Strategic Performance Measurement and Firm Success of Thai Listed Firms: A Managerial Accounting Approach

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Abstract

This study aims at examining the relationships between strategic performance measurement and firm success of listed firms in Thailand. Strategic performance measurement includes benchmarking, integrated performance measurement and balanced scorecard. In this study, 121 listed firms in Thailand are the samples of the study. The results show that integrated performance measurement has a positive influence on organizational creativity, organizational effectiveness, organizational productivity, and firm success. Both benchmarking and balanced scorecard have a positive impact on organizational productivity. Also, organizational creativity is positively related to organizational effectiveness and organizational productivity while organizational productivity has a positive effect on firm success. Thus, executives of firms can set and identify valuable strategies to build sustained competitive advantage and to gain profitability, survival, stability, and sustainability by developing, implementing and managing strategic performance measurement through benchmarking, integrated performance measurement and balanced scorecard.

Keywords: Strategic Performance Measurement, Benchmarking, Integrated Performance Measurement, Balanced Scorecard, Organizational Creativity, Organizational Effectiveness, Organizational Productivity, Firm success.

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การวัดผลการดำเนินงานเชิงกลยุทธ์และความสำเร็จของกิจการของบริษัทจดทะเบียนในประเทศไทย: วิธีการทางการบัญชีบริหาร

*กรไชย พรลภัสรชกร**

บทคัดย่อ

การวิจัยนี้มีเป้าหมายเพื่อตรวจสอบความสัมพันธ์ระหว่างการวัดผลการดำเนินงานเชิงกลยุทธ์กับความสำเร็จของกิจการของบริษัทจดทะเบียนในประเทศไทย การวัดผลการดำเนินงานเชิงกลยุทธ์ ประกอบด้วยการเทียบเคียงการดำเนินงาน การวัดผลการดำเนินงานเชิงบูรณาการ และการวัดผลการดำเนินงานแบบดุลยภาพ ในการวิจัยนี้ บริษัทจดทะเบียนในประเทศไทยจำนวน 121 บริษัท เป็นกลุ่มตัวอย่างในการวิจัย ผลลัพธ์การวิจัยพบว่า การวัดผลการดำเนินงานเชิงบูรณาการมีอิทธิผลเชิงบวกต่อความคิดสร้างสรรค์ขององค์กร ประสิทธิผลขององค์กร ผลิตภาพขององค์กร และความสำเร็จของกิจการ และการเทียบเคียงการดำเนินงานและการวัดผลการดำเนินงานแบบดุลยภาพมีผลกระทบเชิงบวกต่อผลิตภาพขององค์กร นอกจากนี้ ความคิดสร้างสรรค์ขององค์กรมีความสัมพันธ์เชิงบวกกับประสิทธิผลขององค์กรและผลิตภาพขององค์กร ในขณะที่ผลิตภาพองค์กรมีผลกระทบเชิงบวกต่อความสำเร็จของกิจการ ด้วยเหตุนี้ ผู้บริหารของกิจการสามารถจัดเตรียมและกำหนดกลยุทธ์ที่มีคุณค่าต่อการสร้างความได้เปรียบทางการแข่งขันได้อย่างยั่งยืน และก่อให้เกิดความสามารถในการทำกำไร การอยู่รอด ความมั่นคง และความยั่งยืน โดยการพัฒนา ประยุกต์ใช้ และบริหารจัดการการวัดผลการดำเนินงานเชิงกลยุทธ์ ผ่านการเทียบเคียงการดำเนินงาน การวัดผลการดำเนินงานเชิงบูรณาการ และการวัดผลการดำเนินงานแบบดุลยภาพ

คำสำคัญ: การวัดผลการดำเนินงานเชิงกลยุทธ์ การเทียบเคียงการดำเนินงาน การวัดผลการดำเนินงานเชิงบูรณาการ การวัดผลการดำเนินงานแบบดุลยภาพ ความคิดสร้างสรรค์ขององค์กร ประสิทธิผลขององค์กร ผลิตภาพขององค์กร ความสำเร็จของกิจการ

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1. Introduction

Recently, firms have faced rigorously competitive markets and complex situations. They must develop new and valuable strategies and implement them in order to maintain their competitiveness, enhance sustain competitive advantages and achieve superior firm performance in these markets. With the challenging business environments, best operational strategy can help firms succeed in their activities, practices, functions, and responsibilities and gain their continuously increasing and growing outcomes both long-term and in future perspectives. Performance measurement becomes one of effective organizational strategies in doing businesses under customer and competitor-centric focus, technological change and revolution and globalized marketplace. Thus, performance measurement is a strategic tool which firms have definitely utilized in their organizations for achieving success, survival and sustainability in business operation.

In this study, strategic performance measurement is considered as a key instrument which firms have implemented to promote efficiency, productivity, effectiveness, and excellence in an organization and to encourage their competitive advantage, organizational performance, corporate survival, and business sustainability (Micheli & Manzoni, 2010). It is a fundamental factor in determining firms' success. It has an impact on firm performance and makes a substantial contribution to the achievement of firms' strategic goals. Here, strategic performance measurement is defined as a strategic planning and management system that is used extensively to align business activities to firms' vision and strategy, improve internal and external communications and monitor organizational performance against strategic goals (Grigoroudis, Orfanoudaki, & Zopounidis, 2012). It combines financial, strategic and operating business measures and links formal and information-based routines and procedures to gauge how well firms meet their targets. Accordingly, strategic performance measurement is the heart of a control system and plays an important role in developing strategic plans, evaluating an achievement of organizational objectives, supporting organizational learning, and assisting firms enhance, gain and sustain their competitive

advantage and performance (Mohamed, Hui, Rahman, & Aziz, 2010). Thus, successfully implementing strategic performance measurement explicitly reflects firms' increasing profitability and stability in the competitive environments.

Strategic performance measurement is an innovation in management accounting system and it presents a combination of financial and non-financial measures covering different perspectives that helps provide a way of translating strategy into a coherent set of performance measures (Li, Gu, & Liu, 2009). It results in more extensive communication of strategic goals and in better understanding of business actions needed to achieve organizational performance. To effectively implement and utilize the aforementioned strategic tool, strategic performance measurement indicates distinctive features, including (1) the integration of long-term strategy and operational goals, (2) the provision of performance measures in the multiple perspectives, (3) the sequence of goals, metrics, targets, and action plans for each perspective, and (4) the presence of explicit causal relationships between goals and performance and measures (Bisbe & Malagueno, 2012). Firms with strategic performance measurement tend to achieve their competitive advantage and success. Then, strategic performance measurement is a key driver in explaining firm success while firm success is a long-term outcome of business operations and activities in the competitive markets and environments, including survival, stability and sustainability

Interestingly, the objective of this study is to investigate the effects of strategic performance measurement on firm success on listed firms in Thailand. According to Cadez and Guilding (2008)'s a study, this study implements benchmarking, integrated performance measurement and balanced scorecard as main dimensions of strategic performance measurement. Also, the key research question is how strategic performance measurement is related to firm success. The specific research questions are: (1) How does benchmarking affect organizational creativity, organizational effectiveness, organizational productivity, and firm success? (2) How does integrated performance measurement influence organizational creativity, organizational effectiveness, organizational productivity, and firm success? (3) How does balanced scorecard enhance organizational creativity, organizational effectiveness, organizational productivity, and firm success? (4) How does organizational creativity impact organizational effectiveness, organizational

productivity and firm success? And (5) How does both organizational effectiveness and organizational productivity encourage firm success?

The outline of this study is as followed. Firstly, the relevant literature relating to strategic performance measurement and its components and consequences are reviewed and the hypotheses development is discussed. Secondly, the research methods are described, including data collection, measurements and statistical techniques. Thirdly, the results and discussion of the study is evidently presented. Finally, the contributions and limitations of the study are pointed out, the suggestions for further studies are shown, and the conclusion of the study is indicated.

2. Strategic Performance Measurement and Its Consequences

This study presents the research model of the relationships between strategic performance measurement and firm success. Here, benchmarking, integrated performance measurement and balanced scorecard are the independent variables of the study and organizational creativity, organizational effectiveness, organizational productivity, and firm success are the consequences of the study. The conceptual relationship model is showed in Figure 1. Likewise, the hypothesis development is reasonably discussed and is logically presented.

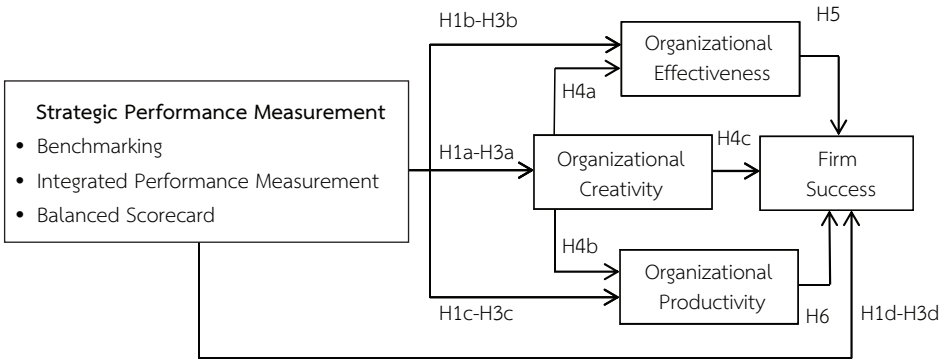

Figure 1: A Conceptual Model of the Relationships between Strategic Performance Measurement and Firm Success

2.1 Benchmarking

Benchmarking is the first dimension of strategic performance measurement. It is implemented as an important instrument and a popular tool for continuous improvement and is used as a fundamental method in performance evaluation (Cook, Seiford, & Zhu, 2004). Besides, benchmarking explicitly helps firms constantly evolve and improve their business operations and activities in order to survive and prosper in a competitive business environments facing global competition. Accordingly, benchmarking is defined as a continuous system process for evaluation of organizational performance in order to assist in developing organizational strategies through performance comparison, gap identification and change management process (Stepchenkova, Tang, Jang, Kirilenko, & Morrison, 2010). It focuses on comparisons against other organizations in the industry and other units in the same organizations via process benchmarking, performance benchmarking and strategic benchmarking. Benchmarking refers to an ongoing process of evaluating and emulating the products, services and processes of best performing organizations (Akdeniz, Gonzalez-Padron, & Calantone, 2010). It enables firms to improve organizational performance and identify best practices linked to organizational excellence.

In the managerial accounting literature, benchmarking is a systematic and continuous measurement process for measuring and comparing a firm's business process and practices against the best business process and practices by encouraging the firm to take appropriate actions to improve its performance (Horngren, Datar, & Rajan, 2012). It considers both technical and administrative techniques and practices, including accounting techniques. These accounting techniques include target costing, life cycle assessment cost, quality control cost, cost management capability, and others. Firms with benchmarking implementation are likely to gain sustainable competitive advantages and achieve outstanding firm success in their organizations. Thus, benchmarking is important to become an agile monitoring system to evaluate firms' competitiveness and performance. Moreover, benchmarking is a continuous search for and application of better practices that lead to superior competitive performance (Herzog, Tonchia, & Polajnar, 2009). It helps firms shape business strategy, identify a potential competitive advantage and promote an excellent organizational success. Then, benchmarking tends to have a positive influence on organizational creativity,

organizational effectiveness, organizational productivity, and firm success. Therefore, the research hypothesis is presented as follows:

H1a: Benchmarking has a positive effect on organizational creativity.

H1b: Benchmarking has a positive effect on organizational effectiveness.

H1c: Benchmarking has a positive effect on organizational productivity.

H1d: Benchmarking has a positive effect on firm success.

2.2 Integrated Performance Measurement

To verify the importance of strategic performance measurement, firms have implemented it to build competitive advantage and gain their performance, success, survival, and sustainability. Integrated performance measurement is a key to become a significant component and it refers to the comprehensiveness of the measures by providing firms' consistency with each other and according to organizational strategies that reflects to all relevant features of organizational performance and value creation (Giovannoni & Maraghini, 2013). It occurs from (1) knowledge integration and cross-functional co-operation and (2) alignment of individual actions and interactions across the value chain. Also, integrated performance measurement is a main element of sustainable competitive advantage for deploying business objectives and pinpointing and monitoring performance improvements (Bititci, Carrie, & McDevitt, 1997). It includes traditional management accounting approach (cost and financial accounting practices) and new management approach strategy development and review, management by objectives, non-financial performance measures in both formal and informal aspect, incentive and bonus schemes, and personnel appraisal and review. Thus, integrated performance measurement is one part of management accounting concept that supports firms' competencies and capabilities in dealing with the competitive business environments and achieving their competitive advantage and success.

Integrated performance measurement is a basic management technique that becomes a means to measure performance and support strategic management functions (Rompho & Siengthai, 2012). The benefits of this integrated performance measurement consist of performance measurement, decision making, strategy management, communication, behavioral influence, and learning and improvement. Likewise,

integrated performance measurement has been developed to simplify and integrate the performance measurement system in a single system and adapt to business processes and activities, to develop indicators that motivate continuous improvement of decentralized teams, and to link targets with internal and external needs (Olivella & Gregorio, 2015). Accordingly, integrated performance measurement becomes a valuable strategic management tool in creating business opportunities and building firm success, corporate survival and organizational sustainability. Then, integrated performance measurement is positively related to organizational creativity, organizational effectiveness, organizational productivity, and firm success in the rigorous markets and environments. Therefore, the research hypothesis is presented as follows:

H2a: Integrated performance measurement has a positive effect on organizational creativity.

H2b: Integrated performance measurement has a positive effect on organizational effectiveness.

H2c: Integrated performance measurement has a positive effect on organizational productivity.

H2d: Integrated performance measurement has a positive effect on firm success.

2.3 Balanced Scorecard

Balanced scorecard as a strategic tool plays an important role in creating and determining firms' long-term competitiveness and growth and it is the last component of strategic performance measurement. It is a key strategic tool of management accounting approach that helps encourage firms' competitive advantage and performance with the uncertain and fluctuate business environments. Here, balanced scorecard is defined as a strategic performance measurement system that is a set of financial and non-financial objectives and performance measures representing a causal chain of activities that articulates firms' vision, mission and strategies (Banker, Chang, & Pizzini, 2011). It consists of multiple measure dimensions, including customer retentions, internal processes, organizational learning, and financial outcomes. Firms with implementing balanced scorecard are likely to succeed, survive and sustain

in long-term business operations, practices, actions, and activities. Moreover, balanced scorecard refers to a performance measurement tool that evolves into an organizing framework, an operating system and strategic management system that focuses on both financial measures and non-financial measures (Craig & Moores, 2010). Financial measures return on investment, revenue growth, net profit, financial targets, and profitability improvement. Similarly, non-financial measures consist of customer perspective (customer satisfaction, customer retention, new customer acquisition, customer profitability, and market and account share in target segments), internal business process perspective (efficient and effective operations) and learning and growth perspective (organizational change, innovation and growth) (Sainaghi, Phillips, & Corti, 2013). Thus, balanced scorecard becomes a valuable strategic tool in helping firms succeed in the competitive business environments. Balanced scorecard combines financial and operational measures and has focused on short and long-term objectives of an organization (Eilat, Golany, & Shtub, 2008). It helps firms accomplish critical management processes, clarify and translate their vision and strategy, communicate and link strategic objectives and measures, plan and align strategic initiatives, and enhance strategic feedback and learning. Firms with balanced scorecard tend to successfully maintain a balance between short and long-term objectives, between financial and non-financial measures, between quantitative-objective measures and qualitative-subjective measures, between lagging and leading indicators, and between internal and external performance perspectives (Fernandes, Raja, & Whalley, 2006). Furthermore, balanced scorecard is a popular performance measurement system that reinforces firms' strategy and aligns their resources with strategic goals and objectives in order to achieve their operational improvements and success in both financial results and shareholder wealth in the long-run (Crabtree & DeBusk, 2008). Then, balances scorecard is key to initial, develop, improve and maintain firms' competitive advantage, performance, survival, and sustainability. Hence, balanced scorecard has a positive effect on organizational creativity, organizational effectiveness, organizational productivity, and firm success. Therefore, the research hypothesis is presented as follows:

H3a: Balanced scorecard has a positive effect on organizational creativity.

H3b: Balanced scorecard has a positive effect on organizational effectiveness.

H3c: Balanced scorecard has a positive effect on organizational productivity.

H3d: Balanced scorecard has a positive effect on firm success.

2.4 Organizational Creativity

Organizational creativity refers to a production of ideas which are both novel and applicable to an identified opportunity of an organization (Moultrie & Young, 2009). It occurs from corporate culture, information sharing, knowledge management, organizational learning, entrepreneurship, networking, firm resource, and organizational environment. It is likely to encourage innovation, build effectiveness, promote productivity, and enhance success in the organization. Also, organizational creativity explicitly focuses on valuable, useful and new product, service, idea, procedure, and process by individuals working together in a complex social system of an organization (Sundgren, Dimenas, Gustafsson, & Selart, 2005). It helps firms provide new and better solutions to business and customer problems, make new levels of quantity, quality, cost, and customer satisfaction and becomes a key to market success and improved operating efficiency through a generation process by individuals, teams and groups in their organizations produce new, novel, original, and useful ideas (Mostafa & El-Masry, 2008). Greater organizational creativity tends to enhance more business outcome and success in the complex markets and environments. Then, organizational creativity becomes a valuable organizational asset that initials firms' competitive advantage and support them to succeed in business operations and activities. Thus, organizational creativity possibly has a positive impact on organizational effectiveness, organizational efficiency and firm success. Therefore, the research hypothesis is presented as follows:

H4a: Organizational creativity has a positive effect on organizational effectiveness.

H4b: Organizational creativity has a positive effect on organizational productivity.

H4c: Organizational creativity has a positive effect on firm success.

2.5 Organizational effectiveness

Organizational effectiveness is a significant driver of firm success and it is defined as the degree of correspondence between the actual and desired outputs in an organization (Taylor, Cornelius, & Colvin, 2014). It presents how successfully firms achieve their missions through their unique capabilities and core strategies. Accordingly, firms have promoted outstanding organizational effectiveness in order to gain sustain competitive advantage and superior firm success. Likewise, organizational effectiveness refers to the extent to which a firm achieves its goals (Kataria, Garg, & Rastogi, 2013). It evaluates the degree of congruence between organizational goals and observable outcomes. More organizational effectiveness is likely to promote better goal achievement of firms and encourage greater success for them. Similarly, organizational effectiveness measures the degree to which a firm realizes its goals via comparing its overall success, market share, profitability, growth rate, and innovativeness with key competitors (Zheng, Tang, & McLean, 2010). It reflects how firms meet the needs of the target audience by matching the activities performed and the proposed objectives. It definitely generates continuous innovation and operational success. Hence, firms with greater organizational effectiveness tend to explicitly have more success in the competitive business markets and environments. Thus, organizational effectiveness has a positive influence on firm success. Therefore, the research hypothesis is presented as follows:

H5: Organizational effectiveness has a positive effect on firm success.

2.6 Organizational Productivity

Organizational productivity becomes an important factor for determining firm success and it is defined as the amount of goods and services which firms produce in a given amount of time, resources, machines, and environment in order to improve economic growth, profit margin and profit maximization (Solaja, Idowu, & James, 2016). It is a driving force of firms' growth, profitability and success in the rigorous markets and environments. Firms with greater organizational productivity can transform inputs into outputs at the lowest cost without wastes and risks through effective employee competency and efficient management capability. Thus, organizational productivity possibly has a significant positive influence on firms' success. Moreover,

organizational productivity is a standard measure that has been used to assess firms' performance and outcomes, such as sales, profitability, work quality, and schedule processes (Phipps, Prieto, & Ndinguri, 2013). It explicitly emphasizes their increased value over time. In high competitive environments, firms have attempted to develop and implement a valuable strategic tool as strategic performance measurement in order to encourage organizational productivity via utilizing organizational creativity. They can produce more organizational productivity for achieving superior success in these environments. Then, organizational productivity is positively related to with firm success. Therefore, the research hypothesis is presented as follows:

H6: Organizational productivity has a positive effect on firm success.

3. Research Design and Methods

3.1 Development of the Research Instrument

The research instrument is a questionnaire and it consists of two sections, namely section A "demographic data" and section B "main variable of the study". Section A includes firm age, firm size, firm capital, firm type, and firm experience. In section B, there are seven variables, including benchmarking, integrated performance measurement, balanced scorecard, organizational creativity, organizational effectiveness, organizational productivity, and firm success. All constructs were measured using a 5-point Likert scale (1 = strongly disagree to 5 = strongly agree), except for firm age, firm size and firm capital. Appendix A presents the measurements of all variables in this study.

Strategic performance measurement contains three dimensions, namely benchmarking, integrated performance measurement and balanced scorecard. Firstly, benchmarking refers to a continuous system process for evaluating organizational performance that helps develop organizational strategies through performance comparison, gap identification and change management process (Stepchenkova et al., 2010). Four-item scale was developed to assess how firms compare themselves against other organizations in the industry and other units in the same organizations via benchmarking concept, process benchmarking, performance benchmarking and strategic benchmarking. Secondly, integrated performance measurement is defined as

the comprehensiveness of the measures by providing their consistency with each other and according to organizational strategies that reflects all relevant features of organizational performance and value creation (Giovannoni & Maraghini, 2013). Four-item scale was introduced to evaluate how firms implement measurement tools, including traditional management accounting approach, new management approach strategy development and review, management by objectives, non-financial performance measures, incentive and bonus schemes, and personnel appraisal and review. Thirdly, balanced scorecard is a strategic performance measurement system that is a set of financial and non-financial objectives and performance measures representing a causal chain of activities that articulates firms' vision, mission and strategies (Banker, Chang, & Pizzini, 2011). Four-item scale was established to gauge how firms utilize customer retentions, internal processes, organizational learning, and financial outcomes as firms' measures in an organization.

For the consequences of strategic performance measurement, organizational creativity is a production of ideas which are both novel and applicable to an identified opportunity of an organization (Moultrie & Young, 2009). Three-item scale was initialed to measure how firms provide new and better solutions to business and customer problems and make new levels of quantity, quality, cost, and customer satisfaction through new, novel, original, and useful ideas. Also, organizational effectiveness refers to the degree of correspondence between the actual and desired outputs in an organization (Taylor, Cornelius, & Colvin, 2014). Three-item scale was built to evaluate how successfully firms achieve their missions through their unique capabilities and core strategies. Likewise, organizational productivity is defined as the amount of goods and services which firms produce in a given amount of time, resources, machines, and environment in order to improve economic growth, profit margin and profit maximization (Solaja, Idowu, & James, 2016). Three-item scale was introduced to assess how firms achieve their performance, such as sales, profitability, work quality, and schedule processes. Moreover, firm success is a long-term outcome of business operations and activities in the competitive markets and environments. Three-item scale was developed to gauge how firms do their businesses in order to gain survival, stability and sustainability.

To empirically verify the strategic performance measurement-firm success relationships, firm age, firm size and firm capital are the control variables of the study. Firm age (FAG) may influence a firm's technological learning capacity, implementing business activities, actions and strategies, and the profitability of organizational operations (Zahra, Ireland, & Hitt, 2000). It was measured by the number of years a firm has been in existence by using a dummy variable as less than 15 years = 0 and equal to or greater than 15 years = 1. Next, firm size (FSZ) may affect the ability to learn and diversify operations, and to compete and survive in the markets (Arora and Fosfuri, 2000). It was measured by the number of employees in a firm by using a dummy variable as less than 500 employees = 0 and equal to or greater than 500 employees = 1. Lastly, firm capital (FCP) may impact the capacity of a firm to implement business methods and strategies in order to achieve competitive advantage and superior performance (Ussahawanitchakit, 2007). It was measured by the amount of money according to registered capital stocks a firm has invested in doing business by using a dummy variable as less than 10,000 million baht = 0 and equal to or greater than 10,000 million baht = 1.

3.2 Sample Selection and Data Collection

In this study, listed firms in Thailand were selected as samples of the study because they have explicitly attempted to implement and utilize a valuable strategic tool like strategic performance measurement in order to enhance their success, survival and sustainability in the competitive environments. This study used a questionnaire survey as the research tool. The questionnaire surveys via mail procedures were sent to 570 listed firms in Thailand during June-November, 2015 by using accounting executives as the key informants. The listed firms in Thailand were selected as the samples of the study because they have implemented several performance measurements as strategic tools in successfully driving their operations. In a mailing process, 35 surveys were undeliverable because some listed firms had moved to unknown locations. Deducting the undeliverable mailing, the valid mailing was 535 surveys, from which 143 responses were received. Of the surveys completed and returned, there are 121 usable questionnaires that are empirically utilized to measure validation of the research tool and to analyze data

for the research results. The effective response rate was approximately 22.62% as being considered acceptable for the response rate for a mail survey because it is greater than 20% (Aaker, Kumar, & Day, 2001). For testing potential and non-response bias and detecting and considering possible problems with non-response errors, a comparison of the first and the second wave data as recommended by Armstrong and Overton (1977) to evaluate the non-response bias. Neither procedure explicitly showed significant differences at a 95% confidence level as firm age ($t = 0.12$, $p > 0.05$), firm size ($t = 0.12$, $p > 0.05$) and firm capital ($t = 0.13$, $p > 0.05$). Thus, this study seems to have no problems relating to the non-response bias.

3.3 Reliability and Validity

To critically verify the quality of the research instrument, factor analysis, discriminant power and reliability test are implemented in this study. Firstly, factor analysis was conducted separately on each set of the items representing a particular scale due to limited observations. This analysis has a high potential to inflate the component loadings. Thus, a higher rule-of-thumb, a cut-off value of 0.40, was adopted (Nunnally & Bernstein, 1994). All factor loadings as values of 0.75-0.93 are greater than the 0.40 cut-off and are statistically significant. Secondly, discriminant power was utilized to gauge the validity of the measurements by item-total correlation. In the scale validity, item-total correlation as values of 0.51-0.92 is greater than 0.30 (Churchill, 1979). Thirdly, the reliability of the measurements was evaluated by Cronbach alpha coefficients. In the scale reliability, Cronbach alpha coefficients as values of 0.75-0.89 are greater than 0.70 (Nunnally & Bernstein, 1994). The scales of all measures appear to produce internally consistent results; thus, these measures are deemed appropriate for further analysis as they express an accepted validity and reliability in this study. Table 1 presents the results for factor loadings, item-total correlation and Cronbach alpha for multiple-item scales used in this study.

Table 1: Results of Measure Validation

Items	Factor loadings	Item-total correlation	Cronbach alpha
Benchmarking (BMK)	0.76-0.81	0.51-0.70	0.75
Integrated Performance Measurement (IPM)	0.75-0.87	0.55-0.79	0.84
Balanced Scorecard (BSC)	0.80-0.87	0.70-0.83	0.86
Organizational Creativity (OCV)	0.83-0.88	0.84-0.87	0.82
Organizational Effectiveness (OEF)	0.88-0.92	0.86-0.92	0.87
Organizational Productivity (OPD)	0.78-0.86	0.78-0.89	0.81
Firm Success (FSC)	0.88-0.93	0.89-0.92	0.89

3.4 Regression Model

The multiple regression analysis is conducted to investigate the relationships among benchmarking, integrated performance measurement, balanced scorecard, organizational creativity, organizational effectiveness, organizational productivity, and firm success. Because all variables in this study were neither nominal data nor categorical data, regression analysis is an appropriate method for examining the hypothesized relationships (Chan & Mak, 2012). The research model of these relationships is depicted as follows.

$$\text{Equation 1:OCV} = \alpha_{01} + \beta_{01}BMK + \beta_{02}IPM + \beta_{03}BSC + \beta_{04}FAE + \beta_{05}FSZ + \beta_{06}FCA + \varepsilon_{01}$$

$$\text{Equation 2:OEF} = \alpha_{02} + \beta_{07}BMK + \beta_{08}IPM + \beta_{09}BSC + \beta_{10}FAE + \beta_{11}FSZ + \beta_{12}FCA + \varepsilon_{02}$$

$$\text{Equation 3:OPD} = \alpha_{03} + \beta_{13}BMK + \beta_{14}IPM + \beta_{15}BSC + \beta_{16}FAE + \beta_{17}FSZ + \beta_{18}FCA + \varepsilon_{03}$$

$$\text{Equation 4:FSC} = \alpha_{04} + \beta_{19}BMK + \beta_{20}IPM + \beta_{21}BSC + \beta_{22}FAE + \beta_{23}FSZ + \beta_{24}FCA + \varepsilon_{04}$$

$$\text{Equation 5:OEF} = \alpha_{05} + \beta_{25}OCV + \beta_{26}FAE + \beta_{27}FSZ + \beta_{28}FCA + \varepsilon_{05}$$

$$\text{Equation 6:OPD} = \alpha_{06} + \beta_{29}OCV + \beta_{30}FAE + \beta_{31}FSZ + \beta_{32}FCA + \varepsilon_{06}$$

$$\text{Equation 7:FSC} = \alpha_{07} + \beta_{33}OCV + \beta_{34}OEF + \beta_{35}OPD + \beta_{36}FAE + \beta_{37}FSZ + \beta_{38}FCA + \varepsilon_{07}$$

4. Results and Discussion

Table 2 presents the descriptive statistics and correlation matrix of all variables. There is no potential problem relating to multicollinearity because all correlation coefficients as values of 0.23-0.77 do not exceed 0.80 (Hair et al., 2010). Also, the variance inflation factors (VIF) in Tables 3-4 ranged from 1.04 to 3.68, which were below the cut-off value of 10. Thus, this study seems to have no multicollinearity problems according to both of the results (Neter, Wasserman, & Kutner, 1985).

Table 2: Descriptive Statistics and Correlation Matrix

Variables	BMK	IPM	BSC	OCV	OEF	OPD	FSC	FAG	FSZ	FCP
Mean	4.10	4.11	4.15	4.18	4.10	4.05	3.82	0.85	0.62	0.15
s.d.	0.38	0.46	0.43	0.52	0.59	0.55	0.73	0.36	0.49	0.36
BMK										
IPM	0.50***									
BSC	0.42***	0.55***								
OCV	0.41***	0.40***	0.37***							
OEF	0.39***	0.30***	0.25**	0.71***						
OPD	0.40***	0.31***	0.32***	0.70***	0.72***					
FSC	0.23**	0.24**	0.16	0.48***	0.67***	0.77***				
FAG	-0.10	-0.24**	-0.21	-0.10	-0.17	-0.20	-0.19			
FSZ	0.13	-0.12	-0.05	0.06	-0.02	0.04	0.22	0.22		
FCP	0.10	-0.02	0.03	0.17	0.11	0.24**	0.16	0.18	0.33***	

**p<.05, ***p<.01 as the significant level

Table 3: Results of Multiple Regression Analysisa

Independent Variables	Dependent Variables			
	OCV	OEF	OPD	FSC
BMK	0.17	0.21	0.26*	0.06
	(0.14)	(0.15)	(0.14)	(0.15)
IPM	0.37**	0.26*	0.25*	0.36**
	(0.15)	(0.16)	(0.15)	(0.16)
BSC	0.90	0.05	0.23**	-0.10
	(0.15)	(0.15)	(0.11)	(0.16)
FAG	-0.01	-0.14	-0.20	-0.21
	(0.12)	(0.13)	(0.12)	(0.13)
FSZ	-0.01	-0.05	-0.04	0.09
	(0.09)	(0.10)	(0.09)	(0.10)
FCP	0.08	0.12	0.02	0.17
	(0.11)	(0.12)	(0.14)	(0.12)
Adjusted R^2	0.27	0.19	0.28	0.14
VIF	2.57	2.57	2.57	2.57

**p<.05, ***p<.01 as the significant level, [a] Beta coefficients with standard errors in parenthesis.

Table 3 shows the results of the relationships between strategic performance measurement and its consequences. Strategic performance measurement consists of benchmarking, integrated performance measurement and balanced scorecard. Benchmarking has a significant positive impact on only organizational productivity (β_{13} = 0.26, p<0.07), but it has no effects on organizational creativity, organizational effectiveness and firm success. Being consistent with the existing literatures, benchmarking explicitly helps firms constantly evolve and improve their business operations and activities in order to survive and prosper in a competitive business environments facing global competition (Cook, Seiford, & Zhu, 2004). Thus, benchmarking tends to become a key in driving firms' organizational productivity. In contrast, benchmarking is not related to organizational creativity, organizational

effectiveness and firm success. In existing literature, benchmarking is an ongoing process of evaluating and emulating the products, services and processes of best performing organizations (Akdeniz, Gonzalez-Padron, & Calantone, 2010). It compares against other organizations in the industry and other units in the same organizations by transforming inputs into outputs at the lowest cost without wastes and risks. Hence, the effects of benchmarking on other outcomes do not clear. *Therefore, only Hypothesis 1c is supported, but Hypotheses 1a, 1b and 1d are not.*

Integrated performance measurement is also a main determinant of organizational creativity, organizational effectiveness, organizational productivity, and firm success. It is positively related to organizational creativity (β_{02} = 0.37, p<0.02), organizational effectiveness (β_{08} = 0.26, p<0.10), organizational productivity (β_{14} = 0.25, p<0.10), and firm success (β_{20} = 0.36, p<0.03). Accordingly, integrated performance measurement is the comprehensiveness of the measures by providing their consistency with each other and according to organizational strategies that reflects all relevant features of organizational performance and value creation (Giovannoni & Maraghini, 2013). Thus, successfully implementing integrated performance measurement has a critical effect on superior business outcomes. *Therefore, Hypotheses 2a-2d are supported.*

Lastly, balanced scorecard has an important positive influence on organizational productivity (β_{15} = 0.23, p<0.05) similar to benchmarking dimension of strategic performance measurement. With the competitive markets and environments, balanced scorecard explicitly enhances firms to accomplish critical management processes, clarify and translate their vision and strategy, communicate and link strategic objectives and measures, plan and align strategic initiatives, and enhance strategic feedback and learning (Eilat, Golany, & Shtub, 2008). It is significant to encourage firms' organizational productivity. While balanced scorecard has focused on customer retentions, internal processes, organizational learning, and financial outcomes, it may drive firms to achieve firms' effective employee competency and efficient management capability. It does not explicitly relate to organizational creativity, organizational effectiveness and firm success. Thus, balanced scorecard is positively interacted with organizational productivity. *Therefore, Hypothesis 3c is supported, but Hypotheses 3a, 3b and 3d are not.*

Table 4. Results of Multiple Regression Analysis[a]

Independent Variables	Dependent Variables		
	OEF	OPD	FSC
OCV	0.70***	0.67***	0.19
	(0.08)	(0.08)	(0.11)
OEF			0.20
			(0.14)
OPD			0.73***
			(0.15)
FAG	-0.14	-0.21	-0.04
	(0.10)	(0.10)	(0.09)
FSZ	-0.03	-0.01	0.11
	(0.07)	(0.07)	(0.07)
FCP	0.08	0.19	-0.02
	(0.09)	(0.09)	(0.09)
Adjusted R2	0.51	0.52	0.59
VIF	1.04	1.91	3.68

***p<.01 as the significant level, [a] Beta coefficients with standard errors in parenthesis.

Table 4 presents the relationships among organizational creativity, organizational effectiveness, organizational productivity, and firm success. Here, organizational creativity plays a critical role in explaining both organizational effectiveness and organizational productivity. It has a significant positive effect on organizational effectiveness (β_{25} = 0.70, p<0.01) and organizational productivity (β_{26} = 0.67, p<0.01). Interestingly, organizational creativity outstandingly promotes firms to provide new and better solutions to business and customer problems, make new levels of quantity, quality, cost, and customer satisfaction and drives them to achieve market success and improve operating efficiency (Mostafa & El-Masry, 2008). In this study, organizational creativity is not directly related to firm success. The mediating effects of organizational effectiveness and organizational productivity on the

organizational creativity-firm success relationships may be considered. Thus, organizational creativity definitely enhances firms' organizational effectiveness and organizational productivity. *Therefore, Hypotheses 4a-4b are supported, but Hypothesis 4c is not.*

Organizational productivity is importantly positively related to firm success (β_{35} = 0.73, p<0.01). It explicitly has a valuable impact on firm success. Greater organizational productivity is a key to achieve firms' more success in business operations and activities. Similarly, organizational productivity is a driving force of firms' growth, profitability and success through their effective employee competency and efficient management capability in the rigorous markets and environments (Solaja, Idowu, & James, 2016). Thus, organizational productivity has a significant positive role in determining and explaining firm success. Therefore, Hypothesis 6 is supported.

Surprisingly, only organizational effectiveness has no influence on firm success. It does not play any role in driving the change level of firm success (β_{34} = 0.20, p<0.18). With the existing literature, organizational effectiveness presents how successfully firms achieve their missions through their unique capabilities and core strategies in order to gain sustain competitive advantage and superior firm success (Taylor, Cornelius, & Colvin, 2014). Firms with more organizational effectiveness have a higher success in the competitive situations. However, organizational effectiveness is not related to firm success because firms may need to compete in the markets via only providing operational and strategic efficiency. Then, organizational effectiveness is not necessary to help them achieve their success. Therefore, Hypothesis 5 is not supported.

5. Contributions

5.1 Theoretical contribution and suggestions for future research

This study has attempted to reasonably define benchmarking, integrated performance measurement and balanced scorecard as the dimensions of strategic performance measurement. These dimensions play key roles in determining organizational creativity, organizational effectiveness, organizational productivity, and firm success which is consistent with the existing literatires. To clearly verify the benefits and advantages of strategic performance measurement, future research needs to review more literature relating to strategic performance measurement and its antecedents and consequences in order to confirm the current study and expand the implementation of the valuable strategic tool in increasing competitive advantage and business performance. Also, future research needs to collect data from a large sample group and a different population in order to increase and add the validity and reliability to this study. Likewise, there is the small sample size of Thai listed firms in this study even though its response rate is considerably accepted. According to this limitation of the study, future research needs to search for effective methods in improving the power of test in this study through increasing a number of the sample size. Likewise, this study used the multiple regression analysis to investigate the relationships. Future research may apply either structural equation model (SEM) or partial least squared (PLS) in order to verify both direct and indirect effects and prove the generalizability of the study.

5.2 Managerial contribution

For managerial contribution of this study, executives of firms can utilize the useful outcomes of the study for setting and identifying valuable strategies to build and sustain competitive advantages and to gain profitability, survival, stability, and sustainability. They may pay more attention to develop, implement and manage strategic performance measurement through dimensions of benchmarking, integrated performance measurement and balanced scorecard because these dimensions have focused on different criterion of measuring firms' outcomes. They would become valuable tools in helping firms meet goal achievement. More

successful strategic performance measurement definitely affects firms' better performance with competitive markets and environments. Accordingly, executives must use their competencies and capabilities to push their organizations to gain success in the business operations and activities.

6. Conclusion

Strategic performance measurement has become a valuable tool in determining competitive advantage and driving firm success in the rigorous competitive situations. It consists of three dimensions, including benchmarking, integrated performance measurement and balanced scorecard. Hence, the objective of this study is to investigate the effects of strategic performance measurement on firm success of listed firms in Thailand. Organizational creativity, organizational effectiveness and organizational productivity are the mediators of the study. Here, 121 listed firms in Thailand are the samples of the study. With the results of the study, integrated performance measurement plays a significant role in encouraging all organizational creativity, organizational effectiveness, organizational productivity, and firm success. For benchmarking and balanced scorecard dimensions of strategic performance measurement, those dimensions have an effect on only organizational productivity, but do not affect organizational creativity, organizational effectiveness and firm success. Also, organizational creativity is positively related to organizational effectiveness and organizational productivity, but not to firm success. Likewise, organizational productivity has an important influence on firm success, but organizational effectiveness does not. In summary, strategic performance measurement is key to promote firms to succeed, survive and sustain. To verify and expand the benefits and advantages of strategic performance measurement, future research needs to review more literatures and reconceptualize the relationship model and collect data from a large sample group and a different population.

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Appendix A: Measurement of All Variables

Items

Firm Success (FSC)

1. We have a confidence that our firms can do businesses from now to future.
2. We have gained acceptability from customers and markets continuously.
3. We have achieved superior profitability within the competitive markets and environments.

Benchmarking (BMK)

1. We believe that performance measurement by comparing with standards or other units that are better will help manage our operations efficiently.
2. We pay attention in determining the concepts of best practices for being database in the comparison in order to gain our operational success in now and future.
3. We focus on searching external units that have great performance and good standards for using as database of the comparisons to increase competitive advantage continuously.
4. We have concerned with improvement and development of operations in an organization for supporting to have our performance better than standards or external units that can help us survive and sustain in now and future.

Integrated Performance Measurement (IPM)

1. We believe that integrated performance measurement can help us gained acceptability from employee and encourage us to succeed in now and future.
2. We give an importance with integrated all performance measurements together systematically and objectively for promoting best goal achievement.
3. We emphasize performance measurement by applying various evaluation tools in order to respond to competitive environments efficiently and effectively.
4. We have developed and improved our performance measurement tools by using modern and advanced technology to increase creativity and innovation continuously.

Balanced Scorecard (BSC)

1. We believe that performance measurement by using both financial and non-financial outcomes can help outstandingly promote our operational success within competitive situations.
2. We focus on the applications of outcomes through finance, customer, innovation and growth, and operational efficiency for measuring our performance in determining our success in long term.
3. We collect the outcomes of finance, customer, innovation and growth, and operational efficiency as the quality of performance measurement tools in pushing operational sustainability in now and future.
4. We have created performance measurement system in both financial and non-financial outcomes for gaining our success, survive and sustainability in long term.

Organizational Creativity (OCV)

1. We can always present new concepts of organizational management and administration.
2. We can always have our creativity in driving organizational success.
3. We can develop our product, service and administrative innovations continuously.

Organizational Effectiveness (OEF)

1. We can manage our operations effectively and efficiently in various situations.
2. We can always achieve our goals and objectives.
3. We can develop and improve our organizations more outstanding and better than competitors.

Organizational Productivity (OPD)

1. We have a performance being congruent with our plans through focusing on operational worthy.
2. We have gained acceptability from stakeholders relating to managerial quality and profession.
3. We have the best performance continuously through our existing competencies and capabilities.