. Concluding Remarks

This chapter has tried to present a synthesized understanding of the effect of contextual factors on the use of performance measures and to explore some future research avenues. This chapter has examined a number of internal and external factors related to the use of performance measures in private organizations. The findings of this review chapter confirm the notion that traditional contextual factors like size, strategy, intensity of market competition, organizational structure and culture influence the use of performance measures in organizations. At the same time, this chapter identified some unusual factors like product life-cycle stage, nature or type of performance measures use, individual manager influence, reliance on human capital and technological factors also influence the use of performance measures.

However, this chapter has some limitations also. Although a rigorous method is followed, I still might have overlooked some relevant studies that a) has been published in a journal not included in my selected journal list b) has been published in a journal of non- English language c) has been referred to articles beyond my scope of study. Moreover, when analyzing the influence of various contextual factors, I used my own judgment to interpret the variables and relationship of those variables with performance measures' use. My judgment might not match completely with the original authors of the study.

CHAPTER 4
THEORETICAL PERSPECTIVE

4.1. Introduction

This chapter provides the general discussion on various performance measurement frameworks and application of the relevant theory in this thesis paper. During the last two decades a number of performance measurement frameworks such as Balanced Scorecard (Kaplan & Norton, 1992), Performance Pyramid (Lynch & Cross, 1991) are used by researchers. Theories such as contingency theory have been applied by researchers with the aim of explaining rather than simply describing the effect of contextual factors on the use of such performance measurement framework in organizational setting. This thesis employs contingency theory, the notion of Balanced Scorecard and Simon's Lever of Control to explain the findings of the study. Accordingly, this chapter provides relevant discussion on each of these topics; it also provides a complementary perspective and justification for using the theory and performance measurement framework in this thesis. This chapter also provides a brief description of other performance measurement frameworks that were evolved over the past years.

4.2. A Brief Overview on the Frameworks of Performance Measurement

Over the past few years, a number of models have been developed relying on a mix of financial and nonfinancial information. Among them following eight models which are developed after 1980's are briefly discussed. The traditional models which use only financial information are not included in this discussion because many researches and practitioners stress the inadequacy of these models for current managerial needs of the companies (Garengo et al., 2005).

4.2.1. Performance Measurement Matrix (Keegan, Eiler and Jones, 1989)

Performance measurement matrix was the first performance measurement model

that was accepted as a balanced and integrated framework to measure business performance. By means of a hierarchical and integrated approach, this model facilitates a company to define its strategic objectives and translate these objectives into performance measures. To do so, this model categorizes performance measures into four different dimensions, such as, cost, non-cost, internal and external. It is a simple and balanced model reflecting its ability to accommodate any measures of performance (Neely et al., 1995). However, the simplicity of the model is being criticized because of its lack of ability to establish a link between the different performance dimensions (Neely, Adams & Kennerley, 2000). Figure 4 presents the Performance Measurement Matrix:

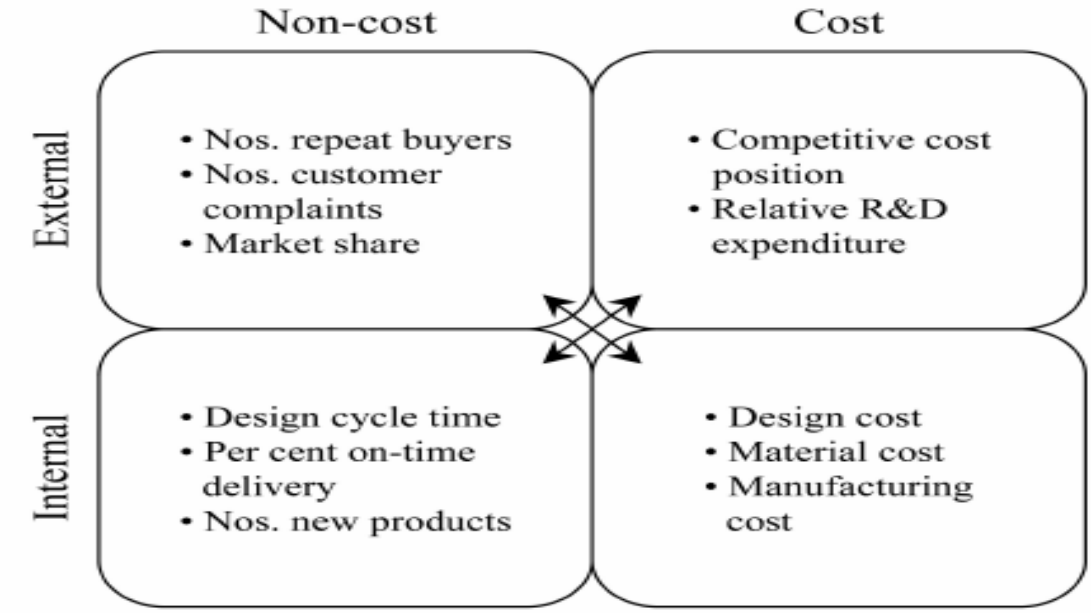

Fig 4.Performance Measurement Matrix (Keegan et al., 1989)

4.2.2. Performance Pyramid (Lynch & Cross, 1991)

The SMART (Strategic Management and Reporting Technique) recommended by Lynch and Cross (1991) is a four level Performance Pyramid showing the links between corporate strategy, strategic business units and operations. The company's strategy which is translated into business unit objectives is at the top of the pyramid. Short term financial performance goals and long term market position and growth goals which can be the business unit objectives are at the

second level. At the third level, the business unit goals are linked to day-to-day operations of the business in term of customer satisfaction, flexibility and productivity. At the lowest level, department and work center operational criteria (quality, delivery, process time and cost) are used; which help the company to successfully implement its strategy. This model supports both the definition of the relationship between the different indicators and the management process.

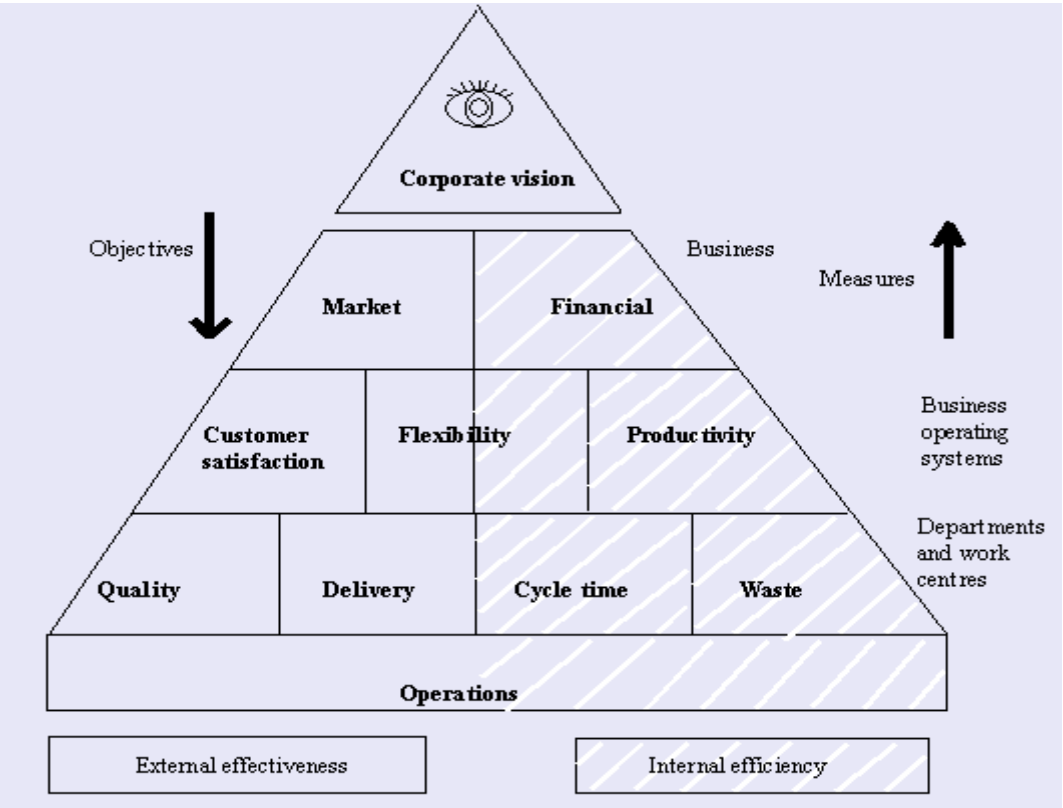

Fig 5. Performance Pyramid (Lynch &Cross, 1991)

4.2.3. Results and Determinants Framework (Fitzgerald et al., 1991)

After a study in service industry Fitzgerald et al. (1991) developed this framework. This framework emphasizes the relationship between results and determinants. In particular, this framework classifies measures into two categories (focusing on six dimensions) divided into results (competitiveness, financial performance) and determinants of these results (quality of service, flexibility, resource utilization and innovation). The framework establishes a link between

present business performances as reflected by results with the business performance of the past as measured by the determinants. “It was developed only for service companies. The authors divided these companies into three types: professional services, service shops and mass service. Each type has specific characteristics that influence how performance is measured (performance variability, intangibility, production and contextual supply, etc.).” (Garengo et al. 2005, p.38)

Table 7. Results and Determinants Framework (Fitzgerald et al., 1991)

Results	Competitiveness Financial Performance
Determinants	Quality Resource utilization Innovation

4.2.4. Balanced Scorecard (Kaplan and Norton 1992, 1996)

In 1992, Kaplan and Norton suggest the business organization for adopting and using Balanced Scorecard to evaluate organizational performance. The BSC, popularized by Kaplan and Norton (1992, 1993, 1996a, 1996b, 1996c) and adopted widely around the world, has been presented as a superior combination of financial and nonfinancial measures of performance. Atkinson et al. (1997) mentioned that “the balanced scorecard is among the most significant developments in management accounting and thus, deserves intense research attention” (p. 94).The development of Balanced Score Card is discussed in table 8.

Table 8. Development of Balanced Scorecard

Year/paper type	Publication title	Key areas covered
1992/Article	The balanced scorecard—measures that drive performance	■ Introduction of balanced scorecard as a foundation for development ■ Balanced scorecard is a superior performance measurement that uses both financial and non-financial measures ■ Identification of the four perspectives: financial; customer; internal business; innovation and learning ■ Balanced scorecard is forward-looking (long-term performance)
1993/Article	Putting the balanced scorecard to work	■ Balanced scorecard is not only a measurement exercise, it is also a management system to motivate breakthrough improvement ■ Balanced scorecard has greatest impact when used to drive a change process ■ Identification that transparency is critical to a successful balanced scorecard ■ Measures on balanced scorecard must be specifically designed to fit firm's mission, strategy, technology, and culture
1996/Book	The balanced scorecard: Translating strategy into action	■ Balanced scorecard has evolved from a measurement system to a strategic management system ■ Identification of four major steps in successful balanced scorecard implementation ■ Reclassification of "internal business process" and "learning and growth", shifting innovation to internal business processes and adding growth element to employee learning ■ Measures are linked to each other in a causal relationship, unlike before, linked to strategy and vision
2001/Book	The strategy-focused organisation: How balanced scorecard companies thrive in the new competitive environment	■ Translating the strategy to operational terms: building strategy maps ■ Aligning the organisation to create synergies: creating business unit synergy ■ Making strategy everyone's everyday job: creating strategic awareness, defining personal and team objectives, the balanced paycheck ■ Making strategy a continual process: planning and budgeting, feedback and learning ■ Mobilising change through executive leadership
2004/Book	Strategy maps: Converting intangible assets into tangible outcomes	■ Visually map strategy ■ A visual cause-and-effect explanation of what's working and what's not, in a way that everyone in the company can understand ■ Helps get the entire organisation involved in strategy
2006/Book	Alignment: Using the balanced scorecard to create corporate synergies	■ Alignment: a source of economic value ■ Corporate strategy and structure ■ Aligning financial and customer strategies ■ Aligning internal process and learning and growth strategies: integrated strategic themes ■ Cascading: the process ■ Aligning boards and investors ■ Aligning external partners ■ Managing the alignment process ■ Total strategic alignment

Adapted from Hoque (2014) p. 36

The measures of the BSC reflect on four areas of business success: financial performance, customer relations, internal business processes, and the organization's learning and innovation activities. The financial perspective reflects how the company wants to be perceived by the shareholder. It includes a diverse set of financial measures, such as, operating income, sales, return on investment, return on equity, cost per unit produced etc. The customer perspective resembles how the company wants to be viewed by the customers. It encompasses measures, such as, customer satisfaction, customer response time, customer retention, customer loyalty, new customer acquisition etc. "Customer-based measures are important, but they must be translated into measures of what the company must do internally to meet its customers' expectation"(Kaplan & Norton,1992, p.74). Therefore, internal business process should be measured with

such indicators that will have greatest impact on customer satisfaction. The internal business process includes product design, product development, post-sales service, manufacturing efficiency, quality etc. Customer perspective and internal business process perspective identifies the parameters that the business considers most important for competitive success. However, the targets of success keep changing and in an intense competitive market, the business organization needs to develop new products and improve the quality of their existing products. Learning and growth perspective helps an organization to do keep focus on all these aspects. Learning and growth perspective includes launch of new service/product, employee satisfaction on job training hours, employees' suggestions etc. Balanced Scorecard is presented in figure 6

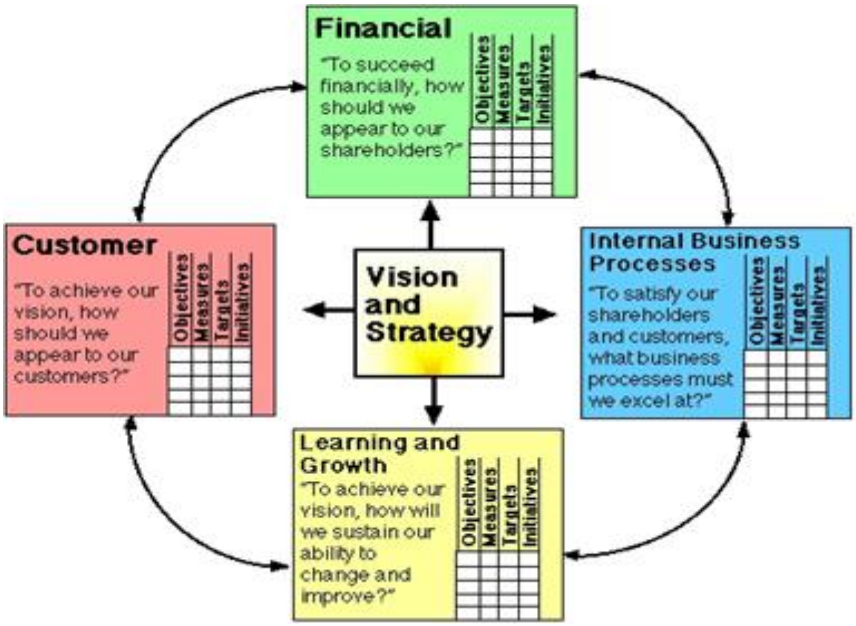

Fig 6. Balanced Scorecard (Kaplan & Norton, 1992)

4.2.5. Integrated Performance Measurement System (Bititci, Carrie & McDevitt, 1997)

Integrated Performance Measurement System (IPMS) is defined as the information system which enables the performance management process to

function effectively and efficiently. Two main facets of this performance measurement system are integrity (the ability of the performance measurement system to promote the integration of various areas of business); and deployment (refers to deployment of business objectives and policies throughout four levels where the higher level becomes a stakeholder of the lower level) (Bititci et al., 1997). According to Garengo et al. (2005)

> "This model is based on four levels (Corporate, Business Units, Business Processes and Activities) and at each of these levels five key factors are considered (Stakeholders, Control Criteria, External Measures, Improvement Objectives and Internal Measures). Business Units, Business Processes and Activities are classified according to their complexity and the uncertainty of the business environment. This classification makes it possible to define the most appropriate type of performance measures, which are classified in internal, external, capability and learning measures (p.38)."

4.2.6. Performance Prism (Neely et al., 2002)

Performance Prism is a stakeholders-centric performance measurement approach. It is a three-dimensional model which aims to measure the performance of the whole organization. This framework is organized around five interrelated perspectives: stakeholders satisfaction (who are our key stakeholders and what do they want and need?), strategies (what strategies do we have to put in place to satisfy the wants and needs of these key stakeholders?), processes (what critical processes do we need to operate and enhance these processes), capabilities (what capabilities do we need to operate and enhance these processes?) and stakeholder contribution (what contributions do we require from our stakeholders if we are to maintain and develop these capabilities?) . A hierarchy of measures is created to answer the questions of the model and the organizations need to select measures for each of the perspective.

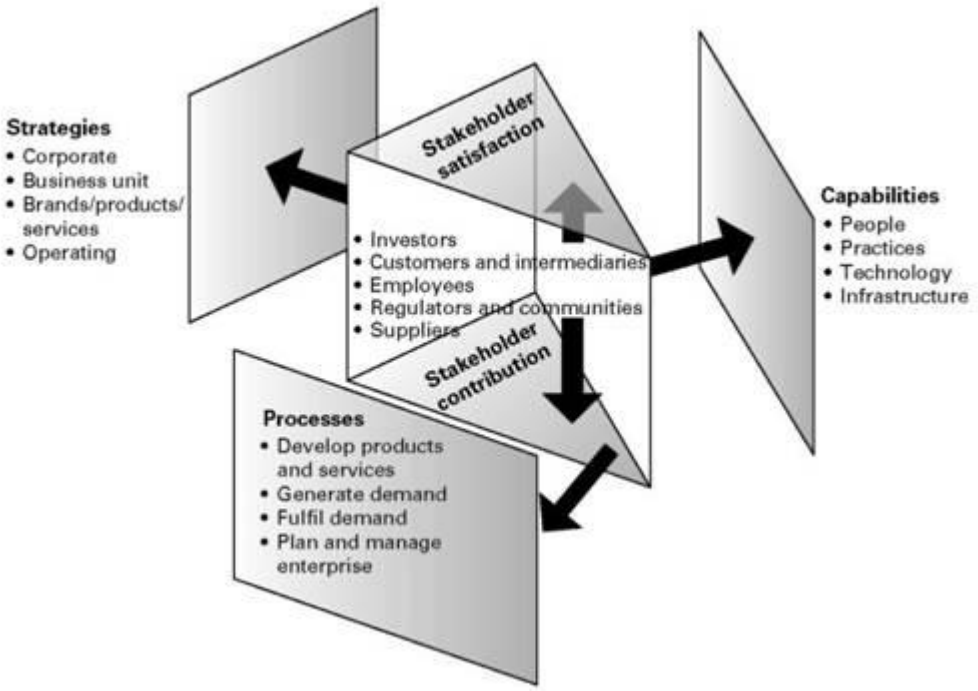

Fig 7. Performance Prism Five Factor Model (Neely et al., 2002)

4.2.7. Organizational Performance Measurement (OPM) (Chennell et al., 2000)

According to Garengo et al. (2005),

> "This model was developed specifically for SMEs and is based on three principles: Alignment, i.e. the selected performance measures support the alignment between people's actions and company strategy; Process thinking, i.e. the measurement system makes reference to the process monitoring, control and improvement systems; and Practicability, i.e. at any level in the company there is a consistent process for identifying measures that should be considered and for ensuring the quality and suitability of data. The frame-work is based on two key management constructs, namely Zone of management and Open systems theory. The first construct describes three zones of management (strategic, tactical and operational) with different authority,

responsibility and accountability. The second one focuses on the company's environment, using stakeholder satisfaction analysis. In this model, the most important indicator is stakeholder satisfaction." (p.39)

4.2.8. Integrated Performance Measurement for Small Firms (Laitinen, 1996, 2002)

This model was particularly designed for SMEs. This model is a hybrid accounting system connecting the traditional view and the activity-based costing together in a causal chain.

> "It is based on seven main dimensions of measures, classified as two external dimensions (financial performance and competitiveness) and five internal dimensions (costs, production factors, activities, products and revenues) connected by a causal chain. The internal dimensions are used to monitor the whole production process, and the external dimensions are used to monitor the company's position in its competitive context" (Garengo et al., 2005, p.39).

4.3. Simon's Lever of Control

The Levers of Control model suggested by Robert Simons (1995) has received significant attention in literature. However, this model is descriptive and it does not elucidate the causal relationship among four levers of controls. The idea of this descriptive model (Levers of Control) has been put forward by identifying the existence of sets of control mechanisms (Simons, 1991, 1995). According to Strauß &Zecher (2013)

> "Four key constructs form the level of analysis as critical indicators for a successful implementation of business strategy: Core values, risks to be avoided, critical performance variables, and strategic uncertainties. Consequently, beliefs, boundary, interactive, and diagnostic control

systems as the four levers of control each address one of these key constructs"(p.249).

The following quote signifies the thinking of Simons (1995, 2000) regarding the four Levers of control:

> "These four levers create the opposing forces—the yin and yang—of effective strategy implementation. In Chinese philosophy, positive and negative forces are opposing principles into which creative energy divides and whose fusion creates the world as we know it. Two of these control levers—beliefs systems and interactive control systems—create positive and inspirational forces. These are the yang: forces representing sun, warmth, and light. The other two levers— boundary systems and diagnostic control systems—create constraints and ensure compliance with orders. These are the yin: forces representing darkness and cold." (Simons, 1995, pp.7–8).

Thus, the necessity of integrating different kinds of controls and balancing opposing forces is key element of Simons' Levers of Control (1995, 2000) philosophy.

The first type of control mechanism that Simons (1995, 2000) present is beliefs systems which "are the explicit set of organizational definitions that senior managers communicate formally and reinforce systematically to provide basic values, purpose, and direction for the organization" (Simons, 2000, p. 276). Consequently, belief systems represent mission and vision statements, credos, and statements of purpose. Through these systems management creates and communicates the organization's values to drive employee's motivation and direct individual opportunity-seeking (Simons, 1995). "Beliefs systems appeal to the innate desires of organizational participants to belong and contribute to purposive organizations" (Simons, 2000, p. 303). "Although Simons (1995, 2000) focuses this belief system on formal procedures, he also recognizes the

importance of (informal) believes and values for management control" (Strauß & Zecher, p.250).

The second category comprises boundary systems as "explicit statements embedded in formal information systems that define and communicate specific risks to be avoided" (Simons, 2000, p. 764). "Though these systems represent negative forces and set limits on the search for (strategic) opportunities, the purpose of those systems is to stimulate the creativity of individual organizational participants within predefined boundaries. Boundary systems include codes of business conduct, strategic planning systems, asset acquisition systems, and operational guidelines. When the organization's reputation is crucial or when excessive opportunity-seeking behavior endangers an organization's resources, the use of boundary systems is recommended by Simons (1995) (Strauß &Zecher, p.250)."

The third category diagnostic control systems play a vital role in the process of transforming intended strategies into realized strategies since; they are used for defining goals and monitoring the achievement of goals. "The primary function of diagnostic control systems is to align the employees' behaviors towards organizational objectives, to measure the results of their actions, and to reward the performance" (Hofmann et al., 2012, p.155). Diagnostic control systems are defined as "the formal information systems that managers use to monitor organizational outcomes and correct deviations from preset standards of performance" (Simons, 2000, p. 209). According to Henri (2006[a]) "the diagnostic use comprises the review of critical performance variables (i.e., factors enabling the achievement of intended strategy) to monitor and coordinate the implementation of intended strategies" (p.533). Example of diagnostic control systems includes budgets, project monitoring systems, performance management and measurement, business plans, incentive systems and compensation systems.

On the other hand, interactive control systems focus on emergent strategy. Interactive control systems represent "formal information systems managers use to involve themselves regularly and personally in the decision activities of subordinates" (Simons, 1995, p 95). "Since interactive control systems focus organizational attention on strategic uncertainties and stimulate the emergence of new strategic initiatives, they can be used at each point in time and are not restricted to particular situations. Examples for systems that can be used interactively are project and profit planning systems (Strauß &Zecher, p.251)." To elucidate the characteristics of interactive control systems Simons (1995, p. 97) stated that

> "All interactive control systems have four defining characteristics: 1. Information generated by the system is an important and recurring agenda addressed by the highest levels of management; 2. The interactive control system demands frequent and regular attention from operating managers at all levels of the organization; 3. Data generated by the system are interpreted and discussed in face-to-face meetings of superiors, subordinates and peers; and 4. The system is a catalyst for the continual challenge and debate of underlying data, assumptions and action plans".

While the diagnostic use of control systems is helped to implement intended strategies, the interactive use served as a basis for the formation of emergent strategies. Such interplay contributes to predictable goal achievement and innovation. An idiosyncratic feature of Simon's Lever of Control is that the four types of control are interconnected. An organization needs to establish and balance all four types of control mechanism to successfully control the organization. According to Simons (2000),

> "The power of these levers in implementing strategy does not lie in how each is used alone, but rather in how they complement each other when used together. The interplay of positive and negative forces creates a

dynamic tension between opportunistic innovation and predictable goal achievement that is necessary to stimulate and control profitable growth (p. 301)."

The above discussed four 'Lever of Control' is presented below:

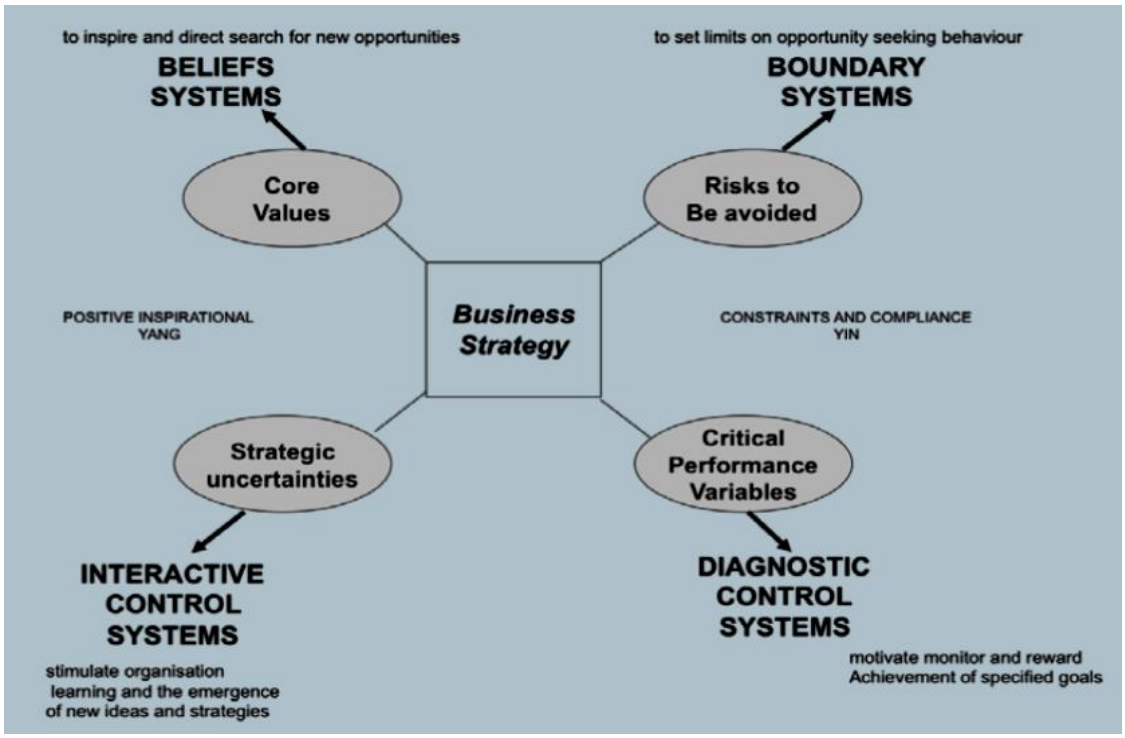

Fig 8. Levers of Control Framework (Simons, 1995, p.7)

4.4. Contingency-based Approach

Contingency theory based thoughts started from the work of Burns and Stalker (1961) who introduced the idea of different management systems depending on the level of environmental change. Lawrence and Lorch (1967[a];1967[b]) launched the term contingency theory and stated that the amount of differentiation and integration has to be fine –tuned according to the level of environmental change, while Chandler(1962) elaborated on the strategy and structure paradigm. Contingency theory took place in response to the universalistic approach of management accounting systems that argues that optimal system design applies to all settings and business (Fisher, 1995, 1998).However, the argument of

contingency theory is that organizations must design and use their management accounting systems based on the contingencies such as the external environment, organizational size and business strategy etc, if the organization has to perform well (Burns & Stalker, 1961; Woodward, 1965). The higher the fit between organizational contextual factors and design and use of management accounting systems, the greater will be the performance and effectiveness of the organization. This fit-performance relationship is the core idea of the contingency theory paradigm. Furthermore, the fit concept of contingency theory is explained in three ways by Gerdin and Greve(2008). These are: Congruence *vs*. Contingency: "Is fit postulated, or must it be explicitly shown that deviations from optimal context/structure combinations lower organizational performance?" (p.997). Cartesianism *vs.* Configurationalism: "Is fit a continuum between pairs of contingency and structure dimensions that allows frequent and small movements by organizations from one state of fit to another, or is it the internal consistency of multiple contingency and structural elements with organizations having to make 'quantum jumps'?" (p.997).Matching vs. Multiplicative relationships: "Is fit a line with many optimal combinations of context and structure where any deviations affect performance equally, or is it assumed that there are only two optima and that the effect of deviations differs across different levels of context?" (p.997).

Contingency theory argues that there is no universally accepted management accounting systems and the effectiveness of a particular management accounting systems depends on the context of an organization and in a particular situation one system will outperform other systems. In addition, problematic view of universalistic approach and inapplicability of the empirical results of universalistic framework arise the fundamental appeal of contingency theory. Over the years, many new studies have been carried out using the contingency theory and a series of review articles have been published to synthesize the results of previous studies and to provide the overall picture of the field of study. In his overview of the contingency theory of management accounting, Otley (1980) specifies that "a contingency theory must identify

specific aspects of an accounting system which are associated with certain defined circumstances and demonstrate an appropriate matching." (p.413). As regard to the use of contingency theory in management accounting research he argues to put attention on three areas; "first, what are the aspects of the management accounting system that are to be explained? In particular, are we concerned just with the existence of specific techniques in an organization, or also with the extent and manner of their use?.....Second, how are the defined circumstances to be selected?" (Otley, 2016, p.46) and instead of considering the fit between organizational contingencies and the design and use of management accounting systems will help organization perform better it may happen that "performance is also an independent contingent variable in its own right which can explain the extent to which reliance is placed on accounting systems in an organization (Otley, 2016, p.47)."

Contingency theory is subject to criticism by many scholars for some reasons. The main drawbacks of contingency theory can be summarized as follows. First, it is almost impossible for any researcher to make a full list of contingency factors and it leads to an exhaustive amount of variables. For example, "Hofer (1975) identified 54 environmental and organizational variables. Schmid and Kretschmer (2010) listed 49 contingency factors attributed to strategy and management, structure and integration, market and technology, environment and general ones" (Hanzlick, 2015, p.54). Logically, it is impossible to consider a full list of contingency variable in empirical research and that is why, only a few contingency factors are explored and elaborated in any given empirical research at a certain point of time (Fisher, 1995, 1998). A second criticism is concentrated on the definition of effectiveness. Effectiveness does not mean only the higher financial performance of an organization. Other issues such as long-term firm survival, market share, customer and employee's satisfaction may also be the target of many organizations. In that sense, organizational effectiveness means the attainment of specific goal for an organization. If researchers apply only the viewpoint of high annual performance, it could be short sighted (Fisher, 1998).

Third, “contingency is a general idea rather than a theory” (King, Clarkson & Wallace, 2010, p.42). Contingency factors may differ across studies and thus, contribute less to cumulative knowledge (Otley, 1980). Fourth, contingency-based research is being criticized for its simplistic approach and considering one contextual factor at a time (Fisher, 1995). To overcome this criticism researchers are now using many contextual factors at a time.

Despite the above mentioned criticism, contingency theory is still a popular theory to use on management accounting research.

4.5. Synthesis of Theories and Framework of the Study

To overcome the criticisms of contingency theory discussed in previous section, I do not use contingency as a theory, rather by following the approach of King et al. (2010), I use contingency as a conceptual framework. Contingency framework applied in this thesis paper to explore the factors act as a primary determinant of a firm’s decision to adopt Multi-Perspective Performance Measures and then its subsequent decision to the extent of use. Contingency framework used in this study recognizes that there are many contingency variables which can affect the performance measurement practices. Furthermore, as contingency theory does not have any previous intuition about the contingent variables and their consequences, I use contingency framework for investigating identified factors for which I have a prior intuition based on other organizational, economic and sociological theories (King et al., 2010). Thus, the logical arguments predicting and explaining the relationships are different for each variable. Moreover, in this study, I examine multiple contextual factors which are identified by Chenhall (2003) and Otley (2016) in their review of contingency based literature since 1980. These reviews validated size, structure, information system and characteristics of external environment as some important elements of context for an organization.

Besides that, to capture the notion of Multi-Perspective Performance Measures, I use the four perspectives of BSC. However, to conceptualize Multi-

Perspective Performance Measures, I follow the arguments of Hoque and James (2000) and our Multi-Perspective Performance Measures do not consider the strategic linkages of a real BSC use [2]; it does only consider firms' tendency to use financial and nonfinancial measures (extent of reporting) in assessing organizational performance. The construct "Multi-Perspective Performance Measures" is connected to the idea of BSC that financial measures alone are not sufficient (Hoque & James, 2000). The notion of BSC is used in this study because BSC is widely used around the world and it is easy to capture the nonfinancial performance measures by using the notion of BSC.

Lastly, to capture the 'style of use' of Multi-Perspective Performance Measures, I use Simon's (1995) distinction between diagnostic and interactive use of management accounting systems. However, I adopt this distinction to examine the use of one particular component of management accounting systems named "multi-perspective performance measurement practice". As my experimental setting is SMEs and the operations of SMEs are simple in nature, I did not use the other two component of the Simon's Lever of Control Framework.

4.6. Concluding Remarks

This chapter provides a generic discussion of Performance Measurement Matrix, Performance pyramid, Results and determinants Matrix, Balanced Scorecard, Integrated Performance Measurement Systems, Performance Prism, Organizational Performance measurement, and Integrated Performance

[2] SMEs might not need to adopt any sophisticated performance measurement practice because the management of SMEs needs focus, clear and useful information (Laitinen, 2002). Furthermore, According to Garengo et al. (2005), most of the SMEs may not have any formalized strategy and using a performance measurement system may help those firms to formalize their strategy.

Measurement for Small Firms. This chapter also discussed in detail about Simon's Lever of Control and Contingency Theory. Discussion on all these topics provides a comprehension about the relevant concepts of this thesis paper. This chapter also discusses the synthesis of the relevant concepts applies to this thesis paper. The next Chapter will discuss the research hypothesis formulated using these concepts.

CHAPTER 5
HYPOTHESIS DEVELOPMENT

5.1. Introduction

This chapter will discuss in details about the hypotheses that are used to test the research issues of this thesis paper. The research variables which are used in this study are organizational size, organizational structure, functionality of information systems, characteristics of external environment, industry type , nature of performance measure' s use. These variables are chosen following the literature review and these variables are considered important contextual factors for business firms.

5.2. Hypothesis Development for Adoption and Extent of Use

5.2.1. Size

Size is considered to have an effect on management accounting practices in organizations (Burns & Stalker, 1961; Lawrence & Lorsch, 1967; Woodward, 1965). According to Chenhall (2003), "large organizations are associated with more diversified operations, formalization of procedures and specialization of functions (p.149)." Therefore, large organizations require more information to make appropriate decisions regarding the improvement of their activities. On the contrary, "small companies frequently do not require elaborate performance evaluation techniques, as the strategy setters, usually the owners, are close to the action" (Hoque& James, 2000, p.3).

Moreover, small businesses can often be managed with informal management approach such as direct supervision and oral communication (Lawrence & Lorsch, 1967). For small businesses informal interactions are sufficient to fulfill the information needs. However, as the number of employees increases in an organization, the number of informal communications among organizational members also increases in a fast pace. Consequently,

organizational members have to assign an increasing amount of time to maintain a growing number of informal interactions. This time could be invested in more value-added activities. As a result, maintaining informal interactions become costly and the efficiency of an informal management approach decreases with size. Hence, to manage the organization efficiently, management accounting systems formalize the communication and coordination, and decrease cost of informal communication (Davila, 2005; Davila & Foster, 2005; Levitt &March, 1988). Consistent with this argument Davila and Foster (2005) expect that larger number of employees is associated with the faster adoption of Management Accounting Systems.

Further, in terms of a business's ability to invest in the adoption and use of Multi –Perspective Performance Measures, it could be assumed that SMEs may perceive the cost of adopting Multi-Perspective Performance Measures are high and their operations are too small to realize benefit from them. On the other hand, large firms have greater financial and human resources (Uyar &Kuzey, 2016; King et al., 2010). According to Abdel-Kader and Luther (2008) "Management Accounting Practices are subject to economies of scale, and investment in sophisticated systems was expected to be more readily justified in large businesses" (p.21). Therefore, it is easier for large firms to adopt and implement sophisticated performance measurement techniques.

Consistent with the above argument, we assume that the fixed cost related to the adoption and use of multi-perspective performance measurement practice could be a key issue for Japanese SMEs. Therefore, it is likely that only larger SMEs have both the need for and the resources to invest in the adoption and use of multi-perspective performance measures. Smaller SMEs are less likely to be capable to divert their scarce resources away from primary revenue generating activities. Thus, we predict a positive relationship between firm size and multi-perspective performance measurement practice. We formulate the first hypothesis in two parts, as follows:

H_1: The decision to adopt Multi-Perspective Performance Measures to evaluate organizational performance is positively associated with firm's size.

H_{1a}: The extent of Multi-Perspective Performance Measures use to evaluate organizational performance is positively associated with firm's size.

5.2.2. Organizational Structure

"Organizational structure is about the formal specification of roles for organizational members or tasks for groups to ensure that the activities of the organization are carried out" (Chenhall, 2003, p.144). Lawrence and Lorsch (1967[b]) conceptualize organizational structure as the way in which the organization is differentiated and integrated. Differentiation is concerned with the extent to which managers' act as quasi-entrepreneurs, and is implemented by decentralizing authority (Lawrence & Lorsch, 1967). According to Chenhall and Morris (1986) decentralization is the degree of autonomy delegated to managers. Gosselin (1997) uses decentralization, formalization and hierarchy as determinants of organizational structure. Because of the small size of the sample firms, I use only decentralization as a determinant of organizational structure. According to D'Amboise and Muldowney (1988), "because of size, in the small firm, there is less interpersonal and structural differentiation in response to task diversity, and departmental interdependencies often are more personalized than in large firms" (p.227). Thus, SMEs has less organizational hierarchy and centralized business structure.

In a centralized organization, decision making is confined to owners and managers whereas a decentralized organization delegates decision-making to lower level employees' and operational staff (King et al., 2010) Hence, decentralized firms need a Management Accounting System that makes relevant information available to support managers' in planning, controlling and decision-making. Abdel-Kader and Luther (2008) find that more decentralized managerial structures require more sophisticated Management Accounting Practices to provide managers more relevant information. Furthermore, decentralization of

authority encourages widespread communication within the firm. This characteristic creates greater information processing requirements for proper coordination, communication and control at lower levels (Galbraith, 1973; Gordon & Narayanan, 1984). Multidimensional information is, therefore, required to assist the diverse decisions made by decentralized managers (Chenhall& Morris, 1986).

Thus, I consider organizational structure as a potential determinant of a firm's initial decision to adopt Multi-Perspective Performance Measures. I also hypothesize that SMEs that have attained the threshold size and use multi-perspective performance measures, organizational structure could have the potential to influence its subsequent decision regarding the extent of use. I express my second hypothesis in two parts, as follows:

H_2: The decision to adopt Multi-Perspective Performance Measures is positively associated with organizational structure (decentralization).

H_{2a}: The extent of Multi-Perspective Performance Measures use is positively associated with organizational structure (decentralization).

5.2.3. Functionality of Information Systems

Functionality of information system is very important for business organizations to provide accurate, timely and robust information. According to Uyar and Kuzey (2016) "functional Information Technology integrates the units of organization, facilitates users' queries, provides past data, offers cost and performance data, and updates real-time data" **(**p.103). Researcher find that advanced information system is a contextual factor that favors the use of a performance measurement system (Bititci, Nudurupati, Turner & Creighton, 2002; Bourne, Neely, Platts & Mills, 2002; Franco & Bourne, 2003; Garengo & Bititci, 2007).

Innovation in information technology makes it easier to collect and make use of large amounts of data at a lower cost. This is particularly significant for SMEs, as they have limited financial resources (Garengo et al., 2005). Existing

literature find that SMEs are likely to have simpler information systems than large firms (Curran, 2006) and generally a poorer information system infrastructure. The reason behind this can be explained in many ways. First, in SMEs, internal communication processes are less formal and managers gather information through direct communication with employees and other members of firms (Street & Meister, 2004) which reduce the need for formalized data gathering and information based- communication processes. Second, functionality of information systems requires costly investment. As SMEs have resource scarcity and less ability to take advantage of economies of scale (Aragón-Sánchez & Sánchez-Marín, 2005), it is very obvious that most of the SMEs will not be willing to invest heavily in information systems to get more information about various performance aspects rather they will invest their scarce resources in short-term revenue generating activities. Therefore, those SMEs who already have a functional Information System will be more willing to adopt and use Multi-Perspective Performance Measures to evaluate organizational performance. Hence, I formulate the following two hypotheses:

H_3:.The decision to adopt Multi-Perspective Performance Measures is positively associated with having an existing functional of information system.

$H3_a$: The extent of Multi-Perspective Performance Measures use is positively associated with having an existing functional of information system.

5.3. Hypothesis Development for Nature of Use

5.3.1. Environmental Dynamism and Hostility

Dynamism refers to the changes of market related factors over the course of time (Duncan 1972).Particularly, market dynamism represents strategic uncertainties. Managers make different choices regarding the nature of management accounting and control systems use to manage uncertainties (Hofmann, Wald & Gleich, 2012).

High environmental uncertainty is connected with an explanation of variances from predetermined goals and, a high involvement and interpersonal interactions between superiors and subordinates (Ezzamel, 1990). Merchant (1990) found that uncertainty was associated with pressure to meet financial targets. On the other hand, environmental hostility has been related to a strong emphasis on meeting budgetary targets (Otley, 1978). According to Chenhall (2003) "a consistent stream of research over the past 20 years has confirmed that uncertainty has been associated with a need for more open, externally focused, nonfinancial styles of management control systems. However, hostile and turbulent conditions appear, in the main, to be best served by a reliance on formal controls (pp.137-138)."

Moreover, in a dynamic business environment planning becomes more difficult because probabilities cannot be easily attached to future events. Therefore, greater informal communication is needed for effective decision making (Chapman, 1997).However, "hostility has been shown to be associated with a greater reliance on accounting controls (especially budgets)" (Otley, 2016, p.50).

Accounting controls are formal control mechanisms which mostly resembles to the diagnostic use and flexible style of control resembles to the interactive use. Therefore, from the above discussion, it can be inferred that environmental dynamism has a positive effect on both diagnostic and interactive use. On the other hand, environmental hostility has a positive effect on diagnostic use. Therefore, I restricted the hypotheses formulation for the impact of dynamism and hostility on interactive use and hostility on diagnostic use. While the impact of hostility on interactive use remains as a question to be examined.

H_4: Environmental dynamism is positively associated the interactive and diagnostic use of Multi-Perspective Performance Measures.

H_{4a}: Environmental hostility is positively associated with diagnostic use of Multi-Perspective Performance Measures.

Q1: What is the impact of environmental hostility on interactive use of multi-perspective performance measures?

5.4. Control Variable

5.4.1. Characteristics of External Environment

Small business is more vulnerable to the effects of external environment. As small business has limited financial and human resources, they spend more time adjusting to external turbulence than predicting or controlling it. “Given the vulnerability of the small firm to changes in the environment, its survival depends to a large extent on how it interacts” (D’Amboise & Muldowney, 1988, p.227).

Previous studies (for example, Gordon &Narayanan, 1984) use two elements of external environment; the dynamic nature of the environment (dynamism) and the level of competition (hostility)**.** However, following the approach of Hansen and Stede (2004), I use a more focused view of external environment and consider intensity of market competition as a measure of external business environment. Market competition is considered as an important contextual factor for the use of multiple performance measures to evaluate organizational performance (Hoque, Mia & Alam, 2001). Lynch and Cross (1991) argue that firms experiencing tough competition are likely to use Multi-Perspective Performance Measures because such measures improve competitiveness by scrutinizing a firm’s static and dynamic competencies. Previous studies suggest that market competition is positively associated with the use of performance measures. For example, Hoque, Mia and Alam (2001) investigate how intensity of market competition affects the use of multiple measures of performance and reveal a positive and significant association between the intensity of market competition and use of multiple measures for performance evaluation. However, Lee and Yang (2011) do not find any significant influence of market competition on the use of performance measurement systems. Therefore, the effect of market competition on the use of performance measures is inconclusive and hence, in my present study, I include market competition as a control variable.

5.4.2. Industry Type

Industry type may influence the use of performance measures. For example, Speckbacher, Bischof and Pfeiffer (2003) evaluate the companies which adopted a particular type of BSC and the companies which did not. Their analysis reveals that BSC usage is lower for firms included in the "consumer& retail" industry and they do not find any significant difference among other industries. However, Abdel-Maksoud, Dugdale and Luther (2005) find a significant result about existence and importance of shop floor nonfinancial performance measures across industry sectors. So, the empirical result regarding the influence of industry type on the use of performance measures is inconclusive. As I collected data from various industry categories, I choose industry type as a control variable.

5.5. Concluding Remarks

This chapter provides an overview about the research hypothesis of the quantitative part of the thesis. This chapter also discusses in details about the development of hypotheses in details. The hypotheses used to address the research phenomena in this thesis paper are developed based on the previous research articles which are relevant to use.

In the next chapter research methodology used in this study will be discussed.

CHAPTER 6
RESEARCH METHODOLOGY

6.1. Introduction

This chapter discusses in detail about the research methodology used in this thesis. In this thesis paper, I used a triangulation approach to address the research issues. I collected quantitative and qualitative data. Hence, this chapter is divided in two parts: quantitative method and qualitative method. In quantitative part, I discussed about quantitative data collection, variable measurement and empirical model used to test the hypothesis; and test and remedies for measurement error. In qualitative part, I explained in details about the interview process for qualitative data collection. The research methodology is explained in details in the following sections of this chapter.

6.2. Research Strategy

In this thesis paper, I used a mixed method research approach. The most common and well established approach to mixed method research is triangulation. The purpose of this design is "to obtain different but complementary data on the same topic" (Morse, 1991, p. 122) to best understand the research problem. Triangulation approach helps researcher to use different methods in an attempt to confirm, cross-validate, or corroborate findings within a study (Creswell, 2003).

In this thesis paper, quantitative and qualitative method research methods are used to collect data; and analyze and explain the findings. A blend of quantitative and qualitative methodologies can maximize the strengths and minimize the weaknesses of each research paradigm. In this thesis paper, I used the quantitative method to test the research hypothesis. On the other hand, I used the qualitative method to cross check and validate the quantitative result of the study. Hence, the research methodology chapter is divided in two parts:

quantitative method and qualitative method. The following research strategy was used in this thesis paper:

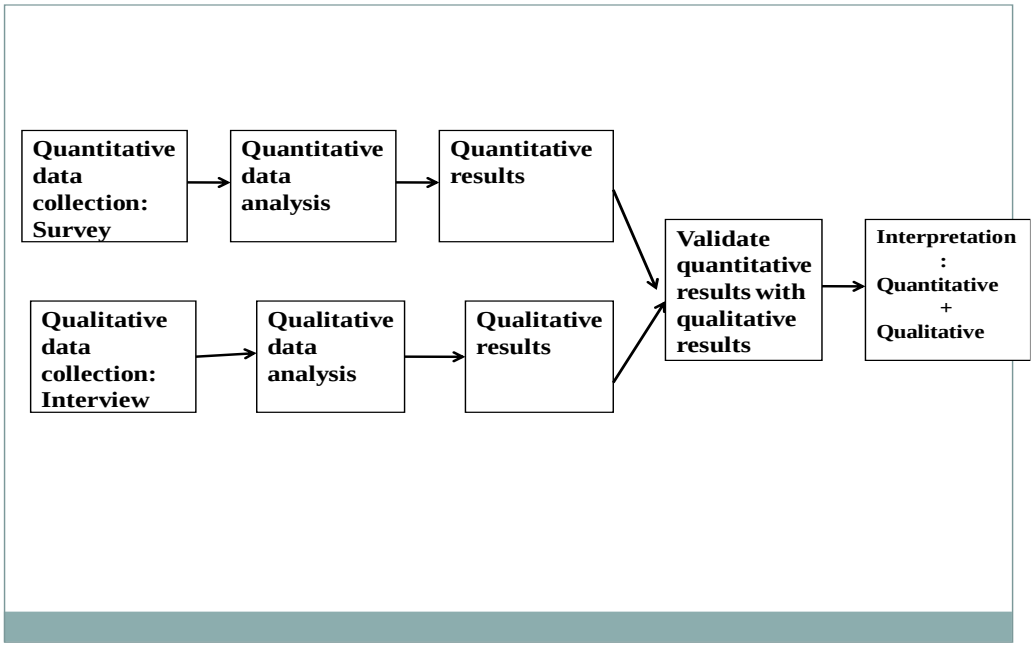

Fig 9. Research Strategy

6.3. Quantitative Method

6.3.1. Sample and Data Collection

Japanese SMEs who have regular employees 10 or more and 300 or less are the target population for this study. A structured written questionnaire survey was employed to collect data from the SMEs. The questionnaire was sent to the respondent through email by Neo Marketing Inc.

The main form of survey administration is explained by Byrman and Bell (2011, p.175) and Hair, Wolfinbergar, Money, Samouel & Page (2011, p.187). In the figure 10 these forms are depicted. The difference between structured interview and self administered questionnaire is that in self administered questionnaire the interviewer does remain present. In the interview setting, the interviewer communicates the questions to the interviewee. The advantage of interview is that it helps the respondents to understand the question easily. It also helps to reach

the right respondents and to minimize the risk of missing data. Face- to- face conversation helps the respondents to read and understand the questions thoroughly whereas telephone data collection method allows only limited time to answer the questions.

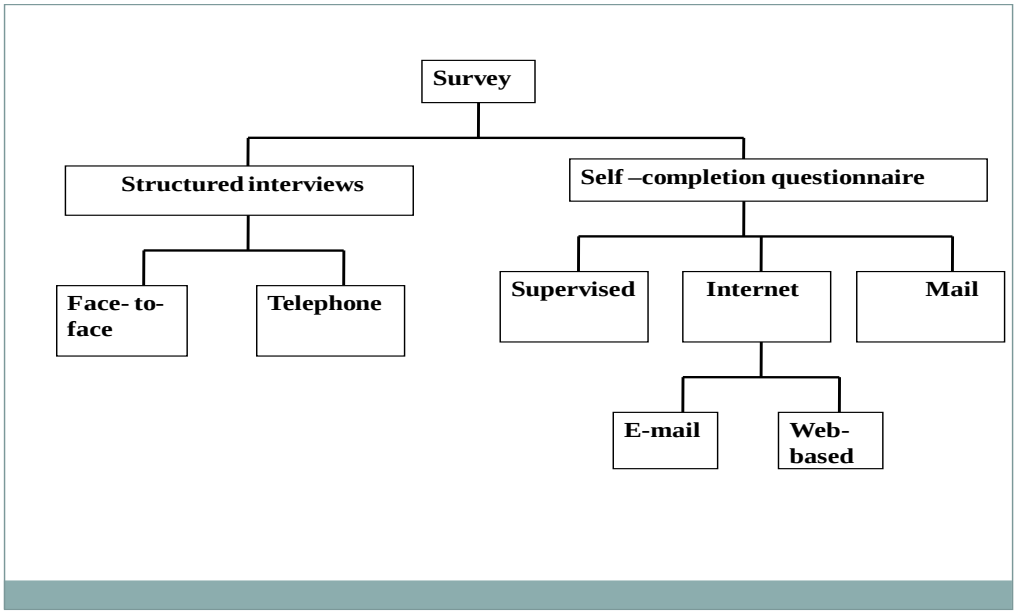

Fig.10. Form of Survey

In contrast, the advantage of self-administered questionnaire in form of mail, e-mail and web-based surveys are that these forms of data collection are less costly as the interviewee does not have travel to collect data. E-mail and web-based data collection also save time as all the questionnaire can be sent at a time. Besides that any possible interviewer effect that might influence respondents to answer in a specific way can be eliminate through mail, e-mail and web-based surveys. A greater sense of anonymity may help the respondent answer the survey questions more cautiously and with less fear. Furthermore, the respondents can answer the questionnaire at their own convenient time which may trigger the respondent to answer the questionnaire more willingly (Hanzlick, 2015). Therefore, it is logical to use a web-based survey method to collect data for this thesis paper.

However, in survey based research, it is difficult to identify and access appropriate respondents, and then to achieve a satisfactory response rate (Dillman, 2000). To mitigate this problem, I took assistance from a professional firm named Neo Marketing Inc. Neo Marketing Inc. is a management consultancy firm who helps researchers and academics to collect survey data.

I instructed Neo Marketing Inc. to send questionnaire only to those firms who have regular employees 10 or more and 300 or less. By using the technique simple random sampling[3], Neo Marketing contacted with 577 SMEs in Japan to participate in the survey. Those 577 firms are participant firms for this study. Neo Marketing maintained anonymity of the respondent firm and did not provide me the name of the responding firm or the responding person. After initial contact, it took almost one month for Neo Marketing Inc. to conduct a web based survey. Neo Marketing Inc. sent the survey link to the top management team of the participant firm. The top management team of the firms includes; general manager/ member of management team, company executive and other employees. Finally, Neo Marketing provided me data of 500 firms. Out of those 500 firms, 121 firms did not give any opinion regarding an explicit question on whether their firms use financial and nonfinancial performance indicators to evaluate organizational performance or not. So, I got response from 379 firms to conduct our statistical analysis.

After excluding extreme outliers [4], incomplete responses and firms that have regular employees less than 10 or more than 300, I was able to use 320 responses as the final sample for this study. Therefore, the response rate [5] for this study is 56%. As I employed professional firm to collect the survey data, the response rate is higher than other survey based studies on SMEs, such as, King et al. (2010); Uyar and Kuzey(2016).

6.3.2. Questionnaire Design

I prepared the initial questionnaire in English and developed it from the existing literature. I then translated the original questionnaire to Japanese language as most of my target respondents might not understand the English questionnaire. To translate the questionnaire, I employed the translation procedures suggested by Hofstede (1980). The same translation procedure is also used by Lau and Sholihin (2005). This procedure includes three different steps. First, one research student who knows English and Japanese very well translated the questionnaire from English into Japanese. Second, another research student who also knows English and Japanese translated back the Japanese version of the questionnaire to English. Finally, I cross checked the translated English version of the questionnaire with the original English version to ensure that the translation had been perfectly carried out.

I then pilot tested the Japanese version of the questionnaire on one academic researcher, one manager of a small business and one member of a management consultancy firm who advises SMEs. After receiving recommendations from them, I changed the wording and layout of the questionnaire to improve understandability by the respondents. The survey questionnaire was then sent to Neo Marketing Inc. for further screening and pilot testing. Neo Marketing Inc. also made necessary correction and sent me the questionnaire for final approval. I then asked Neo Marketing Inc. to start the questionnaire survey. The constructs of the questionnaire were adapted from the existing literature and a brief overview of the questionnaire items are given below.

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[3] In simple random sampling, each element in the population has an equal chance of being selected. The advantage of simple random sampling is that it is free from selection bias. Easy availability of sample from population is not possible in simple random sampling rather sample collection depends on random selection.

[4] Extreme Outliers are checked by box plots.

[5] The response rate is calculated as the percentage of the number of usable responses (320) to the number of total participants (577).

Table 9. Questionnaire Items for Constructs

Constructs	Nature of Constructs	Source
Extent of Use	Multiple Items	Lee and Yang (2011); Van der Stede et al. (2006).
Size	Single item	King et al. (2010); Speckbacher and Wentges (2012); Uyar andKuzey (2016); Chenhall (2003); Hansen and Stede (2004); Winata and Mia (2005).
Organizational Structure	Multiple items	Khandwalla (1973); and Gordon and Narayanan (1984).
Information Systems	Multiple items	Krumwiede (1998)
Market Competition	Multiple items	Castrogiovanni (1991);Tan and Litschert (1994); and Miller and Friesen (1983).
Organizational Performance	Multiple items	Deshpande, Farley, and Webster (1993).
Nature of use	Multiple items	Vandenbosch(1999)
Environmental Dynamism	Multiple items	Gordon and Narayanan (1984),Govindarajan (1984).
Environmental Hostility	Multiple items	Castrogiovanni (1991); Tan and Litschert (1994); and Miller and Friesen (1983).

6.3.3. Empirical Model

6.3.3.1 Empirical Model for 'decision to adopt' and 'extent of use'

Given the framework of this study, I use the following empirical model to examine a firm's 'decision to adopt' and 'extent of use' respectively.

$$Multi\_PPMi\_du = \beta 0 + \beta_1 ln\_size + \beta_2 org\_struc + \beta_3 IS\_func + \beta_4 mkt\_comp + \beta 5\ ind\_type + e_i \quad (1)$$

$$Multi\_PPMi\_eu = \beta 0 + \beta_1 ln\_size + \beta_2 org\_struc + \beta_3 IS\_func + \beta_4 mkt\_comp + \beta 5\ ind\_type + e_i \quad (2)$$

For the decision to adopt, based on H_1, H_2 and H_3;β_1, β_2 and $\beta_3$are predicted to be positive in equation 1. For the decision to extent of use, based on H_{1a}, H_{2a} and H_{3a};β_1, β_2 and $\beta_3$are predicted to be positive in equation 2. Market competition (*mkt_comp)* and industry type (*ind_type*) are added to the model as control variable for the likelihood that Multi-Perspective Performance Measures adoption and use may vary depending on intensity of market competition and industry type of a firm.

6.3.3.2. Empirical Model for Nature of Use

I apply the following empirical models to examine a firm's nature of performance measures' use.

$$dia\_use = \beta 0 + \beta_1 en\_dyn + \beta_2\, en\_host + ei \quad (3)$$

$$int\_use = \beta 0 + \beta_1 en\_dyn + \beta_2\, en\_host + ei \quad (4)$$

Based on H_4 and H_{4a}, I predicted $\beta_1$and β_2 to be positive in equation 3. For the interactive use, I predicted $\beta_1$to be positive and I do not have any prediction for $\beta_2$in equation 4.

6.4. Research Variable Measurement

6.4.1. Variables and Measures for Decision to Adopt and Extent of Use

6.4.1.1. Dependent Variable Measurement

6.4.1.1.1. Decision to Use/Adopt

To examine the decision to use, I measure "*Multi_PPMi_du*" as a binary variable. I set "*Multi_PPMi_du*" equal to 1 if a firm indicates, in response to an explicit 'yes/no' question, that it uses Multi-Perspective Performance Measures for organizational performance evaluation or 0 otherwise. I base this analysis on all 320 respondents and run equation 1 as a logistic regression.

6.4.1.1.2. Extent of Use

To test the extent of Multi-Perspective Performance Measures' use, I measure "*Multi_PPMi_eu*" as a continuous variable and run equation 2 as an Ordinary Least Square (OLS) regression. I conduct this analysis on 155 sample firms that use Multi-Perspective Performance Measures to evaluate organizational performance. I capture the use of Multi-Perspective Performance Measures by applying the approach developed by Hoque et al. (2001) and the same approach is used by Hoque and James (2000); Lau and Sholihin (2005). I adopt the items of performance indicators from Lee and Yang (2011) and Van der Stede et al. (2006) due to the suitability of those indicators to our sample firms' performance evaluation. The extent of Multi-Perspective Performance Measures' use is related to the four perspectives of BSC developed by Kaplan and Norton (1992). I asked the respondents to indicate the extent to which Multi-Perspective Performance Measures are used to evaluate their organizational performance. An exploratory common factor analysis for each perspective of performance measures reveals out that the items of the each perspective are unidimensional as they loaded satisfactorily on a single factor. Appendix 2 (table 24) presents the factor loadings and descriptive statistics for the "extent of use" measures.

Furthermore, I followed a two-step procedure to calculate the scores of Multi-Perspective Performance Measures use. First, I calculated a mean score for each of the four perspectives for each respondent, and then I used an average of these four perspectives' means to capture the extent of Multi-Perspective Performance Measures use. I followed this procedure instead of using a summated mean score of the financial and nonfinancial performance indicators for two

reasons. First, since this was the preferred approach of Hoque et al. (2001), I followed the same approach as them in deriving the scores. Second, I used this approach to allow my study scores to be compared with other studies, for example Hoque and James (2000); Lau and Sholihin (2005) which also used a similar approach. Cronbach alphas of this construct are above 0.8, suggesting that the construct is internally reliable (Nunnally, 1967).

6.4.1.2. Independent Variable Measurement

To measure the independent variable, I conducted an exploratory common factor analysis on the 320 sample firms. I conducted the factor analysis again on the 155 sample firms who use the Multi-Perspective Performance Measures. The factor loadings were similar in two samples. The independent variable measurement is discussed below.

6.4.1.2.1. Size

Following the previous contingency-based management accounting literature, such as, King et al. (2010); Speckbacher and Wentges (2012); Uyar andKuzey (2016); Chenhall (2003); Hansen and Stede (2004); Winata and Mia (2005), I measure sizein terms of the regular (full-time) employees employed in a firm. I asked respondents to give information on their regular, part-time and other employees. I also requested the respondent to provide information on their sales and capital for further analysis of size. However, participants of this study did not agree to disclose that information. As most of the SMEs are not listed in the stock market, collecting objective financial information was difficult.

6.4.1.2.2. Structure

I measure the business structure based on the extent to which decision making authority has been decentralized within the organization. I capture decentralization of authority through five items representing key decision areas of a firm. I adopt these items from the scales developed by Khandwalla (1973); and Gordon and Narayanan (1984), and these items have been used extensively in the

management accounting literature, such as., Abernethy, Bouwens and van Lent (2004); King et al. (2010); Bedford and Malmi (2015); Uyar and Kuzey (2016). I asked respondents to indicate the actual decision making authority delegated to lower level manager and employees. An exploratory common factor analysis to the response scores, reveals only one factor with an eigenvalue 3.2, explaining 63.96% of variance (Appendix 2, table 24). Therefore, I measure structure as the average summated scores across the five items. The Cronbach alpha of this construct is .86.

6.4.1.2.3. Functionality of Information Systems

I measure the functionality of information systems based on the extent of a firms' information systems resemble the five items of my survey questionnaire. I adapt these five items from Krumwiede (1998) and these items are subsequently used by Uyar and Kuzey (2016). I conducted an exploratory common factor analysis to calculate the score of the scale. The response scores of the five items loaded only with one factor with an eigenvalue 3.67, explaining 73.31% of variance. So, I calculate the IS_func as the average summated score of the five items. The Cronbach alpha of this construct is .91.

6.4.1.3. Control Variable Measurement

6.4.1.3.1 Market Competition

Market competition resembles the hostile environment of a business firm. In this study, I capture market competition by focusing on three items, which assess the dimensions of competition and resource availability of a firm. I also included one more item i.e., availability of business opportunities to assess market competition. However, factor loading of this item was poor. So, I measure market competition as an average summated score of the intensity of competition for the firm's main products/services and inputs, and activities of competitors. I derive two items of the scale from the discussion of environmental munificence by Castrogiovanni (1991) and the instruments of Tan and Litschert (1994); and Miller and Friesen (1983) which is also used by Bedford and Malmi (2015) and I derive one item of

the scale from Hoque (2004). An exploratory common factor analysis reveals one factor. The Cronbach alpha of this construct is .73. The reliability score is little lower than other scales but it is good enough to include this scale in this study (Nunnally, 1967).

6.4.1.3.2. Industry Type

I measure industry type as a binary variable. I use two categories of industry type; manufacturing firms and others. I set "manufacturing firms" equal to 1 and "all other firms" equal to 0.

6.4.2. Variables and Measures for Nature of Use

6.4.2.1 Dependent Variable Measurement

6.4.2.1.1 Nature of Use

I measured the diagnostic and interactive use of performance measures by using an adapted version of the Vandenbosch's (1999) instrument which is also used by Henri (2006[a]). I asked respondents to answer four questions on diagnostic use and six questions on interactive use. An exploratory common factor analysis reveals only one factor for diagnostic use and one factor for interactive use. The eigenvalue of diagnostic use is 3.22, explaining 80.51 % of variance and the eigenvalue of interactive use is 4.61, explaining 76.90% of variance. So, the dia_use and int_use is calculated as the average summated score of the four items of diagnostic use and six items of interactive use respectively. The Cronbach alpha of the two constructs are .918(diagnostic use) and .940(interactive use) respectively.

6.4.2.2. Independent Variable Measurement

6.4.2.2.1. Environmental Dynamism

I measure environmental dynamism by the changing nature of the external environment. I asked respondents to assess the changes of their external environment through six items of the questionnaire. The six items of the

questionnaire were originally developed by Gordon and Narayanan (1984), and Govindarajan (1984). This instrument is further modified and used by (Hoque 2004). A modified version of Hoque (2004) is used in this study to capture the dynamic business environment in Japan. An exploratory common factor analysis reveals one factor with an eigenvalue 3.77, explaining 62.18% of variance. The Cronbach alpha of the scale is .881.

6.4.2.2.2. Environmental Hostility

Environmental Hostility resembles intensity of market competition faced by a business. I captured market competition by focusing on two items, which assess the dimensions of competition faced by a business firm. I derived these two items of the scale from the discussion of environmental munificence by Castrogiovanni (1991) and the instruments of Tan and Litschert (1994); and Miller and Friesen (1983) which is also used by Bedford and Malmi (2015). An exploratory common factor analysis reveals only one factor. The Cronbach alpha of this construct is .752.

6.4.3. Organizational Performance

I measure organizational performance subjectively by using six items. I adapted these six items from Deshpande, Farley, and Webster (1993) which are subsequently used by King et al. (2010), and Uyar and Kuzey (2016). The scale items capture the evaluation of respondent's regarding their organizational performance relative to their key competitors over the last three years. An exploratory common factor analysis reveals only one factor with an eigenvalue 4.076, explaining 67.93% of the variance. Hence, I calculate org_perf as the average summated score across the six items. The Cronbach alpha of this construct is .91.

For practical and theoretical reasons, I adopt a subjective measure of organizational performance. From a practical viewpoint, Merchant (1984) argue that subjective measures of performance can be used in circumstances when

objective performance data cannot be collected properly. Considering that the use of subjective measures of performance alone may not be sufficient enough to capture organizational performance (King et al., 2010), I also asked the respondent firms for objective financial information of performance. However, the respondents of sample firms denied providing any objective financial information of their performance. Furthermore, as most of the SMEs are not listed in the stock market, it was tough to collect the objective financial information.

From a theoretical viewpoint, the use of perceived performance measures is well recognized in the literature (Dess, 1987; Miller & Cardinal, 1994). Moreover, as there is a possibility of differences in accounting practices among firms, it is argued that subjective data is preferable over archival data (Powell, 1995). Miller and Cardinal (1994) further state that archival financial data are prepared considering the external users such as public relations, tax etc. that create noise in the data. On the other hand, under conditions of promised anonymity, individuals prefer to provide subjective data which basically reflect true performance. Therefore, using subjective measures of organizational performance is not a concern for this study. A full list of all the items of the variables, their factor loadings is provided in Appendix 2 (table 24).

6.5. Test of and Remedies for Measurement Error

6.5.1. Missing Data

In real life research which involves human interaction, it is rare that researchers will be able to collect data from every case. It is therefore important to check the data file for missing values. To minimize the missing data, I instructed Neo Marketing Inc. to request the respondents to answer all the research questions. Furthermore, to check the missing values after collecting the data, I use the IBM SPSS 'Missing value analysis" procedure which helps me to find the pattern of missing values in my data set. There are three options in IBM SPSS to deal with missing values for variables. First option is 'Exclude Cases List wise'. This option "will include cases in the analysis only if it has full data on all the variables listed

in variables box for that case. A case will be totally excluded from all analyses if it is missing even one piece of information" (Pallant, 2013, p.131). Second option is to 'Exclude Cases Pair wise'. This option "excludes the cases (persons) only if they are missing the data required for the specific analysis. They will still be included in any of the analyses for which they have the necessary information" (Pallant, 2013, p.131). The third option is 'Replace with Mean'. This option "is available in some IBM SPSS statistical procedure (e.g. multiple regression), calculates the mean value for the variable and gives every missing case this value. This option should never be used as it can severely distort the results of analysis, particularly, if there are a lot of missing values.

As the other two options are not safe enough to use, I use the first option that is excluding cases list wise. I did not include any cases which have missing values.

6.5.2. Non-Response Bias

Non- response bias affects the generalization of the results. Non-response bias happens when in a survey respondents differ in important aspects with non-respondent (Cascio, 2012). A high response rate is a good indicator for the absence of non-response bias. Even low response rate can help researcher to generalize their research findings. There are some ways which help researcher to detect non- response bias. A common technique is to compare the early respondents with late respondents. Another way is to compare firms who respond to the survey with firms who are contacted but refused to respond. In my thesis paper, I used both of these two approaches to detect non- response bias.

I compared (by using one sample t-test), the mean firm size (measured in terms of regular employees) of respondent firm with non-respondent firm. I did not find any statistically significant mean difference ($t=1.062$, $p=.289$) between respondent firm and non-respondent firm. Further, I checked the possibility of non-response bias by comparing the mean firm size of early (first fifty) and late

(last fifty) respondents. No significant mean differences was found between early and late respondents (t= -1.124, P=.267). Thus, it indicates that non-response bias is not a major concern in this sample.

6.5.3. Outlier Analysis

"An outlier is a score very different from the rest of the data" (Field, 2014). Outliers may distort analysis of data since erroneous values contaminate the other data. There are a variety of techniques to deal with outliers. The technique ranges from removing the entire cases, transforming the whole data and replacing the score (Field, 2014). To find out the outlier in my dataset I inspect the box plot for all independent as well as dependent variable. I use the IBM SPSS software to analyze the box plots.

"Any score that IBM SPSS considers are outliers appear as little circles with a number attached (that is the ID number of the case) IBM SPSS define points as outliers if they extend more than 1.5 box-lengths from the edge of the box. Extreme points (indicated with an asterisk, *) are those that extend more than three box-lengths from the edge of the box" (Pallant, 2013, p.67).

In this thesis paper, I check the outlier score for all variables and try to find that it is genuine and not an error. I check the outlier score from the box plot analysis whether it is within the possible range of that variable. In cases where I found the presence of extreme outliers, I remove the entire case from the data set.

6.5.4. Test of Normality, Skewness and Kurtosis

I use some techniques to check the normality assumption as well as skewness and kurtosis. I check the actual distribution of all the variables through histograms to check the normal distribution of all variables. I also examine the normal probability plot (named as normal Q-Q plots). "In this plot, the observed value for each score is plotted against the expected value from the normal distribution. A reasonable straight line suggests a normal distribution. The skewness and kurtosis

values are derived from the descriptive statistics. The data used for this thesis paper met normality assumptions as well as skewness and kurtosis.

6.5.5. Common Method Bias

Reviewers of many journals are asking how the researchers deal with common method bias (Hanzlick, 2015). Common method bias arises when researcher collects data for dependent and independent variable from the same respondent. However, there is a controversy whether common method bias is overstated or a serious problem to be dealt with (Podsakoff et al., 2003).

Given that I use the same data source for both independent and dependent variables, I applied Harman's single factor test to know whether common method bias exist in my study. Harman's single factor is one of the most widely used techniques that have been used by researchers to address the issue of common method variance. In this technique, researchers load all the variables in their study into an exploratory factor analysis and examine the unrotated factor solution to determine the number of factors that are necessary to account for the variance in the variables. "The basic assumption of this technique is that if a substantial amount of common method variance is present, either (a) a single factor will emerge from the factor analysis or (b) one general factor will account for the majority of the covariance among the measures"(Podsakoff et al. 2003, p.889).

After doing the Harman's single factor analysis more than one factor is emerged from the analysis and none of the factor account majority of the covariance. Given the result of the Harman's one factor test, it can be said that common method bias is not a matter of concern for this study.

6.5.6. Construct Analysis

6.5.6.1. Construct Validity

According to Field (2014, p.12), "validity refers to whether an instrument measures what was designed to measure." Adcock and Collier (2010, p 529)

mention that "validity is specifically concerned with whether operationalization and the scoring of cases adequately reflect the concept the researcher seeks to measure." Sometimes it is difficult to measure exactly what researcher would like to measure (Hanzlick, 2015).

To ensure the construct validity, I measure all the constructs using the Exploratory Factor Analysis (EFA). The main objective of factor analysis is to reduce the number of variables to few factors and identify hidden structure in data.

6.5.6.2. Construct Reliability

"Reliability means that a measure should consistently reflect the construct that it is measuring. One way to think of this is that, other things being equal, a person should get the same score on a questionnaire if they complete it at two different point in time"(Field, 2014, p.706). Cronbach's alpha is the main measure to ensure reliability of a measure. The minimum acceptable limit of Cronbach's alpha is set as 0.70, although Nunnally and Bernstein (1994) refer to this cut-off point for the early stages of research. The Cronbach's alpha for all the construct in this thesis paper are more than 0.70.It indicates that the constructs are reliable enough to use. The results of Kaiser-Meyer- Olkin(KMO) measure, Barlett's test of sphericity, factor loadings and Cronbach alphas are provided in Appendix 2 and 3 (table 24 and 25)

6.6. Qualitative Method

6.6.1. Interview Process

Qualitative data were collected through face-to-face interview with the top management of the respondent firm. The top management of the firm was chosen for few reasons. First, the top management of the firm will have a comprehensive knowledge to answer the questions regarding the practice of multi-perspective performance measurement. The next rational relates to the understandability of

the open-ended questions by respondents. Respondents may interpret the question in a different way than intended by the researcher. Therefore, I ensure the understandability of each question during interview. Third, in a personal interview setting respondent can take sufficient time to answer all the questions carefully and thoroughly which may help the researcher to have a detailed understanding of the research phenomena. Lastly, face- to face personal communication may encourage the respondent to provide additional information regarding the research issue which might help the researcher to have an additional insight of the research issue.

To prepare for the interviews, I informally exchanged the understanding of the interview questions to two individual Japanese persons and one of them provides consultancy service to SMEs in Japan. In the beginning of the interview, I introduced myself and other persons who were helping to conduct the interview in Japanese. I then introduced the research topic in details. This was done to familiarize and remind the respondents about the research topic.

Even though a multiple respondent strategy may improve the accuracy and minimizes the potential response bias, this was not followed in this study because reaching one respondent was difficult enough. The single respondent strategy may arise question about whether I reliably captured the performance measurement practices of the firms, or the respondents provide wrong insights of the practice. I believe single response is not a problem for this study. I approached only the top managers of the firm who are well informed about the firm's performance measurement practices and have been working for the company for a long period. Additionally, I asked the respondents to provide actual information of their performance measurement practices rather than their perceptions about how it could be done.

Qualitative interview data were collected through tape recordings in Japanese and stored in computers. The Japanese version of the tape recording was then translated into English by one of the native Japanese speaker who has a good

command over both English and Japanese language. The collected information was then organized into five different case studies.

6.7. Concluding Remarks

This chapter discussed in details about the quantitative and qualitative method of data collection. This paper also explained in detail about the variable measurement for the construct. Descriptive statistics and factor loadings of constructs and measurement items are presented in Appendix 3 and 4.

In the next chapter result and analysis of this thesis are presented.

CHAPTER 7
RESULTS AND ANALYSIS

7.1. Quantitative Results

7.1.1. Respondent Demographics

Table 10shows the demographic characteristics of respondents. A good number of respondents belong to the age group of 41-50 years (44.1%). Respondents are mainly occupying the top management position of the firm. More than half of the respondents (54.4%) are company executives and more than half of the respondents have bachelor degree (70.0%). A good number of respondents (39.7%) are from Social Science background.

Tenure of the respondents in their current organization ranged between 1-5 years to more than 30 years with an average of 17.57 years. The work experience of respondents in their current organization shows that majority of the respondents are working for the firm for a long time. It indicates that the respondents are well experienced and hence qualified enough to answer the survey questions.

Table 10.Respondent Demographics

	Frequency	Percentage (%)
Age category		
Less than 30 years to 30 years	23	7.2
31to 40 years	69	21.6
41to 50 years	141	44.1
51 to 60 years	78	24.4
61 years and above	9	2.8
Gender		
Male	304	95.0
Female	16	5.0

Function		
Manager/ member of management team	111	34.7
Company Executive	174	54.4
Other	35	10.9
Education		
Junior High School	1	.3
High School	39	12.2
Bachelor	224	70.0
Master	23	7.2
Doctoral Degree	8	2.5
Vocational Degree	22	6.9
Other	3	.9

Field of Study		
Engineering	75	23.4
Information, Life Science and Environmental Science	20	6.3
Science	8	2.5
Agriculture and Bioscience	26	8.1
Humanities	56	17.5
Social Science	127	39.7
Other	8	2.5
Work Experience in the Current Firm		
1-5 years	61	19.1
6-10 years	64	20.0
11-15 year	40	12.5
16-20 years	43	13.4
21-25 years	18	5.6
26-30 years	39	12.2
More than 30 years	55	17.2
Minimum	1	
Maximum	50	
Mean	17.57	
Median	15.00	
Standard deviation	11.88	

7.1.2. Firms Characteristics

Table 11 presents the industry classification of the sample firms. Overall there is a broad range of firms which can be attributed to the random sampling approach and the broad industry classification in Japan. However, the majority of the firms are manufacturing (18.1%), wholesale & retail (16.3%), construction (10.0%), and others (16.3%).

Table 12 presents the geographical location of the firms. Although the survey data were collected from all over Japan, the majority of the firms are located in Tokyo (20.0%) and then in Kanagawa (10.9%) .

Table 13 shows the ownership structure of the firms. The most significant group of ownership structure is family firms where almost 100% ownership of the firms is in the possession of owner of the firms (36.3%). 31.9% of the firm's owners own more than 50% of the firms share. Joint venture/limited partnership also has a good fraction (7.8%) where as respondents of 3 firms (9%) could not identify the ownership structure of their firm.

Table 11. Industry Composition

Industry Classification	Frequency	Percentage (%)
Agriculture	3	.9
Mining	1	.3
Construction	32	10.0
Manufacturing	58	18.1
Information& Communication	30	9.4
Electric, Gas & Water	6	1.9
Transportation	20	6.3
Wholesale & Retail	52	16.3
Financial Service & Insurance	14	4.4
Real Estate	12	3.8
Food Service	7	2.2
Medical Care	17	5.3
Amusement	12	3.8
Education & Learning Support	4	1.3
Others	52	16.3
Total	320	100.0

Table 12. Industry Location

Prefecture	Frequency	Percentage (%)
Hokkaido	16	5.0
Iwate	3	.9
Miyagi	5	1.6
Akita	2	.6
Yamagata	4	1.3
Fukushima	2	.6
Ibaraki	6	1.9
Tochigi	1	.3
Saitama	14	4.4
Chiba	19	5.9
Tokyo	64	20.0
Kanagawa	35	10.9
Nigata	4	1.3
Toyama	2	.6
Ishikawa	2	.6
Yamanashi	1	.3
Gifu	5	1.6
Shizuoka	8	2.5
Aichi	22	6.9
Mie	1	.3
Shiga	6	2.5
Kyoto	3	.9
Osaka	24	7.5
Hyogo	16	5.0
Nara	3	.9
Wakayama	3	.9
Okayama	7	2.2
Hiroshima	9	2.8
Yamaguchi	3	.9
Kagawa	4	1.3
Ehime	3	.9
Kochi	2	.6
Fukuoka	6	1.9
Saga	2	.6
Nagasaki	2	.6
Kumamoto	1	.3
Oita	1	.3
Miyazaki	1	.3
Kagoshima	3	.9
Okinawa	3	.9
Total	320	100.0

Table 13.Ownership Structure

Ownership	Frequency	Percentage (%)
Owners/managers of the firms owns 100% of the firm's share	116	36.3
Owners/managers of the firms owns more than 50% of the firm's share	102	31.9
Owners/managers of the firms owns less than 50% of the firm's share	39	12.2
Owner/ manager does not own any shares of the firm	35	10.9
Joint venture/limited partnership	25	7.8
Not identified	3	.9
Total	320	100.0

7.1.3. Results on Decision to Use and Extent of Use

7.1.3.1. Descriptive Statistics and Correlation Matrix

In table 14, I present the descriptive statistics for variables used in this study. I present descriptive statistics for the overall sample of 320 firms and for the 155 firms that are using Multi-Perspective Performance Measures to evaluate their organizational performance. The t-tests for differences in mean values between the two groups are also presented in table 14. Descriptive analysis shows that there are several significant differences between firms that are using Multi-Perspective Performance Measures and that are not. Particularly, firms using Multi-Perspective Performance Measures have more regular employees (full time) (ln_size, $p=0.002$), have more decentralization of authority (org_struc, $p<0.001$), have a more functional information systems, and experience superior organizational performance (org_perf, $p<.001$).

Table 15 presents the Pearson correlation matrix for the Ordinary Least Square (OLS) regression model variable based on the 155 firms that use Multi-Perspective Performance Measures. The correlation matrix shows that the extent of Multi-Perspective Performance Measures use is positively and significantly correlated with organizational structure, functionality of information system, market competition and industry type. However, the pairwise correlations among

the independent variables do not exceed 0.50, suggesting that threat of multicollinearity is limited (Gujarati, 2003)[6].

Table 14. Descriptive Statistics for Variables

Variables	Overall Sample(N=320)	Use of Multi-Perspective Performance Measures (N=155)	No use of Multi-Perspective Performance Measures (N=165)	t-value
Multi_PPM*i_eu* Mean Median Standard deviation Min --- max	n/a	4.83 4.81 1.07 1.73---7	n/a	n/a
ln_size Mean Median Standard deviation Min --- max	52.00 30.00 50.21 10----270	61.00 41.00 51.54 10---240	44.00 25.00 47.59 10--270	3.088 (.002)
org_sturc Mean Median Standard deviation Min --- max	3.96 4.00 1.19 1---7	4.26 4.20 1.18 1---7	3.66 4.00 1.13 1---6	4.574 (< .001)
IS_func Mean Median Standard deviation Min --- max	4.17 4.00 1.33 1---7	4.60 4.40 1.35 1---7	3.77 4.00 1.19 1---7	5.747 (< .001)
mkt_ comp Mean Median Standard deviation Min --- max	4.27 4.33 1.13 1---7	4.32 4.33 1.23 1---7	4.22 4.33 1.04 1---7	.804 (.422)

org_perf				
Mean Median Standard deviation Min --- max	4.05 4.00 1.08 1---7	4.30 4.33 1.09 1---7	3.82 4.00 1.03 1---7	4.086 (< .001)

[a] p-values are in parentheses. p- values are for the test of difference in mean value between the 'use of Multi-Perspective Performance Measures and 'no use of Multi-Perspective Performance Measures' subsamples.

[b] Variables: ln_size= log value of firm size (measured in terms of regular employees); org_sturc= organizational structure; IS_func= functionality of information systems; mkt_ comp= market competition; ind_type= industry type, org_perf = organizational performance.

Table 15. Pearson Correlation Matrix

	ln_size	org_struc	IS_func	mkt_comp	ind_type	Multi_PPM*i_eu*	org_perf
ln_size							
org_struc	.043 (.595)						
IS_func	.042 (.603)	.409** (.000)					
mkt_comp	-.005 (.955)	.206* (.010)	.098 (.223)				
ind_type	.013 (.873)	-.016 (.841)	.050 (.534)	.169** (.036)			
Multi_PPM*i_eu*	.024 (.763)	.279** (.000)	.471** (.000)	.296** (.000)	.191** (.018)		
org_perf	.019 (.815)	.545** (.000)	.461** (.000)	.144 (.075)	.018 (.825)	.416** (.000)	

**Correlation is significant at 1% level (2-tailed).

* Correlation is significant at 5% level (2-tailed).

[a]Correlations are shown on the sample of 155 firms which use Multi-Perspective Performance Measures.

[b]p-values are in parentheses.

[c]Variables: ln_size= log value of firm size (measured in terms of regular employees); org_sturc= organizational structure; IS_func= functionality of information systems; mkt_ comp= market competition; ind_type = industry type, org_perf = organizational performance, Multi_PPM*i_eu*= Multi- Perspective Performance Measures' use.

7.1.3.2. Logistic Regression Results - Decision to Use

Results for the decision to adopt Multi-Perspective Performance Measures are presented in table 16. Here, I run equation 1 as a logistic regression to test the hypothesis. The results show that the estimated coefficients on organizational size (β_1=0.473, p=0.001, two tailed), organizational structure (β_2=0.290, p=.012, two tailed), and functionality of information systems (β_3= .410, p<.001, two tailed) are positive and statistically significant. Therefore, the results support hypothesis H_1, H_2 and H_3. However, the estimated coefficients on control variables mkt_comp (β_4= -.025, p=.822, two tailed) and ind_type (β_5 = -.136, p=.668, two tailed) are negative and statistically insignificant. The χ2-statistic for the model is 49.86 (p<0.001) and the overall success rate is 66.6% (successfully predicting 70.9% of firms that do not use Multi-Perspective Performance Measures and 61.9% of those that do).

As hypothesized by H_1, H_2 and H_3 the results imply that the primary determinants of the decision to adopt Multi-Perspective Performance Measures are size, organizational structure and functionality of information system. The results indicate that larger and more decentralized businesses are more likely to adopt Multi-Perspective Performance Measures. The result for size is consistent with the argument that increased size both enhances the firm's ability and need to adopt multi-perspective performance measurement practice. Furthermore, information systems' functionality is also important to adopt Multi-Perspective Performance Measures. As argued earlier, functionality of information systems makes it easier for business organization to adopt Multi-Perspective Performance Measures. The result about organizational structure is consistent with the argument that more decentralization of authority makes control more necessary. By evaluating organizational performance based on multiple measures top managers can easily trace the activity of lower level managers.

[6] A similar conclusion follows based on the full sample of 155 SMEs.

Table 16. Binary Logistic Regression Results for the Decision to Use Multi-Perspective Performance Measures (N=320)

Variables	Predicted sign	Coefficient estimates	Wald Statistics	P-value
Intercept(β_0)		-4.393	24.152	<.001
ln_size(β_1)	+	.473**	10.551	.001
org_struc(β_2)	+	.290**	6.349	.012
IS_func(β_3)	+	.410**	14.557	<.001
mkt_comp(β_4)	NP	-.025	.051	.822
ind_type(β_5)	NP	-.136	.183	.668
Model Fit				
−2LL		393.447		
Cox and Snell R^2		.144		
Nagelkerkes R^2		.192		

** Statistically significant at 1% level (2-tailed).

* Statistically significant at 5% level (2-tailed).

[a] Variables: ln_size= log value of firm size(measured in terms of regular employees); org _sturc= organizational structure; IS_func= functionality of information systems; mkt_comp= market competition; ind_type= industry type.

[b] Coefficient estimates are logistic regression coefficient and significance refers to the probability level of the Wald statistic.

7.1.3.3. OLS Regression Results-Extent of Multi-Perspective Performance Measures Use

Table 17 presents the result of the association between extent of Multi-Perspective Performance Measures use and the contextual variables based on the 155 firms that use Multi-Perspective Performance Measures. Here, I run Equation 2 as an OLS regression to test the hypotheses. The analysis reveals that the extent of Multi-Perspective Performance Measures use is positively and significantly related to functionality of information systems (β_3= .416, p= <.001, two tailed) in the predicted direction. Conversely, the estimated coefficients on size and structure are both positive but statistically insignificant. Thus, the results provide evidence to support H_{3a} and do not provide sufficient evidence to support H_{1a} and $H_{1b.}$The regression model explained 28.1% (adjusted R^2) of the variance in the dependent variable. Finally, the control variables' coefficients (market

[7]Linearity and homoscedasticity of the data are checked from the residuals scatter plots. No major problem is found for regression analysis

competition and industry type) are positive and significant. Their coefficients are $\beta_4 = .219$, p= .002, two tailed and $\beta_5 = .134$, p= .056, two tailed respectively.

The regression results suggest that the sample firms use Multi-Perspective Performance Measures to a greater extent if they have a functional information system, face more intense competition in the market and operate in manufacturing industry. These results are consistent with previous management accounting literatures which argue that: (1) to use more information to evaluate organizational performance, business organizations need functional information systems (Uyar&Kuzey,2016), 2) when business organization faces intense competition from the market, they need to collect more information (Hoque, Mia & Alam, 2001), and 3) manufacturing firms tend to use sophisticated management accounting techniques(Askarany, Yazdifar &Askary, 2010).

Size and organizational structure are positive but not significant in this empirical setting. However, size and structure are positive and significant for decision to adopt Multi-Perspective Performance Measures. It indicates that once a firm has attained a reasonably large size and uses Multi-Perspective Performance Measures, size is not likely to play a significant further role in the determination of 'extent of use'. It also implies that after adopting the multi-perspective performance measurement practice, other contextual factors act as a primary determinant of the subsequent decision regarding 'extent of use'.

Table 17. OLS Regression Results for the Extent of Multi-Perspective Performance Measures Use (N=155)

Variables	Predicted sign	Coefficient estimates	t-value	p-value
Intercept		2.168	4.486	<.001
ln_size(β_1)	+	.003	.050	.960
org_struc(β_2)	+	.066	.859	.392
IS_func(β_3)	+	.416**	5.547	<.001
mkt_comp(β_4)	NP	.219**	3.084	.002
ind_type(β_5)	NP	.134*	1.923	.056
Model Fit				
R^2		.305		
Adjusted R^2		.281		

** Statistically significant at 1% level (2-tailed).
* Statistically significant at 5% level (2-tailed).
[a] Variables: ln_size= log value of firm size(measured in terms of regular employees); org _sturc= organizational structure; IS_func= functionality of information systems; mkt_comp= market competition; ind_type= industry type.
[b] Coefficients are standardized coefficients.

7.1.4. Results on Nature of Use

7.1.4.1. Descriptive Statistics and Correlation Matrix

In Appendix 3(table 25), I show the descriptive statistics and factor loadings of the scale items used in this study. I presented descriptive statistics for the overall sample of 155 firms. Table 18 presents the Pearson correlation matrix for the regression model variable of the 155 sample firms. The correlation matrix shows that the diagnostic use and interactive use are positively and significantly correlated with environmental dynamism and hostility. Moreover, the strong correlation between diagnostic and interactive use of performance measures indicates that Japanese SMEs use performance measures as a diagnostic as well as interactive tool. The joint use of management control systems is not new in management accounting literature. Managers use management control systems (for example, performance measures) as diagnostically and interactively to manage inherent organizational tensions (Henri, 2006).Nonetheless, the pair wise correlations among the independent variables do not exceed 0.60, suggesting that threat of multicollinearity is limited.

Table 18. Pearson Correlation Matrix

	dia_use	int_use	en_dyn	en_host
dia_use		.791** (.000)	.534** (.000)	.277** (.000)
int_use			.508** (.000)	.192* (.016)
en_dyn				.565** (.000)

**Correlation is significant at 1% level (2-tailed).
*Correlation is significant at 5% level (2-tailed).
[a] p-values are in parentheses.
[b] Variables: dia_use = diagnostic use; int_use= interactive use; en_dyn= environmental dynamism; en_host= environmental hostility.

7.1.4.2. Regression Results –Diagnostic Use

Results for the diagnostic use of performance measures are presented in table 19. The results show that the estimated coefficients on environmental dynamism (β_1=0.555, p<0.001, two tailed), is positive and statistically significant. Therefore, the results support H_4. Furthermore, the results support the notion that in a dynamic business environment performance measures are used as a diagnostic tool to evaluate organizational performance and make decisions. However, the estimated coefficients on variable en_host(β_2= -.036, p=.661, two tailed) is negative and statistically insignificant. Thus, $H_{4a\ is}$ not supported. The regression model explained 28.1% (adjusted R^2) of the variance in the dependent variable.

The results imply that in regard with external environment, the primary determinant of the diagnostic use is environmental dynamism. The results indicate that in a dynamic and changing business environment SMEs need to keep track on their day to day activities and monitor results with predetermined goals. However, environmental hostility has no impact on the diagnostic use of performance measures.

Table 19. OLS Regression Results for Diagnostic Use (dia_use) (N=155)

Variables	Predicted sign	Coefficient estimates	t-value	p-value
Intercept		2.722	8.023	<.001
en_dyn(β_1)	+	.555**	6.676	<.001
en_host(β_2)	+	- .036	-.439	.661
Model Fit				
R^2		.286		
Adjusted R^2		.277		

** Statistically significant at 1% level (2-tailed).
* Statistically significant at 5% level (2-tailed).
[a] Variables: dia_use = diagnostic use; int_use= interactive use; en_dyn = environmental dynamism;en_host= environmental hostility.
[b] Coefficients are standardized coefficients.

7.1.4.3. Regression Results –Interactive Use

Table 20 presents the result of the association between interactive use and the environmental variables based on the sample of 155 firms. The analysis reveals that the interactive use is positively and significantly related to environmental dynamism (β_1= .587, p= <.001, two tailed) in the predicted direction. Hence, the result supports $H_{4a.}$ Conversely, the estimated coefficient on environmental hostility is negative but statistically significant at 10% level. Therefore, environmental hostility has a negative impact on interactive use of performance measures. The regression model explained 26.2% (adjusted R^2) of the variance in the dependent variable.

The regression results suggest that the sample firms use performance measures interactively when the external environment is dynamic. However, they do not prefer to use performance measures interactively when they face intense competition in the market. This is an interesting finding indeed. It may be because, when a firm faces intense competition regarding their main products and services, and face difficulties in acquiring necessary inputs, the top management of the firm become more cautious about the financial performance of their firm and want to use performance measures only as a diagnostic tool to monitor results and keep track on outcome with expectation.

Table 20. OLS Regression Results for Interactive Use (int_use) (N=155)

Variables	Predicted sign	Coefficient estimates	t-value	p-value
Intercept		2.962	9.113	<.001
en_dyn(β_1)	+	.587**	6.991	<.001
en_host (β_2)	Not Predicted	- .139	-1.660	.099
Model Fit R^2 Adjusted R^2		 .271 .262		

** Statistically significant at 1% level (2-tailed).
* Statistically significant at 5% level (2-tailed).
[a] Variables: dia_use = diagnostic use; int_use= interactive use; en_dyn = environmental dynamism;
en_ host= environmental hostility.
[b] Coefficients are standardized coefficients.

7.2. Qualitative Results

To get a better understanding of performance measurement practices of Japanese SMEs and to validate the quantitative results, I conducted five interviews with the SME owners and managers. The SME owners and managers were asked a series of questions regarding their performance measurement practices and use of Multi-Perspective Performance Measures to evaluate the organizational performance. A short overview of the five companies is given below.

Table 21. Overview of Five Companies

Name of the Company	Year of establishment	Number of Employees	Nature of business	Person Interviewed	Date of Interview and time
OsukaCompany	1953	12	Manufacturing of screw	Owner: Osuka Kazuyoshi	2017.7.19 10.00- 11.00
Sawane Spring Co. Ltd	May 10, 1966	53	Manufacturing and retailing of springs	Predident: Takayoshi Sawane	2017.7.24 10.00-11.00
Koken Kogyo Co. Ltd	December 1, 1971	270	Manufacturing (parts and components	Chairman: HisanoriMuramatu President: Yuji Iio	2017.7.24 14.00-15.00

Yaizu Reito Co. Ltd	October 1, 1975	50	Food Processing	President: Isao Matsumura	2017.7.27 10.00-11.00
Ikechanchi Dreamcare	August,2000	85	Service(not-for - profit)	President: Chihiro Ikegaya	2017.7.27 13.30-14.30

The five case studies are discussed in details below.

Case 1: Osuka Manufacturing Co Ltd [株)大須賀製作所]

The first organization that I visited was Osuka manufacturing Co Ltd. It is a small manufacturing company which produces screw for large enterprises with 12 employees. The owner of the company was asked a couple of questions regarding their performance measurement practices and use of Multi-Perspective Performance Measures to evaluate their organizational performance. The owner gave a detailed explanation of the performance measurement practice of the company. The key points of the interview are discussed below.

Picture 1& 2.Osuka Manufacturing Co.

First, according to the owner, the company does not produce standardized products rather it produces customer- specific products. The orders of the products come from the clients with whom the company has a long-term transactional relationship. Riken Light Metal Industry Company, Ltd. and

Tamiya, Inc. are the two big clients of the company. However, to maintain its production capacity the company is trying to expand its business and attract new customers. The owner of the company said “a screw which we produce never earns money by itself without connecting other parts in customer end. It depends on customer no matter how we want to sell our screw to customers.”

Second, the company faces fierce competition from the neighboring company. The owner of the company said that every company in their neighborhood could become potential competitor. They have to meet small-volume production in great varieties required from customer. Otherwise, they could not survive. The competitive advantage of their business is that they have extensive inventory of die set and their digital library of drawing specification in their computer system. The owner of the company said that the company makes it possible to keep very short lead time, compare to their competitor. This greatly owes to their die inventory system. Die is indispensable component of screw processing. One set of die cost thousands of yen. The client takes for granted paying money for die. Their die inventory system contains six thousands of die sets as well as the corresponding specification/drawing data throughout four decades of order history. Whenever a new order comes in, the system immediately seek a die which will match for customer requirement. This system is an important contributor to quick delivery. For instance, it will take ordinary big screw manufacturer one month to finish a die, but they can do it just one week. Therefore, whoever develops a prototype and need quick delivery will become their potential customer.

Third, the company has a sophisticated information system. The owner of the company, who has a good academic background, developed the information systems of the company. From that information system the company collects information of its organizational performance. After reviewing the information system of the company, I found that this company uses a broad range of financial performance measures such as sales, operating income, return on investment, return on equity, cost per unit produced etc. as well as a wide range of non

financial performance measures to evaluate its performance. The company does evaluate the sales margin (sales –cost of production) day to day basis. Usually they prepare financial report every one month or two months. They evaluate customer order on daily basis and sales margin on daily basis. Besides that, this company also maintains a manual chart to track record of customer order and their timely shipment.

From the analysis of the case it could be inferred that the factors, that are influencing this company to use various measures of performance are market competition and functional information system.

Case 2 :Sawane Spring Co Ltd [沢根スプリング(株)]

The second organization that I visited is Sawane Spring Co Ltd. I took interview of Mr. Takayoshi Sawane. Sawane Spring Co Ltd was established in May 10, 1966 with 30 million yen as capital. It employs about 53 employees (14 women and 39 men) who work as a full-time employee. This company does not hire temporary worker. It has three subsidiary companies and they are: Samini Co. Ltd. (mail order of springs), Ishimoto Inc. (specialized factory in trial pieces and small lot production), Wuxi Sawane Spring Co Ltd. The main line of business of the company is: manufacturing and retail of springs; coil spring, wire spring, flat spring; original products; "Stock Spring", flexible spiral protection tube, cushion for gymnastic mat "Satafs."

Picture 3&4.Sawane Spring Co.

Since founding in 1966, they have kept stable business and practiced the motto "Think, Produce, Sell". In their history of powerful self-reliant progress, they have always been thinking five years ahead. In addition, they started a new concept called ‘mail-order production’ for small lot orders. In 1993, they established a Japanese joint venture in China to provide products for Chinese market and they did it earlier than other Japanese and Chinese Joint Ventures of spring manufacturer. They have their own system for quality management, production management, and retail management aiming to satisfy their customers with their service.

According to Mr. Takayoshi Sawane,

> “Because of fiercely competitive market, they develop a variety of spring products. Quality, Speed, and Price are constant request for production from customer. Therefore, manufacturer concentrates their efforts into production focusing on these three aspects. But I believe that small and medium enterprise will not survive just with production any more. Small and medium enterprise should tackle the before and after production stages. As before production stage, planning, design, research& development are important process. As after production stage, selling products is also important process. Our goal is to place a balanced emphasis on those three stages. Most of the company value productivity (efficiency) and depend on the specific client with a large volume of orders. In contrast with other company, we have 400 business partners whose each percentage-of- sales is less than 1 %. We value these customers and aim to increase the number of small –lot- order clients in future. It requires a lot of care and too much work, but they are our target customer.”

Regarding decision making of the company he mentioned that “being a small size of company, project team and committee have important role in the

company activities. As a president, I keep contact with members and update company information at least once a month through one hour meeting".

In another question, he was asked about the use of financial and non-financial performance measures. He replied that they use most of the financial performance indicators listed in Appendix 2 (table 24). However, the most important financial indicator for his company is value added per employee because the focus of the company is to improve the life of its employee. Regarding the non financial performance indicators, the company uses number of defective products produced, employee suggestion to improve quality etc. As the company ensures good quality of its products, they prefer to use those non financial indicators which may help them to improve the product quality. In addition, the company has an up- to- date information system regarding many aspects of its business.

From the above discussion of the case, it is found that the company faces fierce competition, value customer and employee satisfaction, believe in long term business, make decisions based on consensus and all those factors triggers the use of financial and non financial performance indicators.

Case 3: Koken Kogyo Co Ltd [コーケン工業（株)]

The third company that I visited was Koken Kogyo Co Ltd. This company was built in 1971 and currently it employed 270 people. It's a manufacturing company which produces parts and components of agricultural machineries, automobiles and ships etc. I took interview of the chairman and president of the company. I asked them directly do they use performance indicators to evaluate their business performance. The Chairman of the company replied to me, "It is easy to be wise after the event." They do not have time to see performance indicators when they are dealing issues at management level. Performance indicators always come late as things turned out. Even though, they set the goal of sales for this year, or estimate profit. They set sales goal and


Picture 5&6.Factory of Koken Kogyo Co.

thrive to increase profit in order to reward employee. But it is the matter of cash-in and cash-out. The company will only be able to survive with cash-in more and cash-out less, so they try to control cash-flow. The Chairman of the company said that in his 30 years of service in the company, he did not make performance goal so much. As a small company, he believes that the best way to manage a company is to have a sense of compassion toward the people who work for the company. It is two years ago when he named Mr. Ito to be the next president of Koken Kogyo Co Ltd and he did not ask him any commitment for sales growth. Then he spoke out to the people in company why he nominated Mr. Ito as his successor. That is because, he is a man who value employee more than anyone else in this company. Their goal is to make this company as such, whose employee will become the voice of the customer. “Koken Kogyo’s people are really outstanding!” This is the company catch-phrase.

President Ito said, “Small and Medium Company should focus on what big company will not do, or will dislike to do. To explore a niche and match-up niches. This leads for a new avenue for doing business.”

However, after the factory visit I found that the company is using many nonfinancial performance indicators such as ratio of defective output/total output, unit of output per labor hour, on job training hours, employee suggestion to evaluate its everyday business activity. The company mainly focuses on the

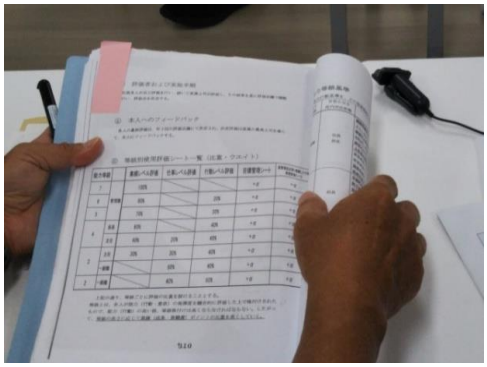
changing business environment that forces the company to be competitive enough to produce the best parts and components, and its commitment to its employees. The main factors that force the company to use sales target to reward its employees and competitive pressure from changing business environment.

Case 4: Yaizu Reito Co. Ltd [焼津冷凍(株)]

The fourth company that I investigated was Yaizu Reito Co. Ltd and I took interview of the president of the company, Mr. Isao Matsumura. This is a food processing company. The company refrigerates and stock many food items. It also has a bread outlet named "PETER PAN. The company philosophy is to: 1. Work for customer to meet their needs and give them a sense of security and trust 2. To improve them with a consistent effort through challenging job, 3.To fulfill their commitment to people and care for them, 4. To thrive on development of food and dietary culture with fulfillment the need of business partners.

Picture 7.President of Yaizu Reito Co

This company has a very good financial performance record over the past years. I asked the president of the company how he makes decisions about key aspects of his business and how does he use performance indicators to evaluate the performance of his company.



Picture 8.Performance Record Book

The president of the company showed me a detailed performance record book that he invented by himself and used regularly to evaluate the performance of the company as well as employees. He uses most of the performance measures that are listed in Appendix 2 (table 24).

Regarding the decision making, he follows a very rigorous process. He delivers the authority of decision making to the lower level managers. He set the company policy at the end of each year by an overnight stay in a hotel or some other place with all the managers. At present, they have 23 managers in total. At first, they do their SWOT analysis and then based on their SWOT analysis, they set company policy, after that they determine company goal and then move to individual goal setting. According to the President of the company, allthe members are divided into four or five team for each department. Each team conducts SWOT analysis and set their departmental goal. Each team is supposed to present their plan to the president of the company and all other members. Reviewing their presentation, the president and all other members discuss overall company performance. As a president, he himself reviews their analysis and then, he set the company's annual policy.

Besides that, the company uses a daily 'Gross Profit Reporting System'. This is another unique point of their management system. Gross profit is defined as: Sales revenue-Direct cost, which they are used to close and report daily basis. This system works as a computer network. Each operating department will input the data, and supporting section (staff) will oversee day to day operation. Management member are supposed to review their performance before a meeting, and they should be ready to speak out. If not, it is a shame.

The overall analysis of the case reveals that the president of the company delegates authority to lower level management to take decision regarding their departmental issue and then make a consensus based decision for the entire company. The financial performance of the company is very good and they have a functional information system that helps them to collect daily profit information.

The delegation of authority and functional information system encourage the president of the company to use a diverse set of financial and nonfinancial information to evaluate the company performance.

Case 5: Ikechanchi Dream Care House [池ちゃん家・ドリームケア]

The last company that I visited was a not- for- profit organization and it is an old care home. The owner of the company takes care of old and elderly people. I asked her about the performance of the company and how they measure it. According to the president of the company, it is a non-profit organization and their purpose is not to earn profit and that's why they do not use any such performance indicators to evaluate their performance. Rather they focus on their service to elderly people. As they don't have to earn money for their survival, they are not worried about any such indicators. The president of the company describes her business with following words:

Picture 9. Ikechanchi Dream care

> "We belong to service industry, which will have different management style from manufacturing or selling business. It does matter only compassion and caring, neither management ability nor experience. We do not need any funding because it is covered by government nursing-care insurance."

This is consistent with the quantitative analysis of the thesis. I collected all the quantitative data from the profit making organization. It indicates that non-profit organization does not need any such indicators to use.

7.2.1. Comparative Analysis

Table 22 summarizes the impact of various external and internal factors on performance measurement practices in the five SMEs ranging from 1 (low

influence) to 4 (high influence). This ranking has been recognized using the interview information from the interviewees. From this table a considerable variation can be seen regarding the influence of external and internal factors on performance measurement practices of firms.

Table 22. Comparative Analysis of the Case Studies

Factors	Case 1 Osuka	Case 2 Sawane Spring	Case 3 Koken Kogyo	Case4 Yaizu Reito	Case5 Ikechanchi Dreamcare
Size	2	2	2	2	0
Organization structure	0	2	1	4	0
Functionality of Information Systems	4	3	2	3	0
Market competition	4	3	2	4	0

Scale: 4=very high influence; 3= High influence; 2=reasonable/moderate influence; 1=low influence; 0=no influence.

The quantitative result of the study indicates that when a firm is large enough, have a functional information system, and delegate decision making authority to lower level managers they are more willing to adopt Multi-Perspective Performance Measures. Furthermore, Quantitative result of the study shows that market competition has a positive impact on the extent of Multi-Perspective Performance Measures use. After analyzing the qualitative data similar result has been found.

Moreover, after analyzing the case studies, I have come across to the fact that the SMEs in Japan are using the financial and nonfinancial performance measures in an informal way. It is not a new phenomenon for the Japanese SMEs. It is a common understanding that SMEs have limited resources and their main goal is to survive in the market. Hence, SMEs will prefer to focus only on the financial performance of the organization. However, this is not the case for the Japanese SMEs.

SMEs that are interviewed in this study are managing their performance according to their self-invented way. The manager or owner of the company does

not get any prior training or guideline on how they can do it more efficiently. There is no uniformity on the performance measurement practices among the five companies that were investigated in this study. Furthermore, the investigated SMEs does not have any knowledge about how to install a formal performance measurement system to get better information and take correct and quick decision.

Besides that, the four profit oriented SMEs are doing good business and their financial performance is also better than their competitors. However, they have no idea about whether the use of a wide variety of financial and nonfinancial performance measures helps them to perform better or not. They are using diverse range of performance measures only to collect information about their daily activities.

Researchers find that use of different performance measures improves various facets of organizational performance, for example, Scott and Tiessen (1999) examine the impact of performance measurement on team performance and find that team performance is positively related to the diversity of performance measures used. Hyvonen (2007) find that use of performance measures in combination with advanced information technology improves customer performance. Ittner, Larcker and Randall (2003) also find that firms making greater use of a variety of financial and nonfinancial measures than firms with similar strategies or value drivers have higher stock market returns.

In case of SMEs, researchers find that use of different management accounting techniques improves the overall business performance of SMEs (Hakola, 2010; King et al., 2010; Marriott & Marriott, 2000). This is because management accounting practices allow SMEs to collect information on current key performance indicators and provide better day-to-day understanding of the business (Manville, 2007). According to Lo´pez and Hiebl (2015), “SMEs that adopt adequate management accounting systems are described as exhibiting better overall business performance and improving several key aspects for business success. In contrast, not using management accounting systems properly was

found to be an antecedent of business failure". This argument is supported by the fact that SMEs using innovative management accounting tool could spend less time and fewer resources on forecasting (Marriott & Marriott, 2000) and management accounting tools such as the balanced scorecard facilitate SMEs to identify critical performance obstacles, thus improve overall organizational performance at the same time (Hakola, 2010).

In those literatures, it is argued that innovative management accounting practice helps SMEs to perform better, that is, performance is dependent on the use of Multi-Perspective Performance Measures. However, for the Japanese SMEs, this may not be the case. It could happen that use and adoption of Multi-Perspective Performance Measures depends on the financial performance of the company. It could be the case that those firms who are performing well financially have the resources to invest and use non financial performance measures. They are using a diverse set of financial and non financial performance measures only to collect information about their day to day activities. Instead of using it in a formalized way to improve business performance, they prefer to use it in an informal way to collect information. The SMEs that I have interviewed did not mention explicitly that they use financial and nonfinancial performance indicators to improve business performance rather they prefer to use it in an informal way to collect information about their business. So, for Japanese SMEs using Multi-Perspective Performance Measures may help them to get better information about their business and thus, it helps them to take better decision. However, SMEs does not merely invest in it to perform better.

CHAPTER 8
DISCUSSION AND CONCLUSION

8.1. Discussion

This study explores four research issues pertaining to the performance measurement practice in Japanese SMEs. The SMEs in Japan are chosen for this study. The reason behind this choice is the socio economic importance of SMEs in terms of employment creation and value addition. Furthermore, Japanese SMEs possess some unique characteristics such as long term relationship between SMEs and large enterprises. However, the long term recession changed the traditional relationship between SMEs and large enterprises. At present, the SMEs are facing fierce competition from local as well as neighboring countries to reduce cost and operate their business efficiently. As a result, SMEs are forced to adopt and use innovative management technique to survive in the market.

It has been said that multi-perspective performance measurement practice which is a part of management accounting practice helps organization to evaluate their business performance effectively and thus it helps organization to improve its effectiveness and efficiency. However, according to the contingency-based research, adoption and use of any management accounting practice depends on the internal and external contextual factors faced by a business organization. This study specifically addresses the contextual factors that influence the decision of SMEs to adopt and use Multi-Perspective Performance Measures to evaluate their organizational performance.

To explain the findings of the research and to provide a more holistic view of the research issues, I applied contingency framework, BSC and Simon's Lever of Control. I applied contingency framework to enumerate the influence of contextual factors on performance measurement practice. To capture the notion of Multi-Perspective Performance Measures, I used the four perspectives of BSC and to explain the nature of use, I applied Simon's Lever of Control framework.

Being the last chapter of this study, Chapter Eight (current chapter) provides a brief discussion of the findings and original contributions of this study, the overall implications of the findings, the limitation of the study, and potential avenues for further research.

8.2. Significance of Findings for Theory and Practice

This study investigates four interrelated research issues. The findings of these four interrelated research issues are described in Chapter Seven in details. The following sections briefly summarize the findings and contributions of this study.

1. The first research aspect of this study explores the internal and external contextual factors that affect the 'decision to adopt' Multi-Perspective Performance Measures of Japanese SMEs. To conduct this part of the study, a questionnaire survey was conducted and data were collected from 320 SMEs. Using the logistic regression model, the result of this part of the study shows that decision to adopt Multi-Perspective Performance Measures by SMEs is significantly affected by organizational size, structure and functionality of information systems. However, the two control variables, market competition and industry type do not have any impact on the decision to adopt Multi-Perspective Performance Measures. The result of the study indicates that when a firm is large enough and delegate decision making authority to lower level managers they are more likely to adopt Multi-Perspective Performance Measures. The result for size is consistent with the argument that large enterprises have the resources and necessity to adopt multi-perspective performance measurement practice. Furthermore, information systems' functionality is also important to adopt Multi-Perspective Performance Measures. When a firm possesses a functional information system, they do not have to invest resources to make their information system functional enough to adopt any new management accounting technique. The result about organizational structure is consistent with the argument that more delegation of authority to lower level managers makes control

more necessary. By evaluating organizational performance based on multiple measures top managers can easily force the lower level managers to be more accountable to the top level management. Qualitative data analysis also shows a similar type of result.

The findings of this part of the study have both theoretical and practical contribution. Most of the previous research on multi-perspective performance measurement practice conducted on those firms who already use Multi-Perspective Performance Measures to evaluate their organizational performance. So the previous studies only focus on the extent of use. However, in this part of the study, I examined the 'decision to adopt' Multi-Perspective Performance Measures. The result of this part of the study will help academics, practitioners and managers of SMEs to make better decision to adopt Multi-Perspective Performance Measures based on the internal and external contextual factors relevant to the business of SMEs.

2. In the next part of this study, I explore the internal and external contextual factors that affect the 'extent of use' of Multi-Perspective Performance Measures. To carry out this part of the study, I run multiple- regression model on those 155 SMEs that use Multi-Perspective Performance Measures to evaluate their business performance. The result of this part of the study shows that functionality of information system, market competition and industry type have a significant influence on the 'extent of use'. Although organizational size and structure have a positive impact on 'extent of use', they do not have a significant influence. The result of this part of the study suggest that SMEs in Japan use Multi-Perspective Performance Measures to a greater extent if they have a functional information system, experience more intense competition in the market and operate in manufacturing industry. The result of this part of the study also indicates that after adopting the multi-perspective performance measurement practice, other contextual factors act as a primary determinant of the secondary decision regarding 'extent of use'.

The results of this part of the study will help researchers and academics to corroborate the findings of this study with similar type of previous performance measurement study. Further, this study will assist the SME owners and managers to broaden and update their existing performance measures based on the internal and external context of their firm.

3. In the third part of the study, I examined the effect of external environmental factors on the nature of Multi-Perspective Performance Measures' use. In contingency-based research two mostly investigated environmental factors are environmental dynamism and hostility faced by an organization (Chenhall, 2003). In this part, I investigated the effect of these two factors on the nature of performance measures' use and I employed Simon's (1995) distinction between diagnostic and interactive use to capture the nature of performance measures by Japanese SMEs. I conducted multiple- regression analysis on those sample firms who use Multi-Perspective Performance Measures. The result of this part of the study reveals that environmental dynamism positively and significantly affects the diagnostic use of performance measures and environmental hostility does not have any impact on diagnostic use. This result indicates that when SMEs operate their business in a dynamic and changing environment, they need to keep track on their day to day activities and monitor results with predetermined goals and it triggers the diagnostic use of performance measures. On the other hand, interactive use is positively and significantly related to environmental dynamism. However, environmental hostility has a negative impact on interactive use of performance measures. The result of this part indicates that when owners or managers of SMEs face intense competition regarding their main products and services, and face difficulties in acquiring necessary inputs, they become more cautious about the financial performance of their firm and want to use performance measures only as a diagnostic tool to monitor results and keep track on outcome with expectation.

The result of this part of the study has an important implication for the owners and managers of start-up SMEs. In a dynamic and competitive business environment it is indeed very important for the owners, managers and advisors of start-up SMEs to know about the appropriate style of performance measures' use. The result of this study will be beneficial for the managers and owners of start-up SMEs to use the performance measures efficiently to survive in a dynamic and competitive business environment.

4. Finally this study shows that those firms who are using Multi-Perspective Performance Measures experiencing superior performance than those firms who are not using Multi-Perspective Performance Measures. However, after conducting the interview with owner and manager of five Japanese SMEs, it does seem that performance is not dependent on the use of performance measures rather performance acts as an independent factor. Those SMEs who are performing well financially, have the resources and capacity to have a functional information system and prefer to use a variety of performance measures to get better information about their day to day activities. This is indeed an interesting finding. Theoretically, it has been argued that Multi-Perspective Performance Measures help organization to perform better. De Geuser, Mooraj and Oyon (2009); Chenhall and Langfield-Smith (1998); Evans (2004); Hoque (2004); Hoque and James (2000); Van der Stede, Chow and Lin (2006) reveals that performance measures have a positive effect on financial and nonfinancial performance of an organization. However, Otley (2016) argued that performance can be an independent variable. I found consistency of my fining with the argument of Otley (2016).

This finding has an important implication for researchers and academics. Instead of considering performance is dependent on the adoption and use of performance measures, they could consider performance itself as an independent factor which influences the use of performance measures. This finding will also help the good performing SMEs who have the resources to invest in innovative

management technique but are not willing to do so. They could invest to have a functional information system and use Multi-Perspective Performance Measures to make better decision which it turns might facilitate them to operate their day to day activities more efficiently.

8.3. Contribution of the Findings

This study has several contributions in management accounting literature and practice. As a contribution to the literature, this study focuses both on the adoption and extent of Multi-Perspective Performance Measures use. To date, the contingency-based research has not focused on the delineation of adoption versus extent of performance measurement practice. Further, this study focuses on the nature of performance measures' use in SMEs. Moreover, the contingency-based research has not focused on the nature of performance measures in SME setting. The result of this study showed the association between external environmental factors and nature of performance measures' use. Therefore, this study will be useful to the owners and managers of new start-up SMEs as well as academics and practitioners as they will get the idea about the appropriate use of performance measures in dynamic and competitive business environment. Furthermore, this study will improve the quality of management consultancy service of practitioners and advisors. Such good quality management consultancy might help to reduce SME failure in Japan.

Small or medium sized firms as an empirical setting for performance measurement practice have received little attention in the contingency-based management accounting literature (Reid & Smith, 2000). The SMEs as an empirical setting does not seem fashionable for many researchers. Hence, most of the previous research on performance measurement practice focus only on large enterprises. By choosing SMEs as an empirical setting, this study tries to attract the attention on the performance measurement practice of SMEs.

Further, this study provides empirical evidence that those firms who are using Multi-Perspective Performance Measures are performing well compare to the firm who are not using such measures. However, the qualitative analysis shows that performance could influence the use of a variety of performance measures. So far, a good number of performance measurement frameworks were developed such as the balanced scorecard, the results determinants matrix and the performance prism etc. However, there has not been much research on the effect of performance measurement practices on performance itself (Bourne, Melnyk & Faull, 2007). So, this study filled that gap in management accounting literature. Specially most of the previous research was conducted on those firms who are using Multi-Perspective Performance Measures. In this study, I collected data from firms who are using Multi-Perspective Performance Measures and who are not using Multi-Perspective Performance Measures. Hence, I could make a comparative analysis between these two groups of firms and make it clear which group is performing better.

8.4. Limitations of the Study

In this section, I want to mention some word of caution concerning the potential limitations of the study. Utmost care has been taken to tackle and minimize those limitations, even though some limitations are related to methodology, others to the measurement of constructs and others to the use of theory.

1. The hypotheses of this study are test with survey data. Survey data have some limitations such as response bias, perceptual response from the respondents, truthfulness of self-reports (Hanzlick, 2015). Therefore, the hypotheses are subject to the limitation of such data. Moreover, there is a threat of reliability and validity to measure the constructs using survey data. However, I followed a rigorous process to ensure the reliability and validity of the data and survey instrument. For example, I pilot tested the survey questionnaire to the local practitioners and researchers to ensure the understandability. I performed statistical tests such as t-test to detect possible response bias. Further, I collected

the data with the help of a professional management consultancy firm who have a good expertise on collecting survey data. To minimize potential threats to internal validity of the survey instruments, I adopted the well established scale to measure the contextual variable. The scales that I used are well developed and used by many researchers in management accounting literature. Thus, I try to minimize the potential threat pertaining to survey data.

2. Another potential limitation could be the use of likert- scale to answer the survey questions. Some respondents may prefer to tick a higher or lower score to answer questions. On the other hand, some could prefer to pick a middle position and cluster their responses to a middle score of the likert- scale. To minimize such tendency of respondents, I used 7 point likert- scale instead of using a 5 point liket-scale which is commonly used to answer questionnaire survey.

3. I used subjective measures of organizational performance. Although I tried to collect objective measures of performance, I was not successful. Therefore, the results and analysis of organizational performance should be used as such.

4. I collect qualitative data through face-to face interview. The interview responses might not be claimed as 100% reliable. The responses of interviews might be influenced by factors such as interviewees' willingness to provide accurate information regarding their use of Multi-Perspective Performance Measures. Hence, the findings of this research should be interpreted considering the potential biases or inaccuracies in the responses of interviewees.

5. Another potential limitation of this study could be related to translation of questionnaire in Japanese language. The survey questionnaire was developed in English and then translated in Japanese. The translation of original questionnaire may distort the intended meaning of the questions. However, I followed a very meticulous process to translate the questionnaire. To translate the questionnaire, I

employed the translation procedures suggested by Hofstede (1980) which is also used by Lau and Sholihin (2005). Nonetheless, translation process cannot be guaranteed to be error-free, even though utmost care was taken.

6. I applied contingency framework, Balanced Scorecard and Simon's Lever of Control Framework in this study. These theories and framework are extensively use in western country context with a few exceptions. The applicability of these Western-derived thoughts in an East Asian country might raise some questions from researchers of East Asian territory.

8.5. Avenues for Future Research

My findings and limitations of the study suggest many avenues for future research on performance measurement and they are:

1. Avnues exist for future research to investigate the intervening effects of variables such as organizational culure, strategic orientation of the firms, age of the firms on the adoption and use of performance measures.

2. More research is needed to study the moderating effect of contextual variables on the adoption and use of performance measures. Further work could also benefit from adding a large number of contextual factors to broaden the hypotheses of this study.

3. Moreover some unobserved variables may affect the diagnostic and interactive use of performance measures. In particular, I did not address leadership style or managerial style on the nature of performance measures use. A future research could be conducted addressing this issue.

4. A longitudinal analysis of a firm might provide more insights on the research issues explored in this study. A longitudinal study on firms might be helpful for researchers and academics to understand the use of Multi-Perspective Performance Measures in SME setting more elaborately. This may also help

researchers to identify few more new contextual variables which might be unique for SMEs.

5. In this study, I use questionnaire survey and face-to face interview to collect data. Therefore, the findings of the study based on the respondent's opinions and the manner in which they chose to reveal their firm's conditions in responding to a survey. Future studies should adopt various other methods of data collection, e.g., examining the sample firms' internal documents and public information.

6. The models used to address the research issues in this study are relatively simple and easy to use. Further research could be conducted by adding more contextual variables and using some new statistical method such as structural equation modeling to show the impact of contextual factors on each other.

7. The reliability and accuracy of this study could be tested by replicating the study in settings apart from Japanese SMEs. It might be possible that SMEs in other countries differ from Japanese SMEs. This may be so because of the size of the Japanese economy, the nature of market competition, legal and regulatory constraints and economic policies or structures that might differ among countries. Thus, future research may also be designed to compare the findings in this study with findings that relate to SMEs in other countries.

8.6. Concluding Remarks

I believe that the research issues addressed in this thesis paper is demanding, particularly in the context of SMEs. I am confident that the findings of this research will enrich the understanding of performance measurement practice from a viewpoint of contingency –based research. I hope that my findings generated some further interesting research avenues and some logical insights of theoretical and practical implication of the research findings. There is still a lot more to learn about the interrelation between contextual factors and performance measurement

practice. This thesis is just a step to further the knowledge about performance measurement practice and contextual factors. There still remains much unexplored substance to explore.

References

Abdel-Kader, M., & Luther, R. (2008). The impact of firm characteristics on management accounting practices: A UK-based empirical analysis. *British Accounting Review*, *40*(1), 2–27.

Abdel-Maksoud, A., Dugdale, D., & Luther, R. (2005). Non-financial performance measurement in manufacturing companies. *The British Accounting Review*, *37*(3), 261–297.

Abernethy, M. A.,& Lillis. A. M. (1995). The impact of manufacturing flexibility on management control system design. *Accounting, Organizations and Society*,*20*(4),241–258.

Abernethy, M. A., & Guthrie, C. H. (1994). An empirical assessment of the "fit" between strategy and management information system design. *Accounting and Finance, November*, 49–66.

Abernethy, M.A., Bouwens, J., & van Lent, L. (2004). Determinants of control system design in divisionalized firms. *The Accounting Review, 79* (3), 545–570.

Adcock, R., & Collier, D. (2010). Measurement validity: A shared standard for qualitative and quantitative research. *American Political Science Review, 95*(3), 529-546.

Agola, N. O., & Wakabayashi, M. (2000).Transformation and business conversion for sustained competitiveness among Japanese manufacturing SMEs: Implications for SMEs development in Kenya. *Japanese. Journal of Administrative Science, 14*(1), 49-66.

Aragón-Sánchez, A., & Sánchez-Marín, G. (2005). Strategic orientation, management characteristics, and performance: A study of Spanish SMEs. *Journal of Small Business Management, 43*(3), 287–308.

Armstrong, J.S., & Overton, T.S. (1977).Estimating nonresponse bias in mail surveys. *Journal of Marketing Research, 14*, 396–402.

Askarany, D., Yazdifar, H., & Askary, S. (2010). Supply chain management, activity- based costing and organisational factors. *International Journal of Production Economics, 127*(2), 238–248.

Atkinson,A.A., Balakrishnan,R., Booth, P., Cote,J.M., Groot,T., Malmi,T., …. Wu,A. (1997). New directions in management accounting research. *Journal of Management Accounting Research, 9*, 79–108.

Banker, R.D., Potter, G., & Srinivasan, D. (2000). An empirical investigation of an incentive plan that includes nonfinancial performance measures, *The Accounting Review, 75*(1), 65–92.

Barnes, M., Dickinson, T., Coulton, L., Dransfield, S., Field, J., Fisher, N., … Shaw,D.(1998). *A new approach to performance measurement for small to medium enterprises*, In Proceedings of the Performance Measurement – Theory and Practice Conference, Cambridge,14–17 July.

Bedford, D. S., & Malmi, T. (2015). Configurations of control: An exploratory analysis. *Management Accounting Research*, *27*, 2–26.

Berthelot, S., & Morrill, J. (2016). Management control systems and the presence of a full-time accountant: An empirical study of Small and Medium-Sized Enterprises (SMEs), *Advances in Management Accounting, 27,* 207-242.

Bititci, U.S., Carrie, A.S., & McDevitt, L. (1997). Integrated performance measurement systems: a development guide. *International Journal of Operations and Production Management*, *17*, 522–534.

Bititci, U. S., Nudurupati, S. S., Turner, T. J., & Creighton, S. (2002). Web

enabled performance measurement systems: Management implications. *International Journal of Operations & Production Management*, *22*(11), 1273–1287.

Bititci, U.S., Turner, T., & Begemann, C. (2000). Dynamics of performance measurement systems. *International Journal of Operations and Production Management, 20*(6), 692–704.

Bhimani, A. (1994). Monitoring performance measures in UK manufacturing companies. *Management Accounting, 72*, 32–37.

Bourne, M., Neely, A., Mills, J. & Platts, K. (2003). Implementing performance measurement systems: A literature review. *International Journal of Business Performance Management*, *5*(1), 1–24.

Bourne, M., Melnyk, S. A., Bititci, U., Platts, K., & Andersen, B. (2014). Emerging issues in performance measurement. *Management Accounting Research*, *25*(2), 117–118.

Bourne, M., Melnyk, S.A., & Faull, N. (2007). The impact of performance measurement on performance, *International Journal of Operations & Production Management, 27*(8).

Bourne, M., Neely, A., Platts, K., & Mills, J. (2002). The success and failure of performance measurement initiatives :Perceptions of participating managers. *International Journal of Operations & Production Management, 22*(11), 1288–1310.

Bourne, M., Pavlov, A., Franco-Santos, M., Lucianetti, L., & Mura, M. (2013). Generating organisational performance: The contributing effects of performance measurement and human resource management practices . *International Journal of Operations & Production Management*, *33*(11/12), 1599–1622.

Braam, G. J. M., & Nijssen, E. J. (2004). Performance effects of using the Balanced Scorecard: A note on the Dutch experience. *Long Range Planning*, *37*(4), 335–349.

Brignall, S. & Modell, S. (2000). An institutional perspective on performance measurement and management in the new public sector. *Management Accounting Research*, *11*, 281–306.

Bryman,A., & Bell, E.(2011). *Business Research Methods*. New York: Oxford University Press.

Bryman, A. (1996). *Quantity and Quality in Social Research*. New York: Routledge.

Burns., T.,& Stalker, G.M. (1961). *The Management of Innovation*. London, U.K.: Tavistock Publications.

Cascio, W.F.(2012). Methodological issues in international HR Management research. *The International journal of Human Resource Management*,*23*(12),2532-2545.

Chapman, C. S. (1997). Reflections on a contingent view of accounting. *Accounting, Organizations and Society*, *22*, 189– 205.

Castrogiovanni, G.J. (1991). Environmental munificence: a theoretical assessment. *Academy of Management Review*, *16* (3), 542–565.

Cavalluzzo, K.S., & Ittner, C.D. (2004). Implementing performance measurement innovations: Evidence from governmen. *Accounting, Organizations and Society*, *29*(3-4), 243–267.

Chandler, A. D.(1962). *Strategy and Structure: Chapters in the History of the American Industrial Enterprise*. Cambridge: MIT Press.

Chen, C. X., Matsumura, E. M., Shin, J. Y., & Yu-Ching Wu, S. (2015). The Effect of Competition Intensity and Competition Type on the Use of Customer Satisfaction Measures in Executive Annual Bonus Contracts. *The Accounting Review*, *90*(1), 229–263.

Chenhall, R. H.(1997). Reliance on manufacturing performance measures, total quality management and organizational performance. *Management Accounting Research, 8*(2), 187–206.

Chenhall, R.H. (2003). Management control systems design within its organizational context: findings from contingency-based research and directions for the future. *Accounting, Organizations and Society*, *28*, 127–168.

Chenhall, R.H., & Langfield-Smith, K. (1998). The relationship between strategic priorities, management techniques and management accounting: an empirical investigation using a systems approach. *Accounting, Organizations and Society, 23*(3), 243–264.

Chenhall, R. H., & Langfield-Smith, K. (2007). Multiple perspectives of performance measures. *European Management Journal, 25*(4), 266–282.

Chenhall, R. H., & Morris, D. (1986). The Impact of Structure, Environment, and Interdpendence on the Perceived Usefulness of Management Accounting Systems. *The Accounting Review, 61*(1), 16-35.

Chennell, A., Dransfield, S., Field, J., Fisher, N., Saunders, I., & Shaw, D. (2000). *OPM: A system for organisational performance measurement.* In Proceedings of the Performance Measurement – Past, Present and Future Conference, Cambridge, 19–21 July.

Committee of Sponsoring Organizations of the Treadway Commission (COSO). (2006). *Guidance for smaller public companies reporting on internal control over financial reporting.*

Creswell, J. W. (2003). *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*. Thousand Oaks, California: Sage Publications.

Curran, J. (2006). 'Specificity' and 'denaturing' the small business. *International Small Business Journal, 24* (2), 205–210.

D'Amboise, G., & Muldowney, M. (1988). Management theory for small business: Attempts and requirements. *Academy of Management Review, 13*(2), 240.

Davila, T. (2005). An exploratory study on the emergence of management control systems: Formalizing human resources in small growing firms. *Accounting, Organizations and Society, 30*(3), 223–248.

Davila, A.,& Foster, G. (2005). Management Accounting Systems adoption decisions: evidence and performance implications from early-stage/startup companies. *The Accounting Review, 80*(4), 1039–1068.

Davis, S., & Albright, T. (2004). An investigation of the effect of Balanced Scorecard implementation on financial performance. *Management Accounting Research, 15*(2), 135–153.

Dekker, H. C., Groot, T., & Schoute, M. (2013). A balancing act? the implications of mixed strategies for performance measurement system design. *Journal of Management Accounting Research*, *25*(1), 71–98.

De Geuser, F., Mooraj, S., & Oyon, D. (2009). Does the Balanced Scorecard Add Value? Empirical Evidence on its Effect on Performance. *European Accounting Review, 18*(1), 93–122.

Deshpande, R., Farley, J.U., & Webster, F.E. (1993). Corporate culture, customer orientation, and innovativeness in Japanese firms: A quadrad analysis, *Journal of Marketing, 57*(1), 23–37.

Dess, G. (1987). Consensus on strategy formulation and organizational performance, *Strategic Management Journal, 8*, 259–277.

Dillman, D.A. (2000). *Mail and Internet Surveys*. New York: Wiley.

Duncan, R. B. (1972). Characteristics of organizational environments and perceived environmental uncertainty. *Administrative Science Quarterly, 17*, 313–327.

Dyckman, T. R., & Zeff, S. A.(2014). Some methodological deficiencies in empirical research articles in Accounting. *Accountign Horizons*, *28*(3), 695-712.

Evans, J. R. (2004). An exploratory study of performance measurement systems and relationships with performance results. *Journal of Operations Management*, *22*(3), 219–232.

Ezzamel, M. (1990). The impact of environmental uncertainty, managerial autonomy and size on budget characteristics. *Management Accounting Research, 1*, 181– 197.

Field, A. (2014). *Discovering Statistics using IBM SPSS Statistics*. California: Sage Publications Ltd.

Fiegenbaum, A, & Karnani, A. (1991). Output flexibility: a competitive advantage for small firms. *Strategic Management Journal, 12*(2), 101–115.

Fisher, J.(1995). Contingency-based research on management control systems:

categorisation by level of complexity,*Journal of Accounting Literature, 14*, 24–53.

Fisher, J.(1998). Contingency theory, management control systems and firm outcomes: Past results and future directions. *Behavioral Research in Accounting,10*(supplement), 47-64.

Fitzgerald, L., Johnston, R., Brignall, S., Silvestro, R., & Voss, C. (1991). *Performance Measurement in Service Businesses*. London, CIMA.

Franco, M., & Bourne, M. (2003). Factors that play a role in "managing through measures." *Management Decision, 41*(8), 698–710.

Franco-Santos, M., Lucianetti, L., & Bourne, M. (2012). Contemporary performance measurement systems: A review of their consequences and a framework for research. *Management Accounting Research, 23*(2), 79–119.

Franco-Santos, M., Kennerley, M., Micheli, P., Martinez, V., Mason, S., Marr, B., … Neely, A. (2007). Towards a definition of a business performance measurement system. *International Journal of Operations & Production Management*, *27*(8), 784–801.

Galbraith, J.R. (1973). *Designing Complex Organizations*. Boston, USA: Addison-Wesley Longman Publishing Co.

Garengo, P., Biazzo, S., & Bititci, U.S. (2005). Performance measurement systems in SMEs: A review for a research agenda. *International Journal of Management Reviews*, *7*(1), 25–47.

Garengo, P., & Bititci, U. (2007). Towards a contingency approach to performance measurement: an empirical study in Scottish SMEs. *International Journal of Operations & Production Management*, *27*(8), 802–825.

Gerdin, J., & Greve, J.(2008). The appropriateness of statistical methods for testing contingency hypotheses in management accounting research. *Accounting, Organization and Society*, *33*(7-8), 995-1009.

Gordon, L.A., & Narayanan, V.K. (1984). Management accounting systems, perceived environmental uncertainty and organization structure: An empirical investigation. *Accounting, Organizations and Society, 9* (1), 33–47.

Gosselin, M. (1997).The effect of strategy and organizational structure on the adoption and implementation of activity-based costing, *Accounting, Organizations and Society, 22* (2), 105–122.

Govindarajan, V. (1984). Appropriateness of accounting data in performance evaluation: an empirical examination of environmental uncertainty as an intervening variable. *Accounting, Organizations and Society, 9*, 125–135.

Griffith, R., & Neely, A. (2009). Performance pay and managerial experience in multitask teams: Evidence from within a firm. *Journal of Labor Economics*, *27*(1), 49-82.

Gujarati, D.(2003). *Basic Econometrics*. Boston: McGraw Hill.

Hair,J.F., Wolfinbergar, M.,Money, A.H.,Samouel, P., & Page, M.J.(2011). *Essentials of Business Research Methods.* New York, USA: M E Sharpe.

Hakola, M. (2010). Balanced scorecard as a tool for small business reorganization. *International Journal of Management & Enterprise Development, 9* (4), 364–384.

Hansen, S. C., & Van der Stede,W.A. (2004). Multiple facets of budgeting: an exploratory analysis. *Management Accounting Research*, *15*(4), 415–439.

Hanzlick, M.(2015).*Management Control Systems and Cross-Cultural Research*. Lohmar-Koln, Germany: EUL VERLAG.

Henri, J-F. (2006[a]). Management control systems and strategy: A resource-based perspective. *Accounting, Organizations and Society, 31*, 529-558.

Henri, J-F. (2006[b]). Organizational culture and performance measurement systems. *Accounting, Organizations and Society*, *31*(1), 77–103.

Ho, J. L. Y., Wu, A., & Wu, S. Y. C. (2014). Performance measures, consensus on strategy implementation, and performance: Evidence from the operational-level of organizations. *Accounting, Organizations and Society*, *39*(1), 38–58.

Hofer,C.W.(1975).Toward a contingency theory of business strategy. *Academy of Management Journal*,*18*(4),784-810.

Hofmann, S., Wald, A., & Gleich, R. (2012). Determinants and effects of the diagnostic and interactive use of control systems: an empirical analysis on the use of budgets. *Journal of Management Control*, *23*(3), 153–182.

Hofstede, G.H. (1980). *Culture's Consequences: International Differences in Work- Related Values*. Beverly Hills: Sage Publication Inc.

Hopper, T., Koga, T., & Goto, J. (1999). Cost accounting in small and medium sized Japanese companies : an exploratory study, *Accounting and Business Research*,*30*(1), 73–86.

Hoque, Z. (2004). A contingency model of the association between strategy, environmental uncertainty and performance measurement: impact on organizational performance. *International Business Review*, *13*(4), 485–502.

Hoque, Z. (2005). Linking environmental uncertainty to non-financial performance measures and performance: a research note. *The British Accounting Review*, *37*(4), 471–481.

Hoque, Z. (2011). The relations among competition, delegation, management accounting systems change and performance: A path model. *Advances in Accounting*, *27*(2), 266–277.

Hoque, Z. (2014). 20 years of studies on the balanced scorecard: Trends, accomplishments, gaps and opportunities for future research. *British Accounting Review*, *46*(1), 33–59.

Hoque, Z., & James, W. (2000). Linking balanced scorecard measures to size and market factors: Impact on organizational performance. *Journal of Management Accounting Research*, *12*(1), 1–17.

Hoque, Z., Mia, L., & Alam, M. (2001). Market Competition, computer-aided manufacturing and use of multiple performance measures: An empirical study. *The British Accounting Review*, *33(*1), 23–45.

Hussain, M.M., & Hoque, Z. (2002). Understanding non-financial performance measurement practices in Japanese banks: A new institutional sociology perspective, *Accounting, Auditing & Accountability Journal*, *15*(2), 162–183.

Hyvönen, J. (2007). Strategy, performance measurement techniques and information technology of the firm and their links to organizational performance. *Management Accounting Research*, *18*(3), 343–366.

Hvolby, H-H., & Thorstenson, A. (2000).*Performance measurement in small and medium-sized enterprises,* In Proceeding of the International Conference on Stimulating Manufacturing Excellence in SMEs, Coventry, 17–19 April.

Ittner, C. D., Larcker, D. F., & Rajan, M. V. (1997). The choice of performance

measures in annual bonus contracts. *The Accounting Review*, *72*(2), 231-255.

Ittner, C. D., & Larcker, D. F. (1997). Quality strategy, strategic control systems, and organizational performance. *Accounting, Organizations and Society*, *22*(3), 293–314.

Ittner, C. D., & Larcker, D. F.(1998). Are nonfinancial measures leading indicators of financial performance? An analysis of customer satisfaction. *Journal of Accounting Research*, *36*, 1–35.

Ittner, C. D., Larcker, D. F., & Meyer, M. W. (2003). Subjectivity and the weighting of performance measures:Evidence from a balanced scorecard. *The Accounting Review*, *78*(3), 725-758.

Ittner, C. D., Larcker, D. F., & Randall, T. (2003). Performance implications of strategic performance measurement in financial services firms. *Accounting, Organizations and Society*, *28*(7–8), 715–741.

Kaplan, R.S., & Norton, D. P. (1992). The balanced scorecard – measures that drive performance. *Harvard Business Review*, *70*(1), 71–79.

Kaplan, R. S., & Norton, D. P. (1993). Putting the balanced scorecard to work. *Harvard Business Review*, (September–October), 134–147.

Kaplan, R. S., & Norton, D. P. (1996a). Linking the balanced scorecard to strategy. *California Management Review*, *39*(1), 53–79.

Kaplan, R. S., & Norton, D. P. (1996b). Using the balanced scorecard as a strategic management system. *Harvard Business Review*, *74*(1), 75–85.

Kaplan, R. S., & Norton, D. P. (1996c). *The balanced scorecard: Translating strategy into action*. Boston, MA: Harvard Business School Press.

Khandwalla, P. (1973). Effect of competition on the structure of top management control. *Academy of Management Journal, 16* (2), 285–295.

Keegan, D.P., Eiler, R.G., & Jones, C.R. (1989). Are your performance measures obsolete? *Management Accounting, 70* (12), 45-50.

Kennerley, M., & Neely, A. (2002). A framework of the factors affecting the evolution of performance measurement systems. *International Journal of Operations & Production Management*, 22(11),1222–1245.

King, R., Clarkson, P. M., & Wallace, S. (2010). Budgeting practices and performance in small healthcare businesses. *Management Accounting Research, 21*(1), 40–55.

Krumwiede, K. (1998). The implementation stages of activity-based costing and the impact of contextual and organizational factors, *Journal of Management Accounting Research, 10*, 239–277.

Laitinen, E. (1996). Framework for small business performance measurement: towards integrated PM system. Research Papers of the University of Vaasa, Finland.

Laitinen, E.K. (2002). A dynamic performance measurement system: evidence from small Finnish technology companies. *Scandinavian Journal of Management, 18*(1), 65–99.

Lau, C. M., & Sholihin, M. (2005). Financial and nonfinancial performance measures: How do they affect job satisfaction? *The British Accounting Review, 37*(4), 389–413.

Lau, C. M. & Martin-Sardesai, A. V. (2012). The role of organisational concern for workplace fairness in the choice of a performance measurement

system. *The British Accounting Review*, *44*(3), 157–172.

Lawrence, P. R., & Lorsch, J.W. (1967[a]). Differentiation and integration in complex organization. *Administrative Science Quarterly*, *12*(1), 1-47.

Lawrence, P. R., &Lorsch, J.W. (1967[b]).*Organization and Environment*, Boston. MA: Harvard Business School, Division of Research.

Lee, C-L., & Yang, H-J. (2011). Organization structure, competition and performance measurement systems and their joint effects on performance. *Management Accounting Research*, *22*(2), 84–104.

Levitt, B., & March, J. G. (1988). Organizational learning. *Annual Review of Sociology*, *14*, 319–340.

Lillis, A. M. & van Veen-Dirks, P. M. (2008). Performance measurement system design in joint strategy settings. *Journal of Management Accounting Research*, *20*, 25–57.

Lo´pez, O. L.,& Hiebl, M. R. W. (2015). Management accounting in Small and Medium-SizedEnterprises: Current knowledge and avenues for further research. *Journal of Management Accounting Research*, *27*(1), 81–119.

Lynch, R.L., & Cross, K.F. (1991). *Measure Up! Yardsticks for Continuous Improvements*. Cambridge, MA: Blackwell Publishers.

Manville, G. (2007). Implementing a balanced scorecard framework in a not-for-profit SME. *International Journal of Productivity and Performance Management*,*56* (2), 162–169.

Marriott, N., & Marriott, P. (2000). Professional accountants and the development of management accounting service for the small firm: Barriers and possibilities. *Management Accounting Research* , *11* (4), 475–492.

Melnyk, S. A., Bititci, U., Platts, K., Tobias, J., & Andersen, B. (2013). Is performance measurement and management fit for the future? *Management Accounting Research*, *25*(2), 173–186.

Merchant, K. (1984). Influences on departmental budgeting: an empirical examination of a contingency model. *Accounting, Organizations and Society*, *9*(4), 291–307.

Merchant, K. (1990). The effects of financial controls on data manipulation and management myopia. *Accounting, Organizations and Society*, *15*, 297–313.

Miller, C., & Cardinal, L. (1994). Strategic planning and firm performance: a synthesis of more than two decades of research. *Academy of Management Journal, 37,* 1649–1665.

Miller, D., & Friesen, P.H. (1983). Strategy-making and environment: The third link. *Strategic Management Journal, 4*(3), 221–235.

Mitchell, F., & Reid, G. C. (2000). Problems, challenges, and opportunities: The small business as a setting for management accounting research. *Editorial Management Accounting Research, 11*(4), 385–390.

Morse, J.M. (1991). Approaches to qualitative-quantitative methodological triangulation. *Nursing Research, 40*, 120-123.

Naman, J., & Slevin, D. (1993). Entrepreneurship and the concept of fit: A model and empirical tests. *Strategic Management Journal,14*(2), 137–153.

Neely, A., Gregory, M., & Platts, K. (1995). Performance Measurement System Design: A Literature Review and Research Agenda. *International Journal of Operations & Production Management, 25*(12), 1228-1263.

Neely, A., Adams, C., & Kennerley, M. (2002). *Performance Prism: The Scorecard for Measuring and Managing Stakeholder Relationships*. London: Financial Times/ Prentice Hall.

Nilsson, F., & Kald, M. (2002). Recent advances in performance management: The Nordic case. *European Management Journal*, *20*(3), 235–245.

Nunnally, J. C. (1967). *Psychometric Theory*, London: McGraw-Hill.

OECD (2004). *Promoting Entrepreneurship and innovative SMEs in a global economy: towards a more responsible and inclusive globalization*, In the proceedings of 2nd OECD conference of ministers responsible for Small and Medium-Sized Enterprises (SMEs), Istanbul, Turkey, 3-5 June.

Otley, D. T. (1978). Budget use and managerial performance. *Journal of Accounting Research*, *16*(1), 122–149.

Otley, D. T. (1980). The contingency theory of Management Accounting: Achievement and prognosis. *Accounting, Organizations and Society*, *5*(4), 413–428.

Otley, D. T.(1999). Performance management: A framework for management control systems research. *Management Accounting Research, 10*(4), 363–382.

Otley, D. T.(2016). The contingency theory of management accounting and control: 1980-2014. *Management Accounting Research*, *31*, 45–62.

Pallant, J. (2011). *A Step by Step Guide to Data Analysis Using IBM SPSS*. New York, USA: Open University Press, McGraw-Hill.

Perera, S., Harrison, G., & Poole, M. (1997). Customer-focused manufacturing strategy and the use of operations-based nonfinancial performance measures: A research note. *Accounting, Organizations and Society*, *22*(6), 557–572.

Podsakoff, P.M., MacKenzie, S.B., Lee, J-Y., & Podsakoff, N.P.(2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Phychology,88* (5), 879-903.

Powell, T. C. (1995). Total quality management as competitive advantage: A review and empirical study. *Strategic Management Journal, 16*(1), 15–37.

Reid, G. C., & Smith, J. A. (2000). The impact of contingencies on management accounting system development. *Management Accounting Research, 11*(4), 427–450.

Said, A. A., Hassab Elnaby, H. R., & Wier, B. (2003). An empirical investigation of the perormance consequences of nonfinancial meaures. *Journal of Management Accounting Research*, *15*(82), 193–223.

Schmid,S.,& Kretschmer, K.(2010). Performance evaluation of foreign subsidiaries: A review of the literature and a contingency framework. *International Journal of Management Reviews,12*(3),219-258.

Scott, T. W., & Tiessen, P. (1999). Performance measurement and managerial teams. *Accounting, Organizations and Society, 24*(3), 263–285.

Shields, M. D. (1997). Research in management accounting by North Americans in the 1990s. *Journal of Management Accounting Research, 9*, 3–62.

Shimizu,K.(2013*). The Role of Small and Medium Enterprises in Japan's political economy*. Retrieved from: http://fiid.org/wp-content/uploads/2012/11/Shimizu- Role-of-SMEs-in-Japans-political-economy.pdf.

Simons, R. (1995). *Levers of Control: How Managers Use Innovative Control Systems to Drive Strategic Renewal.* Boston: Harvard Business School Press.

Simons, R. (2000). *Performance Measurement and Control Systems for Implementing Strategy.* Upper Saddle River: Prentice Hall.

Small and Medium Enterprise Agency. (2017). *White Paper on Small and Medium Enterprises in Japan, 2017*. Retrieved from http://www.chusho.meti.go.jp/sme_english/.

Small and Medium Enterprise Agency. (2016). *White Paper on Small and Medium Enterprises in Japan, 2016*. Retrieved from http://www.chusho.meti.go.jp/sme_english/.

Small and Medium Enterprise Agency. (2003). *White Paper on Small and Medium Enterprises in Japan, 2003*.Retrieved from http://www.chusho.meti.go.jp/sme_english/.

Strauß, E, & Zecher,C. (2013). Management control systems: A review. *Journal of Management Control, 23*(4), 233-268.

Smith, K. G., Gannon, M. J., Grimm, C., & Mitchell, T. R. (1988). Decision making behavior in smaller enterpreneurial and larger professionally managed firms. *Journal of Business Venturing , 3*, 223-232.

Speckbacher, G., Bischof, J., & Pfeiffer, T. (2003). A descriptive analysis on the implementation of Balanced Scorecards in German-speaking countries. *Management Accounting Research*, *14*(4), 361–387.

Speckbacher, G., & Wentges, P. (2012). The impact of family control on the use of performance measures in strategic target setting and incentive compensation: A research note. *Management Accounting Research*, *23*(1), 34–46.

Storey, D. (1994). *Understanding the Small Business Sector*. London: Routledge.

Street, C. T., & Meister, D.B. (2004). Small business growth and internal transparency: The role of information systems. *MIS Quarterly*, *28* (3), 473–506.

Tan, J.J., & Litschert, R.J.(1994). Environment-strategy relationship and its performance implications: an empirical study of the Chinese electronics Industry, *Strategic Management Journal*, *15*, 1–20.

Tranfield, D., Denyer, D., & Smart, P. (2003). Towards a methodology for developing evidence-informed management knowledge by means of systematic review. *British Journal of Management*, *14*, 207–222.

Tuomela, T-S. (2005). The interplay of different levers of control: A case study of introducing a new performance measurement system. *Management Accounting Research*, *16*(3), 293–320.

Uchikawa, S. (2009). *Small and Medium Enterprises in Japan: Surviving the Long- Term Recession*, ADBI Working Paper 169. Tokyo: Asian Development Bank Institute. Retrieved from http://www.adbi.org/working-paper/2009/11/27/3388.japan.sme.recession/

Uyar, A., & Kuzey, C. (2016). Contingent factors, extent of budget use and performance: Astructural equation approach. *Australian Accounting Review*, *26*(1), 91–106.

Van der Stede,W.A., Chow, C. W., & Lin, T. W. (2006). Strategy, choice of performance measures, and performance. *Behavioral Research in Accounting*, *18*, 185–205.

Vandenbosch, B. (1999). An empirical analysis of the association between the use of executive support systems and perceived organizational competitiveness. *Accounting, Organizations and Society, 24*, 77–92.

van Veen-Dirks, P. (2010). Different uses of performance measures: The evaluation versus reward of production managers. *Accounting, Organizations and Society*, *35*(2), 141–164.

Verbeeten, F. H. M., & Boons, A. N. A. M. (2009). Strategic priorities, performance measures and performance: an empirical analysis in Dutch firms. *European Management Journal*, *27*(2), 113–128.

Welsh, J. A., &White,J. F. (1981). A small business is not a little big business. *Harvard Business Review, 59* (4), 18–32.

Widener, S. K. (2006). Associations between strategic resource importance and performance measure use: The impact on firm performance. *Management Accounting Research*, *17*(4), 433–457.

Wiersma, E. (2009). For which purposes do managers use balanced scorecards?. *Management Accounting Research, 20*(4), 239–251.

Winata, L., & Mia, L. (2005). Information technology and the performance effect of managers' participation in budgeting: Evidence from the hotel industry', *International Journal of Hospitality Management, 24* (1), 21–39.

Woodward, J. (1965). *Industrial Organization-Theory and Practice*. London, U.K.: Oxford University Press.

Wouters, M. (2009). A developmental approach to performance measures-Results from a longitudinal case study. *European Management Journal*, *27*(1), 64–78.

APPENDIX 1

Table 23. Determinants of Performance Measures' Usage

Performance Measures → / Contextual Factors ↓	Financial Measures	Non-financial Measures	Multiple measures [1]	Strategic performance measures (BSC)
1.Organizational Size				1.Hoque and James, (2000); [T:Not explicit; ES: Australia (Manufacturing firms)] 1.Speckbacher et al. (2003) [T:Not explicit; ES: German Speaking Country]
2. Strategy: a. Customer focused strategy b. Consensus on strategy implementation c. Production strategy(focus on differentiation) d. Joint strategy(focus on low cost and differentiation both) e. Strategic Priorities (market/customer orientation, innovation and personnel		2a. Perera et al.(1997) [T:Contingency ; ES: Australia (manufacturing firms)] 2b.Ho et al.(2014) [T: Person–organization fit; ES :Taiwan (Financial services firm)]	2c.van Veen-Dirks (2010) [T:Not explicit; ES : Netherlands (Industrial firms)] 2d.Dekker et al. (2013); [T:Not explicit; ES : Netherlands(various industries)] 2d. Lillis and van Veen-Dirks (2008) [T: Not explicit; ES : Netherlands (Industrial firms)]	

development) f. Innovation and Quality oriented strategy g. Quality based manufacturing strategy		2e. Verbeeten and Boons (2009) [T:Not explicit; ES : Netharlands] 2f. Ittner,Larcker and Rajan(1997) [T: Agency; ES:USA]	2g.Van der Stede et al.(2006)[T:Contingency and agency; ES: USA and Europe(Manufacturing firms)	
3.Organizational Structure			3.Lee &Yang (2011) [T: Contingency; ES :Taiwan]	
4. Market competition: a. Intensity b. Type		4a. Abdel-Maksoud et. al.(2005) [T: Contingency; ES : UK (Manufacturing firms)] 4b. Chen et al.(2015) [T: Not explicit; ES :USA]	4a. Hoque, Mia and Alam(2001); [T:Contingeny; ES: Newzealand (Manufacturing firms)] 4a.Lee&Yang (2011)	
5. Product life-cycle stage				5.Hoque and James (2000)
6.Industry type		6.Abdel-Maksoud et al.(2005)		6.Speckbacher et al. (2003)
7.Human resource factors: a. Reliance on human capital b. Firm's pay structure		7a.b.Widener (2006) [T: Agency and social psychology theory; ES : Not explicit (Manufacturing and service firms)]		

8. Organizational culture			8.Henri(2006) [T: Contingency; ES : Canadian (Manufacturing firms)]	
9.Individual Manager effects: a. Evaluation style of manager's b. Manager's receptiveness to new information 10. Organizational Support Systems (Use of other control alternatives such as, budgets, action controls and personal and cultural controls.) 11.Nature/type of PMS use 12.Departmental interdependence			11.Henri (2006[b]); 11.van Veen-Dirks (2010) 12.van Veen-Dirks (2010)	9a.b.Wiersma, (2009) [T:Not Explicit; ES : Netherland (Manufacturing and service firms)] 10.Wiersma (2009)
13. Technology related factors: a. Technological complexity b. Advanced Manufacturing Technologies(computer aided manufacturing, computer aided design etc.) c. Stock handling technologies d. Production scheduling software 14. Employee's		13b. Abdel-Maksoud et al. (2005) 13c. Abdel-Maksoud et al.(2005) 13d. Abdel-Maksoud et al.(2005)	13a. van Veen-Dirks (2010) 13b. Hoque, Mia and Alam(2001) 14.Lau & Martin-	

perception organizational fairness 15. Management Practices (innovative & competitive) 16. Adoption of contemporary ideas 17. Upward communication 18. Workforce characteristics 19. Level of regulation 20. Noise in financial measures 21. Firm's Characteristics		15.Abdel-Maksoud et al.(2005) 16.Abdel-Maksoud et al.(2005) 17.Abdel-Maksoud et al.(2005) 18.Abdel-Maksoud et al.(2005) 19. Ittner,Larcker &Rajan(1997) 20. Ittner,Larcker &Rajan(1997) 21.Said et al.(2003) [T: Contingency theory and agency theory; ES : USA (Manufacturing and service firms]	Sardesai, (2012) [T: Organizational behavior; ES : Australia and UK]	

[a] Multiple performance measures are synonymously used for integrated performance measures, comprehensive performance measures and diversity of measurement in this paper.
[b] The abbreviation: T refers to Theory and ES refers to Experimental Setting.

APPENDIX 2

Table 24

Descriptive Statistics and Factor Loadings of Constructs and Measurement Items (for adoption and extent of use)

Measurement Items and Constructs	Descriptive Statistics		Factor Loadings	Cronbach Alpha
	Mean	Standard Deviation		
Panel A: Performance Measures' items To what extent the following measures are used to evaluate your organization's performance(7 point scale: 1=not at all; 7= to an extremely high extent)				
Financial measures:	5.81	1.56	.765	
1.Operating income	5.04	1.58	.842	
2.Sales growth	4.66	1.60	.833	0.87
3.Return on investment	4.83	1.57	.829	
4. Return on equity	5.40	1.29	.798	
5. Costs per unit produced				
Eigenvalue: 3.31				
% of variance explained: 66.22%				
Non Financial Measures: Innovation and Learning	4.32	1.66	.843	
6.Number of new service/product	4.34	1.63	.847	0.86
launch	4.86	1.35	.759	
7.Time to market of new products/	4.30	1.43	.778	
services	4.88	1.34	.778	
8.Employee satisfaction				
9.On job training hours				
10. Employees' suggestions				
Eigenvalue: 3.22	4.50	1.76	.926	
% of variance explained: 64.32%	4.49	1.57	.923	0.86
Internal Business Process	4.53	1.70	.943	
11.Percent of shipments/products	5.15	1.50	.509	

returned due to poor quality 12. Number of warranty repair requested by customers 13. Ratio of defective output/total output 14. Unit of output per labor hour *Eigenvalue: 2.86* *% of variance explained: 71.43%* **Customer** 15.Number of customer complaints 16.Survey of customer satisfaction 17.Customer response time 18.On time delivery 19. Customer suggestion *Eigenvalue: 3.56* *% of variance explained: 71.26*	4.92 4.95 4.91 5.15 4.93	1.48 1.43 1.33 1.62 1.51	.818 .832 .898 .817 .854	0.90
Panel B: Contextual variable **Organizational Structure (org_struc)** To what extent has authority been delegated to the manager or employee for each of the following decisions? (Please indicate actual rather than stated authority) (7 point scale: 1=not at all; 7= to an extremely high extent) 1. Initiate ideas for new products / services 2. Hiring and firing of personnel 3. Selection of large investments 4. Resource allocations 5. Pricing decisions *Eigenvalue: 3.20* *% of variance explained: 63.96%*	4.53 3.94 3.49 3.68 4.14	1.32 1.57 1.56 1.53 1.46	.630 .831 .858 .889 .765	0.86

Information Systems (IS_func) To what extent the following statements resemble the information systems of your organization (7 point scale: 1=not at all; 7= to an extremely high extent)				
1. The organization has an integrated information system among departments	3.95	1.61	.801	
2. The information system offers query capability to users	4.19	1.57	.866	0.91
3. The information system provides past data regarding operations	4.39	1.53	.889	
4. The information system provides a wide array of cost and performance data	4.17	1.51	.866	
5. Operating data in the information system are updated 'real time' rather than periodically	4.17	1.60	.856	
Eigenvalue: 3.67 *% of variance explained:73.31%*				
Market Competition (mkt_comp) Please rate below the following issues of your business	4.48	1.35	.868	
1. Intensity of competition for main products/services? (1=not intense at all, 7= extremely intense)	3.91	1.51	.785	0.73
2. Difficulty to obtain the necessary inputs (1= not difficult at all, 7=extremely difficult)	4.43	1.37	.757	
3. Extent of change in market activities of competitors during the last three years (1= not at all, 7= to a high extent)				
Eigenvalue: 1.94				

% of variance explained: 64.75%				
Panel C:Organizational Performance (org_perf) Compared to key competitors, over the past three years period your company 1. Is more competitive 2. Has more market share 3. Is growing faster 4. Is more profitable 5. Is more innovative 6. Has more efficient employees *Eigenvalue: 4.08* *% of variance explained: 67.93%*	 4.07 3.89 3.91 4.15 4.03 4.29	 1.37 1.36 1.35 1.35 1.24 1.23	 .808 .824 .869 .849 .822 .769	 0.91

[a] For Panel A, the exploratory factor analysis was done on the 155 sample firms that use Multi-Perspective Performance Measures.

[b] For Panel B and C, the exploratory common factor analysis was done on the full sample of 320 firms.

[c] The Kaiser- Meyer- Olkin measure of sampling adequacy ranges from .637-.853.

[d] Extraction method : Principal component Analysis with Varimax Orthogonal Rotation.

APPENDIX 3

Table 25

Descriptive Statistics and Factor Loadings of Constructs and Measurement Items (Nature of Use)

Measurement Items and Constructs	Descriptive Statistics		Factor Loadings	Cronbach Alpha
	Mean	Standard Deviation		
Variables:				
Nature of Use:				
To what extent your company uses performance measures for the following purposes (7 point scale: 1=not at all; 7= to an extremely high extent)				
Diagnostic use(dia_use)				
1. Track progress towards goals	5.19	1.39	.898	
2. Monitor results	4.88	1.36	.860	.918
3.Compare outcomes to expectations	5.30	1.35	.933	
4. Review key measures of firms	5.19	1.26	.896	
Eigenvalue: 3.22				
% of variance explained: 80.51	5.10	1.27	.859	
Interactive use(int_use)				
1. Enable discussion in meetings of superiors, subordinates and peers	5.00	1.27	.886	.940
2. Enable continual challenge and debate underlying data, assumptions and action plans	5.17	1.24	.870	
3. Provide a common view of the company	5.10	1.34	.894	
4. Tie the organization together	4.88	1.39	.907	
5. Enable the organization to focus on common issues	4.94	1.31	.846	
6. Enable the organization to focus on critical success factors				
Eigenvalue: 4.61				
% of variance explained: 76.90%				

Environmental Dynamism (en_dyn) Indicate to what extent the following aspect of your company's business environment have changed during the last three years.(7 point scale: 1=not at all; 7= to an extremely high extent)	4.25	1.43	.747	
1.Suppliers' actions	4.57	1.44	.826	
2.Customer demands, tastes and preferences	4.28	1.39	.718	
3. Distributors' action	4.33	1.54	.754	
4.Government regulation and policies	4.62	1.53	.841	.881
5.Economic environment and globalization	4.65	1.48	.858	
6.Social Environment *Eigenvalue: 3.77* *% of variance explained:62.81%*				
Environmental Hostility (en_host) Please rate below the following issues of your business				
1. Intensity of competition for main products/services?	4.53	1.62	.896	
(l1=not intense at all, 7= extremely intense)				.752
2. Difficulty to obtain the necessary inputs	3.93	1.43	.896	
(1= not difficult at all, 7=extremely difficult) *Eigenvalue: 1.61* *% of variance explained: 80.34%*				

[a] The exploratory factor analysis was done on the 155 sample firms that use Multi-Perspective Performance Measures.

[b] Extraction method : Principal Component Analysis with Varimax Orthogonal Rotation

APPENDIX 4
Questionnaire (English Version)

F1 SA 1 What is your gender?

○1	Male
○2	Female

F2 NUM How old are you?

F3 SA Please mention the location of your business.

	Prefecture		Prefecture
1	Hokkaido	25	Nara
2	Iwate	26	Wakayama
3	Miyagi	27	Okayama
4	Akita	28	Hiroshima
5	Yamagata	29	Yamaguchi
6	Fukushima	30	Kagawa
7	Ibaraki	31	Ehime
8	Tochigi	32	Kochi
9	Saitama	33	Fukuoka
10	Chiba	34	Saga
11	Tokyo	35	Nagasaki
12	Kanagawa	36	Kumamoto
13	Nigata	37	Oita
14	Toyama	38	Miyazaki
15	Ishikawa	39	Kagoshima
16	Yamanashi	40	Okinawa
17	Gifu		
18	Shizuoka		
19	Aichi		
20	Mie		
21	Shiga		
22	Kyoto		
23	Osaka		
24	Hyogo		

SC 1 SA What is your current position?

○1	Manager/ member of management team
○2	Company Executive
○3	Full time employee

SC 2 SA What is your current position?

○1	Manager Planning Department

SC3 NUM Please mention the number of employees in your company.

○1	Regular employees
○2	
○3	Other employees
○4	Part time employees

SC 4 SA The purpose of this study is to know the effect of contextual factors (size, strategy, business structure, business environment, functionality of information system, organizational culture etc) on the decision of adoption, extent and style of performance measures' use. This questionnaire survey will try to gather information on those issues. There is no right or wrong answer of any question and all the information will be used only for research purpose.

Are you willing to participate in the survey?

○1	Yes
○2	No

F1 SMAT How many years have you been employed? And, how many years have you been working for this company? (For example: You have been employed for 20 years and this year is 21st year. And for 5 years of this period, you have been working for this company and now 6th year. → 1st question-20 years, 2nd question-5 years)

○1	
○2	

F2 SA What is the highest level of education that you have completed?

○1	Junior High School
○2	High School
○3	Bachelor
○4	Master
○5	Doctoral Degree
○6	Vocational Degree
○7	Other

F3 SA Please select a response that best corresponds with your school or faculty which you have completed for your highest level of education .

○1	Engineering
○2	Information, Life Science and Environmental Science
○3	Science
○4	Agriculture and Bioscience
○5	Humanities
○6	Social Science
○7	Other

Q1 SA Please indicates which resembles most to the ownership of your company:

○1	Owners/managers of the firms owns 100% of the firm's share
○2	Owners/managers of the firms owns more than 50% of the firm's share
○3	Owners/managers of the firms owns less than 50% of the firm's share
○4	Owner/ manager does not own any shares of the firm
○5	Joint venture/limited partnership
○6	Do not know

Q 2-1 MA Please mention in which industry your business belongs to.

□1	Agriculture
□2	Mining
□3	Construction
□4	Manufacturing

□5	Information& Communication
□6	Electric, Gas & Water
□7	Transportation
□8	Wholesale & Retail
□9	Financial Service & Insurance
□10	Real Estate
□11	Food Service
□12	Medical Care
□13	Amusement
□14	Education & Learning Support
□15	Others

Q 2-2 MA If your business belongs to other industry, mention the name of the other industry from the list below.

□1	Agriculture
□2	Mining
□3	Construction
□4	Manufacturing
□5	Information& Communication
□6	Electric, Gas & Water
□7	Transportation
□8	Wholesale & Retail
□9	Financial Service & Insurance
□10	Real Estate
□11	Food Service
□12	Medical Care
□13	Amusement
□14	Education & Learning Support
□15	Others

Q3 SA Do you use /adopt multiple performance measurement systems (a combination of financial and non financial performance indicators) to evaluate organizational performance?

○1	Yes
○2	No
○3	Neither of the above

Q4 Please rate below by circling (O) the appropriate number the extent to which each of the following measures is used by your top management team to evaluate organizational performance

(1 = not at all;
2= to a very small extent;
3= to a small extent;
4= to a moderate extent;
5= to a high extent;
6 = to a very high extent;
7= to an extremely high extent)

[Financial Measures]

		1 (not at all)	2	3	4 (to a moderate extent)	5	6	7 (to an extremely high extent)
Q4-1-1	Operating income	O 1	O 2	O 3	O 4	O 5	O 6	O 7
Q4-1-2	Sales growth	O 1	O 2	O 3	O 4	O 5	O 6	O 7
Q4-1-3	Return on investment (ROI)	O 1	O 2	O 3	O 4	O 5	O 6	O 7
Q4-1-4	Return-on-equity (ROE)	O 1	O 2	O 3	O 4	O 5	O 6	O 7
Q4-1-5	Costs per unit produced	O 1	O 2	O 3	O 4	O 5	O 6	O 7

Q4-1 SQ FA If you use other financial indicators which are not mentioned above, please specify below

[Nonfinancial Measures]

		1 (not at all)	2	3	4 (to a moderate extent)	5	6	7 (to an extremely high extent)
Q4-2-1	Number of new service/product launch	O 1	O 2	O 3	O 4	O 5	O 6	O 7
Q4-2-2	Time to market of	O 1	O 2	O 3	O 4	O 5	O 6	O 7

	new products/services							
Q4-2-3	Employee satisfaction	O 1	O 2	O 3	O 4	O 5	O 6	O 7
Q4-2-4	On job training hours	O 1	O 2	O 3	O 4	O 5	O 6	O 7
Q4-2-5	Employees' suggestions	O 1	O 2	O 3	O 4	O 5	O 6	O 7
Q4-2-6	Number of customer complaints	O 1	O 2	O 3	O 4	O 5	O 6	O 7
Q4-2-7	Percent of shipments/products returned due to poor quality	O 1	O 2	O 3	O 4	O 5	O 6	O 7
Q4-2-8	Number of warranty repair requested by customers	O 1	O 2	O 3	O 4	O 5	O 6	O 7
Q4-2-9	Ratio of defective output/total output	O 1	O 2	O 3	O 4	O 5	O 6	O 7
Q4-2-10	Unit of output per labor hour	O 1	O 2	O 3	O 4	O 5	O 6	O 7
Q4-2-11	Survey of customer satisfaction	O 1	O 2	O 3	O 4	O 5	O 6	O 7
Q4-2-12	Customer response time	O 1	O 2	O 3	O 4	O 5	O 6	O 7
Q4-2-13	On time delivery	O 1	O 2	O 3	O 4	O 5	O 6	O 7
Q4-2-14	Customer suggestion	O 1	O 2	O 3	O 4	O 5	O 6	O 7

Q4 SQ FA If you use other nonfinancial indicators which are not mentioned above, please specify below

Q5 To what extent your company uses performance measures for the following purposes:

		1 (not at all)	2	3	4 (to a moderate extent)	5	6	7 (to an extremely high extent)
Q5-1-1	Track progress towards goals	O 1	O 2	O 3	O 4	O 5	O 6	O 7
Q5-1-2	Monitor results	O 1	O 2	O 3	O 4	O 5	O 6	O 7
Q5-1-3	Compare outcomes to expectations	O 1	O 2	O 3	O 4	O 5	O 6	O 7
Q5-1-4	Review key measures of firms	O 1	O 2	O 3	O 4	O 5	O 6	O 7
Q5-1-5	Enable discussion in meetings of superiors, subordinates and peers	O 1	O 2	O 3	O 4	O 5	O 6	O 7
Q5-1-6	Enable continual challenge and debate underlying data, assumptions and action plans	O 1	O 2	O 3	O 4	O 5	O 6	O 7
Q5-1-7	Provide a common view of the company	O 1	O 2	O 3	O 4	O 5	O 6	O 7
Q5-1-8	Tie the organization together	O 1	O 2	O 3	O 4	O 5	O 6	O 7
Q5-1-9	Enable the organization to focus on common issues	O 1	O 2	O 3	O 4	O 5	O 6	O 7
Q5-1-10	Enable the organization to focus on critical success factors	O 1	O 2	O 3	O 4	O 5	O 6	O 7

Q6 Please rate below by circling (O) the appropriate number to what extent the following aspect of your company's business environment have changed during the last three years.

		1 (not at all)	2	3	4 (to a moderate extent)	5	6	7 (to an extremely high extent)
Q6-1-1	Suppliers' actions	O 1	O 2	O 3	O 4	O 5	O 6	O 7
Q6-1-2	Customer demands, tastes and preferences	O 1	O 2	O 3	O 4	O 5	O 6	O 7
Q6-1-3	Market activities of competitors	O 1	O 2	O 3	O 4	O 5	O 6	O 7
Q6-1-4	Distributors' action	O 1	O 2	O 3	O 4	O 5	O 6	O 7
Q6-1-5	Changes in firms' production systems	O 1	O 2	O 3	O 4	O 5	O 6	O 7
Q6-1-6	Changes in information technologies	O 1	O 2	O 3	O 4	O 5	O 6	O 7
Q6-1-7	Government regulation and policies	O 1	O 2	O 3	O 4	O 5	O 6	O 7
Q6-1-8	Economic environment and globalization	O 1	O 2	O 3	O 4	O 5	O 6	O 7
Q6-1-9	Social Environment	O 1	O 2	O 3	O 4	O 5	O 6	O 7

Please rate below the following issues of your business

		1 (not intense at all)	2	3	4 (moderately intense)	5	6	7(extremely intense)
Q7-1-1	How intense is the competition for your main products/ services?	O 1	O 2	O 3	O 4	O 5	O 6	O 7

		1 (not difficult at all)	2	3	4 (moderately difficult)	5	6	7(extremely difficult)
Q7-1-2	How difficult is it to obtain the necessary inputs for your business?	O 1	O 2	O 3	O 4	O 5	O 6	O 7

Q8 To what extent has authority been delegated to the manager or employee for each of the following decisions? (Please indicate actual rather than stated authority)

		1 (not at all)	2	3	4 (to a moderate extent)	5	6	7 (to an extremely high extent)
Q8-1-1	Initiate ideas for new services	O 1	O 2	O 3	O 4	O 5	O 6	O 7
Q8-1-2	Hiring and firing of personnel	O 1	O 2	O 3	O 4	O 5	O 6	O 7
Q8-1-3	Selection of large investments	O 1	O 2	O 3	O 4	O 5	O 6	O 7
Q8-1-4	Resource allocations	O 1	O 2	O 3	O 4	O 5	O 6	O 7
Q8-1-5	Pricing decisions	O 1	O 2	O 3	O 4	O 5	O 6	O 7

Q9 To what extent the following statements resemble the information systems of your company:

		1 (not at all)	2	3	4 (to a moderate extent)	5	6	7 (to an extremely high extent)
Q9-1-1	The organization has integrated information system among departments	O 1	O 2	O 3	O 4	O 5	O 6	O 7
Q9-1-2	The information system offers query capability to users	O 1	O 2	O 3	O 4	O 5	O 6	O 7

Q9-1-3	The information system provides past data regarding operations	O 1	O 2	O 3	O 4	O 5	O 6	O 7
Q9-1-4	The information system provides a wide array of cost and performance data	O 1	O 2	O 3	O 4	O 5	O 6	O 7
Q9-1-5	Operating data in the information system are updated 'real time' rather than periodically	O 1	O 2	O 3	O 4	O 5	O 6	O 7

Q 10.Compared to key competitors, over the past 3-year period your company:

(1=strongly disagree, 2=disagree, 3= Slightly disagree, 4=Neither agree nor disagree, 5= Slightly agree,6= Agree, 7=strongly agree)

		1 (strongly disagree)	2	3	4 (Neither agree nor disagree)	5	6	7 (strongly agree)
Q10-1-1	Is more competitive	O 1	O 2	O 3	O 4	O 5	O 6	O 7
Q10-1-2	Has more market share	O 1	O 2	O 3	O 4	O 5	O 6	O 7
Q10-1-3	Is growing faster	O 1	O 2	O 3	O 4	O 5	O 6	O 7
Q10-1-4	Is more profitable	O 1	O 2	O 3	O 4	O 5	O 6	O 7
Q10-1-5	Is more innovative	O 1	O 2	O 3	O 4	O 5	O 6	O 7
Q10-1-6	Has more efficient employees	O 1	O 2	O 3	O 4	O 5	O 6	O 7

Q 11 Any comments or suggestion:

The format of the English questionnaire differs with the format of the Japanese questionnaire. The English questionnaire was not used to collect data. Data were collected with the Japanese questionnaire. The Japanese version of the questionnaire was formatted by Neo Marketing Inc.

APPENDIX 5
Questionnaire (Japanese)

See the Questionnaire (Japanese) in next page

APPENDIX 6
Interview Questions (English)

Q1. Do you use financial performance indicators only to evaluate your organizational performance? If yes, please mention the reasons below.

Q2. Do you use financial and nonfinancial performance indicators to evaluate your organizational performance? If yes, please mention the reasons below.

Q3.Do you think use of financial indicators is sufficient enough to evaluate the performance of your organization accurately?

If yes, please explain your answer in details.

If no, please explain your answer in details.

Q4. Do you agree with the opinion that "SMEs can sufficiently evaluate organization performance with only financial performance indicators?" In either case of "consent" or "disagreement", please explain the reason.

Q5. “Most of the decisions of your organization are taken by top level managers so you don’t need nonfinancial performance indicators to evaluate the performance of your organization.”
Do you agree/ disagree with the above statement. Please explain your answer.

Q6. Do you think that evaluating organizational performance using financial indicators and non-financial indicators will improve the performance of the whole organization?

APPENDIX 7
Interview questions (Japanese)

問１．御社では、組織業績を評価に財務的な業績指標のみを用いていますか。もしそうであれば、その理由についてお話しください。

問２．御社では、組織業績を評価に財務的な業績指標のみならず非財務的業績指標も合わせて用いていますか。もしそうであれば、その理由についてお話しください。

問３．組織業績を正確に評価するのに財務的な業績指標だけで十分だとお考えでしょうか。

・“はい”の場合、その理由について具体的にご説明ください。

・“いいえ”の場合も、その理由について具体的にご説明ください。

問４．「中小企業においては、財務的な業績指標だけで十分に組織業績を評価できる」という意見に同意しますか。“同意”“反対”のどちらの場合も、その理由についてご説明ください。

問５．「トップ・レベルのマネジャーによってほとんどの意思決定がなされている場合、非財務的な指標による組織業績の評価は必要ではない」という意見に同意しますか。“同意”“反対”のどちらの場合も、その理由についてご説明ください。

問 6. 財務的指標ないし非財務的指標を用いて組織業績を評価することが組織全体のパフォーマンスを向上させるとお考えでしょうか。

APPENDIX 8
Summary of Articles Used to Develop Research Idea

Journal: Management Accounting Review

Author/date	Topic/Focus/ Questions	Concept/ Theoretical model/ Theories/ framework of PM	Paradigm/ Method/Primary research design	Context/ Setting/Sample	Respondents	Variables	Primary Statistical tools	Findings/ contribution	Future Research/Gap
1. Davis & Albright (2004)	This article investigates the usage of the Balanced Scorecard (BSC) to improve financial performance.	BSC	Quasi-experimental field-study	Banking organization located in the southeastern United States.	Presidents (manager of the branch), VP of Finance	DV: Financial performance of the bank IV: implementation of BSC	Nonparametric test: Wilcoxon signed rank test	1. "This study provides evidence supporting the proposition that the BSC can be used to improve financial performance; the findings indicate branches in the BSC group outperformed non-BSC branches on a common composite financial measure." (p. 150)	1. "Future research can examine the effectiveness of the BSC in similar and dissimilar field settings."(p.151) 2. A future study can focus "on the expected time period lag prior to observing results and the circumstances affecting the length of time before results are observed." (p.151) 2. "A future study can investigate how the benefits of the BSC are affected by different industry characteristic, including type of industry, level of competition, and type of strategy." (p.152)
2. Hansen (2010)	This paper provides an analysis to solve organizational externalities through the	Simple microeconomic model	Case Study	Manufacturing organizations in Denmark	Not explicitly mentioned	Variables of NFPM: manufacturing quality, number of components on PCBs, number of	No statistical tool is used	1. The study illustrates "how nonfinancial performance measures played a critical role with respect to fulfilling" the information need.(p.37) 2. "This paper illustrates how	Not explicitly mentioned

	use of nonfinancial performance measures for planning.					product parts. External activity: Customization by sales engineers		centralized controllers' choice of nonfinancial performance measures and target setting in two companies provides critical information to decentralized agents regarding how to balance their performance with the performance of other decentralized agents in their organization".(p.37)	
3. Hyvönen (2007)	This study examines the relationships between organizational performance and customer-focused strategies, performance measures and information technology	Firm's strategy is captured by Porter's (1980, 1985) taxonomy of strategy: differentiation, cost leadership or focus	Questionnaire survey	Forest, metal and electronics industries in Finland	Senior, middle managers and specialist	Variables: Customer focused strategy, information technology, financial performance measures and contemporary measures	Factor Analysis and regression analysis	1. "The results indicate that when the firm does not follow a customer-focused strategy, contemporary management accounting systems in combination with advanced information technology are related to high customer performance of the firm."(p.359) 2. "The results indicate that a fit between the customer-focused strategy and financial performance measures will improve customer performance".(p.360)	Future work can be done to examine "the association between performance and the three-way interaction involving strategy, performance measures and information technology. Further work could also benefit from investigating information technology in relation to other contextual variables."(p.360)
4. Malmi (2001)	This study examines how companies apply BSC	BSC, Neo institutional theory	Exploratory, semi-structured interviews.	Finland , diverse business organization	CEOs and other managers	Variables: four perspective of BSC	No statistical tool is mentioned	1. For some companies, the BSC seems to be no more than a new information system. For other companies, BSCs seem to be as a strategic management system. 2. The logic behind the increasing popularity and adoption of BSC in Finland are: first, the logic of BSCs is certainly appealing to many in Finland. Second, "supply-side organizations of the BSC have a significant effect on the decisions of organizations to adopt. Consultants have had an active role in a number of companies. A large number of seminars, articles and books have turned the BSC into a management fashion"(p.218).	Researchers should study further how BSCs are actually used in practice. This study "could not identify any particular characteristics related to organization type, strategy or structure that might explain differences in the ways BSCs are used"(p.216). Future research can address these issues.

5. Melnyk, Bititci, Platts, Tobias & Andersen (2013)	This study explores the emerging trends in business environment and investigates how these trends will affect the future of PMM.	Not mentioned explicitly	Delphi method	Industry	Academic PMM experts and representatives from industry	Environment, corporate strategy, organizational culture, PMM systems	Descriptive statistics	This study reveals that the practitioners are more concerned with the broad range of changes they faced rather than any individual elements. They also believed that the current PMM literature and tools available are inadequate for these challenges and emphasize the need for a coherent approach between organizational setting, business strategy and the PMM system. Further this study reveals that while managers could understand that they are operating in a more dynamic environment and that a response to dynamisms had to be incorporated into the resulting strategies, the metrics often are not changed.	1.“There is a need to better understand the strategy design and deployment process, especially the linking with PMM and how they should be dovetailed together in their formulation to better cater for more turbulent environments”(p.184) 2. PMM needs to be researched in different contexts 3. The integration of performance and risk management need to be studied more and developed further.
6.Lee & Yang (2011)	This article investigates “the effect of organization structure and competition on the design of performance measurement systems and their joint effects on performance”(p.84).	Contingency Theory, BSC	Survey questionnaire	Taiwanese companies	CFO	Variables: Organizational Structure, Market competition, use of PMS and organizational performance.	Factor analysis and regression analysis	1. The results indicate that firms with a more organic structure rely more on integrated performance measures and a fully-developed PMS. 2. In this study, competition does not have any effect on the use and stages of development of PMSs. 3. This study finds that “the relationship between the use of integrated performance measures and organizational performance are more positively associated in mechanistic organizations than in organic ones”(p.100)	Future research could done by using longitudinal data or case studies or by adopting various other methods of data collection, for example, examining the sample firms’ internal documents and public information.
7.Speckbacher, Bischof & Pfeiffer (2003)	This paper analyzes the stages execution and benefits of different types	BSC	survey	200 most important publicly traded firms in German speaking countries	Members of the board, Heads of departments, mainly department of	Types of BSC (Three types) and stages of development	Descriptive statistics	1. Out of 200 companies, “only a minority of firms (26%) use BSCs, and most of these appear to use only a limited or incomplete version. In particular, a third of BSC users has no “learning and growth” (or	Not explicitly mentioned

	of Balanced Scorecards.				management control.			comparable) perspective" (p.381)	
8.Speklé & Verbeeten (2014)	This study aims to provide quantitative evidence on the organiza-tional factors that moderate the effectiveness of the use of performance measurement systems in public sector organizations	Not explicitly mentioned	Survey	Dutch public sector organizations.	Managers of organizational units.	Incentive-Oriented PMS use, contractibility, exploratory PMS use, Organizational performance	Factor analysis and regression analysis	1. This study finds a positive association between contractibility and performance. 2. This study also finds that an incentive-oriented use of the system negatively influences performance, but that this effect becomes less negative if contractibility increases. 3. This study also found that the exploratory use of performance measures enhances performance.	The model used in this study is "relatively simple, and additional factors such as behavioral and cultural controls, differences in the allocation of decision rights, or mutual trust among stakeholders and managers may affect the use and effects of performance measurement systems" (p.144). These additional factors can be considered in further study
9.Tuomela (2005)	The main objective of this article is to widen the design and use of performance measures for interactive control and the effects of using strategic performance measurement systems in this specific manner.	Simon's lever of control framework	Longitudinal case study cover a period of 4 year	Finland	Management group of FinABB company	Not applicable	Not applicable	The findings of the study shows that the specific control tools (like the Balanced Scorecard) that are used and the way they are applied both should be taken into account. "Moreover, it should be taken into account that performance measurement systems have implications for all levers of controls and that the interactive use of performance management systems has some special benefits and challenges when compared to diagnostic controlling"(p.314).	Not explicitly mentioned
10. Widener (2006)	This study examines the association between the use of performance measures and the reliance on human capital.	Economic theory (agency theory) and social psychology theory (equity theory)	Survey of archival data.	Manufacturing and Service-type of firms	Not mentioned explicitly	Human capital, pay structure of organization, use of financial and non financial PM in executive bonus compensation.	Binary logistic	1. The study finds that "the likelihood of using both financial and non-financial measures are increasing in labor intensity and that the relation is more positive when the firm employs a hierarchical pay structure"(p.217).	Further study can be done by gathering "data directly from firms on both the specific measures and weights on the measures used in bonus compensation"(p.218). Another study can be performed "to extend this

									study to different levels of the firm and/or to different types of compensation." (p.218).
11. Wiersma (2009)	This study assesses the level of BSC's use and focuses on the intentions for which managers use the BSC.	BSC	Exploratory	Dutch firms	Managers responsible for the BSC of a department or business unit	Not applicable	Exploratory Factor analysis, Confirmatory factor analysis , ANOVA	The results of the study reveal that 1. "Firm effects, organizational unit effects and individual manager effects influence BSC usage" (p.249). 2. Three different purposes of BSC usage are: (1) decision-making and decision-rationalizing; (2) coordination; and (3) self-monitoring 3. "Managers have considerable discretion as to whether and how they use the system" (p.249) 4. "Use of the scorecard is higher for individual reasons, i.e. to help make decisions and to receive feedback on these decisions, rather than to communicate with others" (p.249) 5. From the three dimensions of evaluation style, the dimension rigid versus flexible use of evaluations is negatively associated with BSC usage for both coordination and self monitoring, but is not related to decision making"(p.249).	1. "Future research could examine other drivers of BSC usage'(p.250). 3. "A second avenue for further research is to assess the performance consequences of BSC usage. Are some purposes of use more successful than others, or should the different purposes of BSC usage be used complementary to each other to increase performance? (P.250)" Finally, managerial implications of BSC can be assessed. For instance, "do different purposes of BSC usage require different BSC designs and frequency of reporting information from the system? " (p.250).

Journal: Accounting, Organizations and Society

Author/date	Topic/Focus/ Questions	Concept/ Theoretical model/ Theories/ framework of PM	Paradigm/ Method/Primary research design	Context/ Setting/Sample	Respondents	Variables	Primary Statistical tools	Findings/ contribution	Future Research/Gap
1. Artz, Homburg & Rajab (2012)	The article examines how the use of performance measures for decision facilitation and accountability within a particular functional subunit affects the functional subunit's strategic decision influence.	Institutional theory	Questionnaire Survey	German firms (Manufacturing and service firms)	Marketing directors of German firms. VPs of functional division	Contextual variable: properties of PMS measures-reliability and functional specificity, PMS use-decision facilitation and accountability, subunit's strategic decision influence	Multivariate regression analysis with an ordinary least squares (OLS) estimator and heteroscedasticity robust standard errors	This study finds that "the effect of decision-facilitating use of performance measures on functional strategic decision influence is positive and significant for high levels of performance-measures' functional specificity". With regard to the use of performance measures for accountability, The study finds that "the effect is significantly positive for high levels of reliability and negative for high levels of functional specificity"(p.456).	1. Future study could be done to extend the present study to other functional contexts 2. "Further investigations could explore in more depth how functions should use performance information within the organization to achieve the strongest impact on their strategic influence"(p.457). 3. A valuable future investigation "would be the investigation of the effects of personality characteristics such as executives' leadership effectiveness, interpersonal skills, or decision effectiveness"(p.457).
2. Cardinaels & van Veen-Dirks (2010)	This paper examines the effect of organization and presentation of performance measures on how evaluators weight financial and non-financial	BSC, Psychology theory	Experiment	Netherland	Student with work experience	Contextual: variations in organization and presentation of Performance measures in BSC format, consequence: how evaluators weight financial and non-financial measures in performance	2*4 between subject design ANOVA	1. The result of the study shows that "when performance differences are located in the financial category, BSC users place more weight on financial measures than do users of an unformatted scorecard". However, "when performance differences are located in one of the non-financial categories, the type of scorecard used (i.e., a BSC versus an unformatted scorecard) does not affect performance evaluations"	1. Future research could explore "whether unique non-financial measures are more easily ignored than unique financial measures in a BSC-format" (p.577). 2."It would be interesting to explore how certain presentation features in a BSC affect more experienced managers" (p.577).

	measures when evaluating performance.					evaluations.		(p.575). 2. Further experiment demonstrates that with the addition of performance markers, organizing measures into a BSC increases the weight evaluators attach to performance differences located on both financial and non-financial measures"(p.576). ..	3. "Future work can study how participants weight performance information when the business units themselves are less distinguishable on a specific BSC category" (p.577). 4."Researchers can explore the use of other presentation features, such as graphs or aggregations of measures in formulas" (p.577).
3. Cavalluzzo & Ittner (2004)	This paper examines the factors that influence the development, use, and perceived benefits of results oriented performance measures in government activities.	Concept: Result oriented performance measures	Questionnaire survey	US general accounting office	middle- and upper-level civilian managers (working in the 24 largest executive branch agencies)	Information system capabilities, difficulties in selecting and interpreting performance metrics, top management commitment to the use of performance information, decision-making authority, and training in performance measurement techniques.	Correlation and regression analysis	This study finds that performance measure development and accountability are hampered by factors such as "inadequate training, the inability of existing information system to provide timely, reliable, and valid data in a cost effective manner, difficulties selecting and interpreting appropriate performance measures, lack of organizational commitment to achieving results, and limited decision-making authority"(p.265).	Future research could examine the "maturation in performance measurement and management control practices and the ongoing performance gains from their use"(p.265).
4.(Henri) 2006 [a]	The study focuses on the diagnostic and interactive uses performance measurement systems (PMS), and four capabilities	Resource-based view (RBV)/frame work	Questionnaire survey	Canadian manufacturing firms	One member of top management teams (CEO, COO, CFO, or senior vice-presidents).	PMS diagnostic use and interactive use, market orientation, entrepreneurship, organizational learning, innovativeness	Structural equation model	1. "The results of this study strongly suggest that an interactive use of PMS fosters capabilities of market orientation, entrepreneurship, innovativeness, and organizational learning" (p.544). 2. "The results of this study strongly suggest that a	1. Future research could further investigate "the moderator influence of environmental uncertainty and organizational culture on the positive influence of dynamic tension created by the use of PMS in a joint diagnostic and interactive fashion on

	leading to strategic choices							diagnostic use of PMS exerts negative pressure on capabilities of market orientation, entrepreneurship, innovativeness, and organizational learning"(p.546). 3. "Results show that dynamic tension has a direct positive and significant impact on performance. This relationship is observed particularly for firms facing high environmental uncertainty and having flexibility values" (p.547).	capabilities and performance" (p.549). 2. "More research is required to understand how dynamic tension is reinforced and managed on a day-to-day basis by managers at different echelons"(p.549).
5.Henri (2006[b])	The aim of this study examine the relationships between organizational culture and diversity of performance measurement and the nature of use.	Contingency theory and BSC	Questionnaire survey	Canadian manufacturing Firms (small and medium sized firms)	Top managers	Organizational culture, four types of use of PMS: monitoring, attention focusing, strategic decision-making and legitimization. Control variable: size, strategy, environmental uncertainty	ANOVA and SEM	1. The results related to the monitoring use of PMS are inconclusive. "Despite a greater use of PMS for monitoring by control value firms, the difference with flexibility value firms is weak and not significant" (p.94). 2. The flexibility values are "significantly associated to a greater use of PMS for attention focusing" (p.95). 3. "Flexibility value firms use PMS for legitimization to a greater extent than control value firms and flexibility values are associated with greater diversity of measurement" (p.96).	1. Future research might examine "wider aspects of PMS use (e.g., incentives, learning) and other pairs of competing values (e.g., people versus organization dilemma). Moreover, field studies would allow a deeper understanding of the complexities surrounding the relationships between PMS and organizational culture" (p.97). 2. Qualitative methodologies could also be used to explore some new phenomena and the legitimization use of PMS represents a productive area for future research.
6. Itner, Larcker & Randall (2003)	This study investigates the relation between	Contingency theory, SPMS (Financial	Questionnaire survey	Financial services, USA	Executives	Organizational financial performance, manager's	Correlation and Regression Analysis	1. This study finds evidence that SPM practices are associated with 1- and 3-year stock returns.	1. "Future studies can extend the analyses of the paper by examining a broader set of

	measurement system satisfaction, economic performance, and strategic performance measurement diversity and improved alignment with firm strategy and value drivers.	and non financial performance measures)				perceived satisfaction with PMS, size, strategy, performance measurement practices, firm's value drivers, measurement system characteristics		2. Further, the results indicate that higher satisfaction and stock market performance is associated with greater measurement emphasis and diversity than predicted by the benchmark model. 3. The researcher also finds that stock market performance has a stronger relationship with greater measurement diversity compared with firms with similar strategies or value drivers.	performance measurement system attributes (p.739)." 2. "Technical and organizational factors can play an important role in the perceived success of system implementation. Future studies can make a significant contribution by examining how these factors interact with system design choices to influence actual performance outcomes"(p.739).
7. Perera, Harrison & Poole (1997)	The study investigates (i) "whether firms which maintain a customer-focused manufacturing strategy also maintain an emphasis on non-financial measures of performance; and (ii) whether such an emphasis is associated with enhanced performance for firms pursuing a customer-focused strategy" (p.557).	Contingency theory	Questionnaire survey.	Manufacturing organizations in Australia	Managers	Customer focused manufacturing strategy, Advanced Manufacturing Technology (AMT) use of NFPM, Perceived financial performance of organization	Regression analysis	1. "The results suggested that AMP was a stronger stimulus to the use of non-financial performance measures compared to the AMT component"(p.569). 2. "The study also found that both these components in interaction are important in explaining management choices of performance measures" (p.569). 3. "It found the association between manufacturing strategy and non-financial performance measures, using four components of a customer-focused strategy" (p.569). 4. "The study was not able to find a consequential link to organizational performance. The only significant finding for performance was the interaction between the technology component of	1." Future research focusing on changes in specific, disaggregated components of performance, and over a longer period of time, might well capture performance effects not discerned in this study"(p.570). 2. Further research "using a longitudinal methodology and examining one or more organizations and their performance measurement systems both before and after adoption of a customer-focused manufacturing strategy would allow empirical testing of the direction of causality (p.570)" will shed light on the process of systems adaptation.

								customer-focus and the use of nonfinancial measures" (p.569).	
8. van Veen-Dirks (2010)	"This study examines how the importance that is attributed to a variety of financial and non-financial performance measures depends on the type of use – evaluation versus reward" (p.141).	Not explicitly mentioned	Questionnaire survey	Industrial companies located in the Netherlands.	Production managers and management accountants	Production strategy, departmental interdependence technological complexity etc.	Correlation and regression	1. The results show that "the importance that is attached to both a set of financial and a set of non-financial measures is higher for the periodic evaluation than for rewards" (p.160). 2. The study shows that "different exogenous factors drive the importance attached to performance measures for the periodic evaluation and for rewards" (p.160). 3. "The importance of financial measures for the periodic evaluation is not affected by a production strategy focusing on differentiation-related objectives, departmental interdependence, and technological complexity" (p.160). 4. "The data show that, for variable rewards, a production strategy focus on product-performance and departmental interdependence influence only the financial measures, while a production strategy focus on delivery/flexibility and technological complexity only affect the non-financial measures" (p.161).	1. Future research could investigate "wider aspects of PMS use, for example learning, or career decisions and gaps in importance attached to performance measures for these uses"((p.161). 2. "Future research may be directed, in particular, to the underlying causes of the differences in performance measurement between the periodic evaluation and determination of variable rewards"(p.161).. 3. "A further avenue for future research would be to focus on the change processes with regard to performance measures" (p.161).

9. Wouters & Wilderom (2008)	This study aims to investigate the characteristics of a PMS development process that enhance the enabling nature of the PMS. Organization-al learning theory and contingency theory	Longitudinal Case study/ Action research	Logistics department of a medium-sized company in the beverage manufacturing industry.	Employees	Enabling nature of PMS and characteristics of a PMS development process.	Qualitative coding, descriptive statistics and regression analysis	1. "The study finds that professionalism was significantly related to positive attitudes toward performance measures" (p.511). 2. "Transparency contributed to an enabling PMS" (p.511).	"Future research could help to better understand antecedents and consequences of the developmental approach toward performance-measurement systems" (p.513).

Journal: International Business Review

Author/date	Topic/Focus/ Questions	Concept/ Theoretical model/ Theories/conceptual framework	Paradigm/ Method/Primary research design	Context/ Setting/Sample	Respondents	Variables	Primary Statistical tools	Findings/ contribution	Future Research/Gap
1.Hoque (2004)	This study investigates the role of the choice of performance measures on the relationship between (a) strategic priorities and organizational performance and (b) environmental uncertainty and organizational performance.	Contingency framework	Questionnaire Survey	New Zealand manufacturing firms	CEOs	NFPM, Strategic Priorities, Environmental uncertainty	Descriptive statistics, Pearson correlation coefficient, path analytical model	1. "The results of the study suggest indirect relationship between business unit strategy and organizational performance. In addition, a significant and positive association between strategy and management's use of non- financial measures for performance evaluation has been found" (p.496). 2. "The path model results provide no support for the hypothesized positive relation between environmental uncertainty and organizational performance through use of non-financial performance measures" (p. 496- 497).	1."The instrument of environmental ncerainty includes two new variables in the construct, deregulation and globalization and industrial relations. Future research may shed further light on this issue by testing this modified version"(p.497). 2. "This study is conducted in New Zealand. It is possible that companies in other settings differ from their New Zealand counterparts. Thus, future research may also be designed to compare the findings in this study with findings that relate to companies in other countries"(p.497). 3. "The findings of the study are time dependent;

									therefore, a longitudinal study in different settings using more 'softer' methodologies (e.g. case studies) may shed further light on this issue"(p.497).

Journal: European Management Journal

Author/date	Topic/Focus/ Questions	Concept/ Theoretical model/ Theories/conceptual framework	Paradigm/ Method/Primary research design	Context/ Setting/Sample	Respondents	Variables	Primary Statistical tools	Findings/ contribution	Future Research/Gap
1.Agostino & Arnaboldi (2012)	This study investigates how use of the PMS is interconnected with its design.	BSC and Simon's Lever of control(Diagnostic and interactive) Theory: Loose Contingency	Exploratory Case Study	Italian firms that had been using a BSC for at least three years.	CFO, one senior manager responsible for the use of BSC and other officials	Seven firms	No statistical tool is used because of qualitative nature of the study.	The findings indicate that 1. "Interaction between design and use of BSC exists. BSCs used diagnostically are characterized by a dominance of financial measures, dearth of cascading, explicit targets, and no link with the reward system" (p.337). 2. "BSCs used interactively instead have the contrary traits and characterized by an evenly balanced set of financial and non-financial measures, cascading of the BSC, implicit targets, and a link to the re-ward system" (p.337).	1. Future research could be conducted by adopting other conceptualization of use such as Malmi's (2001) differentiation between information purposes and management-by-objective use. 2. The generalizability of the finding of the study could be tested by using quantitative menthodology. 3. It could be be appealing to further explore the association between an interactive approach and links to the reward system, while a diagnostic use appears to lack such a link.

Journal: British Accounting Review

Author/date	Topic/Focus/Questions	Concept/ Theoretical model/ Theories/conceptual framework	Paradigm/ Method/Primary research design	Context/ Setting/Sample	Respondents	Variables	Primary Statistical tools	Findings/ contribution	Future Research/Gap
1. Abdel-Maksoud, Dugdale & Luther (2005)	This study aims to explore possible relationships between performance measures and other organizational characteristics.	Contingency theory	Survey	UK manufacturing firms	Management Accountant	Shop floor NFPM (Customer satisfaction, Product quality, On-time Delivery, Efficiency and utilization, Employee morale, Innovative Management Practice, Advanced Manufacturing Technologies, Advanced management accounting practices, shop-floor involvement, Competitive environment, Industry type	Factor analysis and correlation analysis	1. This study shows that "most UK manufacturing companies are extremely customer focused with delivery timeliness, number of customer complaints and customer returns being of pre- eminent importance" (p.287). 2. This study indicates that, in uncertain competitive conditions, managers do adopt a broad range of performance indicators. 3. The results of the study shows that "companies adopting advanced manufacturing technologies are still likely to adopt measures very selectively, typically with emphasis on delivery performance and customer satisfaction, not efficiency, quality or human resource measures"(p.289).	1. Further research could develop the idea of a shop floor performance 'scorecard'. 2. Future research could "focus on extending the contingency literature; testing the sophisticated relationships between the contingent and dependent variables highlighted in this study by employing multivariate statistical techniques"(p.290).
2. Hoque (2005)	"The purpose of this research is to search for a contingent effect of environmental uncertainty on the relationship between the use of non-financial performance measures and organizational	Contingency framework	Questionnaire Survey	New Zealand manufacturing firms	CEOs	Organizational Performance, Environmental Uncertainty and NFPM	Regression model	1. "Regression analysis shows a positive and significant association between managers' use of the non-financial measures and environmental uncertainty to produce a positive impact on performance" (p.479). 2. "Additional analysis using each perspective of the non-financial performance measures indicate that firms have a greater tendency to	"Performance could be affected by other variables such as organization size, competitive strategy, organization structure, the leadership style of the CEO, intensity of competition and customer profile"(p.479). Future study could shed light on those variables.

	performance" (p.472).							make use of measures related to customer satisfaction and learning and growth under conditions of a high level of environment uncertainty to produce an improved organizational performance"(p.479).	
3. Hoque, Mia & Alam (2001)	This paper examines "how a multiple performance measurement system is associated with the intensity of market competition and the application of computer-aided manufacturing processes"(p.23).	Contingency theory, BSC	Questionnaire survey	New Zealand manufacturing industries	CEOs	Intensity of market competition, Computer aided manufacturing, use of multiple performance measures	Factor analysis, correlation analysis and multiple regression analysis	1. The results indicate "a positive and significant relationship between the intensity of market competition and use of multiple measures for performance evaluation" (p.40). 2. "This study also reveals that use of multiple measures of performance is positively and significantly associated with organizations' applications of computer-aided manufacturing process" (p. 40). 3."The results indicate that all of the four performance dimensions are important for today's competitive and computerized manufacturing environments"(p.40) 4 "The result of the study also suggests that multidimensional performance measures may be present in both CAM and non-CAM and low and high competition firms, but their mix and weighting will vary between the two groups"(p.40).	1. "Future research can extend this study by investigating how and why performance measurement systems change over time" (p.41). 2. "Future research may also be undertaken to explore if there is a connection between single items of 'market competition' and the structure of the performance measurement" (p.41).

Journal: Journal of Management Accounting Research

Author/date	Topic/Focus/ Questions	Concept/ Theoretical model/ Theories/conceptual framework	Paradigm/ Method/Primary research design	Context/ Setting/Sample	Respondents	Variables	Primary Statistical tools	Findings/ contribution	Future Research/Gap

1.Hoque & James (2000)	"This paper examines the relationship between organization size, product life-cycle stage, market position, balanced scorecard usage and organizational Performance" (p.1).	BSC	Questionnaire survey	Australian manufacturing firms	Chief Financial Controllers	Organizational performance, Balanced Scorecard usage, organizational size, product life cycle, market position	Regression model and ANOVA	1. "This study finds that larger organizations are likely to make more use of a BSC"(p.11.) 2. "The regression analysis shows the positive association between early product life-cycle stage and a greater reliance on BSC" (p.11). 3. Moreover, "firms that have a higher proportion of new products have a greater tendency to make use of measures related to new products" (p.11). 4. "The results provide no support for the positive association between a strong market position and a greater reliance on BSC" (p.11). 5. "The results suggest that greater BSC usage is associated with increased organizational performance, but this relationship does not significantly depend on organizational size, product life cycle, or market position"(p.12).	1. Future research could be done by using alternative research method such as case-study research. 2. Future research might investigate "why and how companies implement BSC, pitfalls in implementing it, and its success in achieving intended goals, and whether BSC adoption is designed to improve performance or to give the external appearance of being modem, rational, efficient, and legitimate" (p.13).
2. Lillis & van Veen-Dirks (2008)	"This study examines empirically the association between joint strategies and the design of manufacturing performance measurement systems"(p.25).	Not explicit	Survey	Netherland, industrial firms	Production managers	Strategy, use of customer-focused performance measures broad financial measures, and efficiency measures, intensity of performance measures	Factor analysis and regression analysis	1. The results support the notion that "performance measurement differences are associated with the pursuit of joint rather than archetypal strategies. Reliance on efficiency measures appears to vary with the strategic emphasis on low cost" (p. . In case of joint strategy, "efficiency measures are used in combination with financial and customer-focused measures" (p.49). 2. "The results indicate that reliance on efficiency measures is not related to differentiation in itself, but rather it is the joint presence of commitment to low cost that drives reliance on	1. Future research could examine in "depth the implications of a range of strategic choices on other management control system attributes such as measures of divisional manager performance, bonus and incentive schemes, controls over capital investment decisions, and the relative flexibility/rigidity of control use"(p.53). 2. Moreover, "the mix of strategic priorities has received little attention in nonmanufacturing settings,

								efficiency measures"(p.51).	providing further research opportunities" (p.53).

Journal: The Accounting Review

Author/date	Topic/Focus/Questions	Concept/ Theoretical model/ Theories/conceptual framework	Paradigm/ Method/Primary research design	Context/ Setting/Sample	Respondents	Variables	Primary Statistical tools	Findings/ contribution	Future Research/Gap
1.Chen, Matsumura, Shin & Yu-Ching Wu (2015)	This study investigates the joint effect of competition intensity and competition type on the use of customer satisfaction measures in executives' annual bonus contracts.	Not explicit	Secondary (S&P 1500, ExecuComp, Compustat, and CRSP databases in 2006 and 2010.)	US	Not Applicable	Competition intensity and competition type, use of customer satisfaction measures, executives' annual bonus contracts, competitive strategy, regulated industry, ROA noise, RET noise, market size, Long-Term Incentive, CEO power.	Binary logit regressions	1. This study finds a stronger association between competition intensity and the use of customer satisfaction measures in executive bonus contracts under non-price competition than under price competition. 2. This study also finds similar results when the researchers use the weight on customer satisfaction measures in executive bonus contracts as the dependent variable.	1. "Future research can examine the impact of competition on the use of nonfinancial performance measures in the non-cash portion of executive compensation" (p.258). 2. "Future research can examine the joint effects of competition type and competition intensity on the use of financial performance measures in executive compensation" (p.258).

調査票（フォーマット）	
案件プロジェクトID	
地域	全国
年齢	25歳以上
性別	男女
納品サンプル数	400～500ｓ（400ｓは必須）
条件	10～300人未満の企業の経営者、役員、経営企画部門の責任者
納期	

割付	なし

【回答形式】
SA=シングルアンサー（単一回答）　表示記号：「○（ラジオボタン）」
MA=マルチアンサー（複数回答）　表示記号：「□（チェックボックス）」
LMA=リミテッドマルチアンサー（制限のある複数回答）　表示記号：「□（チェックボックス）」
FA（OA）=フリーアンサー（自由回答）
MT=マトリクス

設問番号	回答形式	設問文

全員回答　　改ページ（F1～F3は1画面表示）

F1　SA　あなたの性別をお答えください。
（お答えは1つ）

○1	男性
○2	女性

F2　NUM　あなたの年齢をお答えください。
（お答えは半角数字で）

［　　］歳　※半角数字のみ　24歳以下は調査終了

F3　SA　あなたのお住まいの地域をお答えください。
（お答えは1つ）

	▼プルダウン
1	北海道
2	青森県
3	岩手県
4	宮城県
5	秋田県
6	山形県
7	福島県
8	茨城県
9	栃木県
10	群馬県
11	埼玉県
12	千葉県
13	東京都
14	神奈川県
15	新潟県
16	富山県
17	石川県
18	福井県
19	山梨県
20	長野県
21	岐阜県
22	静岡県
23	愛知県
24	三重県
25	滋賀県
26	京都府
27	大阪府
28	兵庫県
29	奈良県
30	和歌山県
31	鳥取県
32	島根県
33	岡山県
34	広島県
35	山口県
36	徳島県
37	香川県
38	愛媛県
39	高知県
40	福岡県
41	佐賀県
42	長崎県
43	熊本県
44	大分県
45	宮崎県
46	鹿児島県
47	沖縄県
48	海外　→調査終了

全員回答　　改ページ

SC1　SA　あなたの職業をお答えください。
（お答えは１つ）

○1	会社経営者	→SC3へ
○2	会社役員	→SC3へ
○3	会社員（正社員、教員）	
○4	会社員（派遣・契約社員）	→調査終了
○5	自営業・個人事業主・フリーランス	→調査終了
○6	自由業（開業医・弁護士事務所経営など）	→調査終了
○7	公務員	→調査終了
○8	学生	→調査終了
○9	主婦・主夫（専業）	→調査終了
○10	パート・アルバイト・フリーター	→調査終了
○11	無職・休職中・求職中	→調査終了
○12	その他	→調査終了

SC1＝○3（会社員（正社員、教員））　　改ページ

SC2　SA　あなたの現在の役職をお答えください。
（お答えは１つ）

○1	経営企画部門の責任者	
○2	営業部門の責任者	→調査終了
○3	開発部門の責任者	→調査終了
○4	情報システム部門の責任者	→調査終了
○5	上記以外の部門の責任者	→調査終了
○6	各部門の部長クラス	→調査終了
○7	各部門の課長クラス	→調査終了
○8	各部門の係長クラス	→調査終了
○9	各部門の主任クラス	→調査終了
○10	その他	→調査終了

全員回答　　改ページ

SC3　NUM　あなたが経営する企業の、従業員数をお答えください。　←SC1＝1(経営者)に表示
あなたがお勤めの企業の、従業員数をお答えください。　←SC1＝2 or SC2＝1(役員,経営企画部門の責任者)に表示
（お答えは半角数字で）

1 全従業員数　［　　］人　※1～　※1「全従業員数」で1～9、300以上は調査終了

（内訳）
2 正規社員　［　　］人　※0～　※2「正規社員」～4「パートタイム社員」で全て0はエラー
3 その他の社員　［　　］人　※0～　（1「全従業員数」と、2「正規社員」～4「パートタイム社員」の合計数は合致しなくともエラー表示は無）
4 パートタイム社員　［　　］人　※0～

全員回答　　改ページ

SC4　SA　本調査は、業績測定の実施とその範囲、実施スタイルを決定づける要因（例えば、組織規模、事業構造、事業環境、情報システムの機能、企業文化など）の効果を明らかにするために行われるものです。
あなたが経営する企業(以降、貴社）について、理想ではなく、貴社の現実を踏まえてご回答いただきます。　←SC1＝1(経営者)に表示
あなたがお勤めの企業(以降、貴社）について、理想ではなく、貴社の現実を踏まえてご回答いただきます。　←SC1＝2 or SC2＝1(役員,経営企画部門の責任者)に表示
本調査はにご協力いただけますか。
（お答えは1つ）

○1	調査に協力する
○2	調査に協力できない　→調査終了

■本調査

全員回答　　改ページ

F1　SAMT　あなたの、職歴年数をお答えください。
また、貴社での勤務年数をお答えください。
（職務年数は、貴社での勤務期間を含む）
例：社会人として働き始めて20年が経っていて(社会人21年目)、うち今の企業で働き始めて5年が経った(現企業勤務6年目)。
→職歴年数：20年
→貴社での勤務年数：5年

1 職歴年数　▼プルダウン　年　※0～
2 貴社での勤務年数　▼プルダウン　年から　※0～
※「職歴年数」＞＝「貴社での勤務年数」でない場合はエラー

全員回答　　改ページ

F2　SA　あなたの最終学歴をお答えください。
（お答えは1つ）
※中退は含めず、卒業のみでお答えください。

○1	中学卒
○2	高校卒
○3	大学卒
○4	大学院修士卒
○5	大学院博士卒
○6	専門学校卒
○7	その他（具体的に　　）

F2=2~7（高校卒以上）　　改ページ

F3　SA　あなたの最終学歴につき、その学部・学科（研究科・専攻）について最も近いものをお選びください。
（お答えは1つ）

【工学系】
機械系(工学)
造船・海洋系(工学)
航空・宇宙系(工学)
電気・電子系(工学)
材料系〈金属・セラミックス等〉(工学)
応用化学・物質系(工学)
化学工学系
繊維系(工学)
経営・管理工学、事業創造系(工学)
応用物理系〈光など〉(工学)
土木系(工学)
建築系

【理工学等融合系(情報・生命・環境)】
情報系(情報学、情報工学、情報科学等)
生物工学、生命科学系、理工系バイオ
環境系
資源・エネルギー系

【理学系】
数学(理学)
物理(理学)
化学(理学)
生物(理学)
地球・惑星(理学)
天文(理学)

【農学、医療、生活、デザイン系】
農学系(バイオ系、化学系・食品系など)
農学系(バイオ以外、環境系・工学系など)
獣医系・動物系
薬学系
医学・歯学系
看護・保健・医療系
福祉・介護系
スポーツ・体育・健康系
家政・生活科学系(栄養・ファッション等も含む)
芸術・デザイン(音楽・映像・グラフィックなど)系

【文学系】
哲学系
文学系
語学・外国語系
史学系
心理系
教育学系、教員養成系

【社会科学系】
社会学系(観光、コミュニケーション学、社会情報学等も含む)
法律学系
政治学系・政策系
国際関係系
経済学系
経営学・商学系
会計学系

○1	工学系
○2	理工学等融合系(情報・生命・環境)
○3	理学系
○4	農学、医療、生活、デザイン系
○5	文学系
○6	社会科学系
○8	その他（具体的に　　）

全員回答　　改ページ

Q1　SA　貴社の株主構造について、当てはまるものを1つお答えください。
（お答えは1つ）

○1	オーナー経営者家が全株式の100%を所有している。
○2	オーナー経営者家が全株式の50%以上を所有している。
○3	オーナー経営者家が全株式の50%未満を所有している。
○4	株式会社ではない（合名会社、合資会社、合同会社）
○5	わからない

全員回答 改ページ

Q2_1 MA 貴社の事業分野を教えてください。当てはまるものすべてをお答えください。
（お答えはいくつでも）

□1	農業、林業
□2	鉱業、採石業
□3	建設業
□4	製造業
□5	情報通信業
□6	電気・ガス・水道業
□7	運輸業
□8	卸売業、小売業
□9	金融業、保険業
□10	不動産業、物品貸借行
□11	宿泊業、飲食サービス業
□12	医療、福祉
□13	生活関連サービス業、娯楽業
□14	教育、学習支援行
□15	その他 〔　　〕

Q2_1=4（製造業） 改ページ

Q2_2 MA 前問【Q2_1】で製造業を事業分野として選択した方にお伺いいたします。
どのような種類の製品を生産していますか。
（お答えはいくつでも）

□1	食品
□2	繊物
□3	ウール製品
□4	紙・板紙
□5	合成樹脂・ゴム
□6	セラミックス
□7	鉄鋼
□8	金属材料
□9	機械装置
□10	電気・電子製品
□11	輸送機械
□12	その他 〔　　〕

全員回答 改ページ

Q3 SA 貴社では、組織の業績評価に財務的な業績指標と非財務的な業績指標を組み合わせて実施していますか。
（お答えは1つ）

○1	はい
○2	いいえ
○3	どちらとも言えない

全員回答 改ページ

Q4 SAMT 貴社では、経営陣が業績測定のために下記の業績指標（財務的指標、非財務的指標）をどの程度重視していますか。
「1=全く重視していない」～「7=非常に重視している」として、最もあてはまる数字を1つお答えください。
（お答えはそれぞれ1つずつ）

【財務的指標】

		1（全く重視していない）	2	3	4（どちらとも言えない）	5	6	7（非常に重視している）
Q4-1-1	営業利益	○1	○2	○3	○4	○5	○6	○7
Q4-1-2	売上高成長率	○1	○2	○3	○4	○5	○6	○7
Q4-1-3	投資収益率 (ROI)	○1	○2	○3	○4	○5	○6	○7
Q4-1-4	自己資本利益率 (ROE)	○1	○2	○3	○4	○5	○6	○7
Q4-1-5	各部門のコスト	○1	○2	○3	○4	○5	○6	○7

Q4-1SQ FA 上記以外に重視している財務的指標があれば、詳細をお聞かせください。
（お答えは具体的に）

※任意

【非財務的指標】

		1（全く重視していない）	2	3	4（どちらとも言えない）	5	6	7（非常に重視している）
Q4-2-1	新製品・サービスの投入数	○1	○2	○3	○4	○5	○6	○7
Q4-2-2	新製品・サービス化までの時間	○1	○2	○3	○4	○5	○6	○7
Q4-2-3	従業員の満足度	○1	○2	○3	○4	○5	○6	○7
Q4-2-4	OJT期間	○1	○2	○3	○4	○5	○6	○7
Q4-2-5	従業員の提案	○1	○2	○3	○4	○5	○6	○7
Q4-2-6	顧客不満件数	○1	○2	○3	○4	○5	○6	○7
Q4-2-7	不良による返品率	○1	○2	○3	○4	○5	○6	○7
Q4-2-8	顧客からの修理要請件数	○1	○2	○3	○4	○5	○6	○7
Q4-2-9	不良品比率	○1	○2	○3	○4	○5	○6	○7
		1（全く重視していない）	2	3	4（どちらとも言えない）	5	6	7（非常に重視している）
Q4-2-10	労働生産性	○1	○2	○3	○4	○5	○6	○7
Q4-2-11	顧客満足度調査	○1	○2	○3	○4	○5	○6	○7
Q4-2-12	顧客要請への対応時間	○1	○2	○3	○4	○5	○6	○7
Q4-2-13	納期遵守	○1	○2	○3	○4	○5	○6	○7
Q4-2-14	顧客からの提案	○1	○2	○3	○4	○5	○6	○7

Q4SQ FA 上記以外に重視している非財務的指標があれば、詳細をお聞かせください。
（お答えは具体的に）

※任意

全員回答 改ページ

Q5 SAMT 貴社では、下記の各事項の管理にあたり、どの程度まで業績指標を使用していますか。
「1=全く使用していない」～「7=非常によく使用している」として、最もあてはまる数字を1つお答えください。
（お答えはそれぞれ1つずつ）

		1（全く使用していない）	2	3	4（どちらとも言えない）	5	6	7（非常によく使用している）
Q5-1	目標に向けた進捗状況	○1	○2	○3	○4	○5	○6	○7
Q5-2	業務遂行結果のモニタリング	○1	○2	○3	○4	○5	○6	○7
Q5-3	計画と成果の比較	○1	○2	○3	○4	○5	○6	○7
Q5-4	主要業績数値の検討	○1	○2	○3	○4	○5	○6	○7
Q5-5	会議での上司や部下、同僚との議論の活発化	○1	○2	○3	○4	○5	○6	○7
Q5-6	業務関連データや予測、行動計画に沿った持続的な挑戦と対話の活発化	○1	○2	○3	○4	○5	○6	○7
Q5-7	経営現状に関する情報の提供	○1	○2	○3	○4	○5	○6	○7
Q5-8	組織の結束	○1	○2	○3	○4	○5	○6	○7
Q5-9	諸経営事項への集中	○1	○2	○3	○4	○5	○6	○7
Q5-10	事業を成功に導く主要要因への集中	○1	○2	○3	○4	○5	○6	○7

全員回答 改ページ

Q6 SAMT 過去3年間において貴社の事業環境はどの程度大きく変化しましたか。
「1=全く変化していない」～「7=大きく変化した」として、最もあてはまる数字を1つお答えください。
（お答えはそれぞれ1つずつ）

		1（全く変化していない）	2	3	4（どちらとも言えない）	5	6	7（大きく変化した）
Q6-1	供給業者の動き	○1	○2	○3	○4	○5	○6	○7
Q6-2	顧客の嗜好、ニーズ、好み	○1	○2	○3	○4	○5	○6	○7
Q6-3	競争相手の動き	○1	○2	○3	○4	○5	○6	○7
Q6-4	流通業者の動き	○1	○2	○3	○4	○5	○6	○7
Q6-5	自社の製造システム	○1	○2	○3	○4	○5	○6	○7
Q6-6	IT技術	○1	○2	○3	○4	○5	○6	○7
Q6-7	政府の規制や政策	○1	○2	○3	○4	○5	○6	○7
Q6-8	経済環境やグローバリゼーション	○1	○2	○3	○4	○5	○6	○7
Q6-9	社会環境	○1	○2	○3	○4	○5	○6	○7

全員回答 改ページ

Q7 SAMT 下記の事業イシュー(課題・問題)について、最も当てはまる数字1つをお答えください。
（お答えはそれぞれ1つずつ）

		1（全くない）	2	3	4（どちらとも言えない）	5	6	7（非常に激しい）
Q7-1	主要製品・サービス分野における競争圧力 ※「1=全くない」～「7=非常に激しい」	○1	○2	○3	○4	○5	○6	○7

		1（全く困難ではない）	2	3	4（どちらとも言えない）	5	6	7（非常に困難である）
Q7-2	事業展開に必要なインプット（資本など）獲得 ※「1=全く困難ではない」～「7=非常に困難である」	○1	○2	○3	○4	○5	○6	○7

		1（全く恵まれていない）	2	3	4（どちらとも言えない）	5	6	7（非常に恵まれている）

全員回答 改ページ

Q8 SAMT 貴社では、下記の事項に対する意思決定の権限が管理者や従業員たちにどの程度移譲されていますか。
（理想ではなく貴社の現実を踏まえてお答えください。）
「1=全く移譲されていない」～「7=すべて移譲されている」として、最もあてはまる数字を1つお答えください。
（お答えはそれぞれ1つずつ）

		1（全く移譲されていない）	2	3	4（どちらとも言えない）	5	6	7（すべて移譲されている）
Q8-1	新しいサービスに関するアイデアの実行	○1	○2	○3	○4	○5	○6	○7
Q8-2	従業員の採用及び解雇	○1	○2	○3	○4	○5	○6	○7
Q8-3	大規模投資の選択	○1	○2	○3	○4	○5	○6	○7
Q8-4	経営資源の再配置	○1	○2	○3	○4	○5	○6	○7
Q8-5	価額決定	○1	○2	○3	○4	○5	○6	○7

全員回答 改ページ

Q9 SAMT 下記の文章は貴社における情報システムの状況にどの程度当てはまりますか。
「1=全くそうではない」～「7=全くその通りである」として、最もあてはまる数字を1つお答えください。
（お答えはそれぞれ1つずつ）

		1（全くそうではない）	2	3	4（どちらとも言えない）	5	6	7（全くその通りである）
Q9-1	各部門は情報システムによって統合化されている	○1	○2	○3	○4	○5	○6	○7
Q9-2	顧客の問い合わせに対応できる情報システムとなっている	○1	○2	○3	○4	○5	○6	○7
Q9-3	情報システムは業務に関する過去のデータを提供している	○1	○2	○3	○4	○5	○6	○7
Q9-4	情報システムはコストや業績データについて広範囲かつ体系的なデータを提供している	○1	○2	○3	○4	○5	○6	○7
Q9-5	情報システム内の作業データはリアルタイムで更新される	○1	○2	○3	○4	○5	○6	○7

全員回答 改ページ

Q10 SAMT 下記の項目について、主要競合社と比較しながらお答えください（過去3年間において）。
「1=全くそうではない」～「7=全くその通りである」として、最もあてはまる数字を1つお答えください。
（お答えはそれぞれ1つずつ）

		1（全くそうではない）	2	3	4（どちらとも言えない）	5	6	7（全くその通りである）
Q10-1	競争優位性が強化された	○1	○2	○3	○4	○5	○6	○7
Q10-2	より多くの市場占有率を獲得した	○1	○2	○3	○4	○5	○6	○7
Q10-3	早い成長率を達成した	○1	○2	○3	○4	○5	○6	○7
Q10-4	より高い利益率を獲得した	○1	○2	○3	○4	○5	○6	○7

Q10-5	より創造的になってきた	○1	○2	○3	○4	○5	○6	○7
Q10-6	従業員の生産性が上がった	○1	○2	○3	○4	○5	○6	○7

全員回答 改ページ

Q11 FA 企業のマネジメントの理想や課題等、コメントやご意見がありましたら、ご自由にお書きください。
（お答えは具体的に）

※任意