

# The Effectiveness of Risk Management and Business Performance: SMEs in Bangkok, Thailand

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**Abstract— Objective:** To test the effectiveness of the risk management model composing of 5 variables on the business performance of SMEs in Bangkok, Thailand. These variables were strategic, financial, operational, compliance risks, and the balanced scorecard, respectively. **Methods:** The research is undertaken based on a quantitative research methodology in which the data collection has been achieved through self-administered questionnaires from n = 400 participants. The item-objective congruence value test was used to assess the questionnaire validity at the design stage, on a pilot sample of 3 experts. Cronbach Alpha was used to determine validity. **Findings:** The 5-factor model was found to determine 61.2% of the observed effect with a confidence level of 99%. **Implications:** Practitioners in SMEs are advised to implement the balanced scorecard and risk management strategies in their companies. Supporting governmental initiatives increasing risk management literacy are welcomed. Academics may further develop this field by identifying specific risk management strategies for Thailand.

*Key Words:* Risk management, balanced scorecard, business performance

## 1. Introduction

According to the Ministry of Industry, Thailand [54] SMEs are companies with less than 200 employees and a capital lower than THB 200 million. In 2014,

there were a total of 2,736,744 SMEs in Thailand accounted for 99.73% of the total market and a total of 13,078,147 employed individuals or 80.30% of the total workforce market [35]

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Despite playing role as one of the driving factors of the economy, Thai SMEs remain relatively underdeveloped in comparison with those in western countries since their business success have often been affected by uncertainty due to lack of standardization and risk management [14; 45; 48; 28]. Their business performance could be significantly enhanced through developmental interventions aiming to teach business owners and management how to leverage risk management techniques for their advantages [4; 20; 37].

However, there is an academic and practical gap created by lack of understanding of the current status of knowledge in SMEs regarding which risk management techniques should be taught. Therefore, this research study proposes to investigate the correlations between risk management techniques and business performance of SMEs in Bangkok, Thailand.

Table 1. Definition of SME [54]

Type	Small		Medium	
	Employees	Capital (THB million)	Employees	Capital (THB million)
Production	Not more than 50	Not more than 50	51-200	51-200
Service	Not more than 50	Not more than 50	51-200	51-200
Wholesale	Not more than 25	Not more than 50	26-50	51-100

### 1.1. Research Aim and Objectives

The objective of this research is to investigate the effectiveness of risk management in improving business performance of SMEs in Bangkok, Thailand.

The research objectives are:

- To identify the effectiveness level of risk management of Bangkok SMEs.
- To examine business performance of Bangkok SMEs.
- To clarify the relationship between risk management and business performance of these SMEs.

## 2. Literature Review

The risk management theory defines that risks are the effect of environmental uncertainty on business objectives [26; 53]. Therefore, a business critical application is to identify, evaluate, and categorize risks, activity proactively followed by the implementation of risk mitigation measures and, in parallel, opportunity exploitation measures. Usually, risk management plans created for enterprise level events include, at least, the complex activity monitoring indicators such as the balanced scorecard and guidelines for assessing and addressing the fundamental strategic, financial, operational, and compliance risks [20; 10; 42; 31]. Unfortunately, there have been rather few studies of the consequences of application of risk management strategies in SMEs and only quantitative studies on the topics in general such as the available literature discussion of case studies and reviews [20; 52].

### 2.1. Strategic Risk

Strategic risk impacts the fundamental areas of business, from goal setting to implementation of strategies dedicated to reaching business goals such as economic, legal, political, and competitive risks, and change [40; 13]. When applying strategic risk management methodologies and plans, SMEs have been found to thrive economically in a larger proportion than their counterparts who have not engaged with the similar measures [57; 56]. This particularly happens when SMEs possess tools to enable their operational streamlining such as ERP programs [2].

### 2.2. Financial Risk

Financial risks are greatly problematic for small companies and start-ups who often have difficulties in securing cash flows appropriate for their needs and sometimes such difficulties lead to the bankruptcy of otherwise solid companies [1; 32; 12; 11; 58]. Addressing financial risks; for example, by using strategies such as shortening payment terms, leads to

greatly improved outcomes and in over 70% of cases gain beneficial outcomes and avoid bankruptcy [41; 36; 9].

### 2.3. Operational Risk

The operational risks are more subtle spreaded throughout all areas of daily activities of a company and it is therefore more difficult to be addressed as it is required wider and more complex mitigation strategies [51]. When implementing the operational streamline processes, adopting IT tools (e.g. ERP) and defining policies for purchasing, SMEs have been found to reach far more beneficial outcomes than their naïve counterparts [29; 18; 24; 59]. While this effect has been often studied in financial institutions [59; 60] the evidence in the SME sector is lacking [20].

### 2.4. Compliance Risk

While compliance presents a lower risk for companies per se, it can place them in an undesirable relation with state institutions; therefore, it is a mandatory component of risk management in corporations [34; 25]. While SMEs typically strive to follow environmental, health, and consumer laws, the absence of dedicated personnel due to cost considerations may hinder their efforts, which may lead to costly fines and loss of privileges [20; 58].

### 2.5. Balanced Scorecard

While the balanced scorecard approach is not a step towards mitigating risks, it is a vital component of risk management since it help evaluate the entire performance of the organization and within each business unit [22; 17]. It has been found that, if a company possesses the tools to accurately measure performance [61] its levels of innovativeness and financial performance will peak and reach their optimum values [38] and it particularly happens for the case of SMEs, possibly due to their general lack of performance measurement means [50].

Based on these considerations, the central hypothesis of this research has been formulated as follow:

### 3. Research Methodology

This research uses the quantitative methods that are suitable when the sufficient theory exists to outline the theoretical framework of the study and empirical hypotheses can be formulated and tested. [33; 7; 21]. The target population of the study is formed by the SMEs in Bangkok that became registered companies in 2016 (n = 266,912). As the size of the total population is larger than 20,000 units and is assumed to be normally distributed with 95% confidence interval and 5% error margin, the Yamane formula has been then applied (Israel, 1992; Raosoft, 2015; Louangrath et al, 2015):

$$\delta = \frac{Z^2 * (P) * (1 - P)}{C^2}$$

where:

Z = 95% confidence (Z = 1.96)

p = decimal probability % (here 0.5)

c = decimal confidence interval.

The data has been collected through self-administrated questionnaires that have been previously tested for validity by using the index of item-objective congruence for multidimensional items [55] a measure of collinearity of items in linear relationship. Validity was tested by 3 experts (1 academic and 2 SME managers) with the result of the test IOC = 0.87, where items with perfect validity

H1: The effectiveness of risk management positively influences business performance of SMEs.

have a score of 1 and items that are completely not valid have a score of -1 [55].

The reliability of the resulting questionnaire has been evaluated by using the Cronbach Alpha formula for non-overlapping variables. All items have been found to have values above the recommended cut off value of 0.8 [46; 8].

The data has been analyzed by using descriptive and inferential statistics, namely multiple regression. Before conducting the multiple regression, a correlation test for multicollinearity has been conducted to determine whether the variables are linearly covariant to avoid confounding variables that can trigger nonlinear effects in the model [43; 19].

### 4. Results and discussion

The 400 respondents answered the items on a 4--point Likert scale, where the minimum of 2 points corresponded to strong disagreement and the maximum of 5 points to strong agreement. All categories of items had means around 4 points, showing an indicative agreement, and relatively low standard deviations of  $0.56 < SD < 0.64$  indicating in-group homogeneity. The balanced scorecard factor obtained the highest mean and the lowest standard deviation, reflecting that respondents viewed it as an particular important stepping stone toward achieving the enhanced business performance.

**Table 2.** Descriptive statistics

Effectiveness of risk management	N	Minimum	Maximum	Mean	Std. Deviation
Strategic Risk : SR	400	2.00	5.00	3.99	.58
Financial Risk : FR	400	2.00	5.00	3.99	.59
Operational Risk : OR	400	2.00	5.00	3.98	.63
Compliance Risk : CR	400	2.00	5.00	3.96	.61
BSC	400	2.00	5.00	4.17	.57

The correlation between each pair of individual variables has been tested in a 2-tailed Pearson Correlation setup. The Pearson Correlation index associates modulo values of the correlation larger than 0.5 with a strong correlation between variables:  $0.5 < |r|$  [16]. In this case, all values are positive and above 0.55, with the lowest correlation occurred between compliance risk and the balanced scorecard

as expected since the compliance is not typically a performance measure in SMEs. The highest correlation occurred between financial and operational risks, which strongly influence each other due to interactions between cash flow and the possibility to sustain daily operations. The 2-tailed p-values on these correlations are all at the significance level of  $0.000 < 0.01$ .

**Table 3.** Correlations of variables

		SR	FR	OR	CR	BSC
SR	Pearson Correlation	1	.790**	.805**	.728**	.643**
	Sig. (2-tailed)		.000	.000	.000	.000
	N	400	400	400	400	400
FR	Pearson Correlation	.790**	1	.839**	.764**	.626**
	Sig. (2-tailed)	.000		.000	.000	.000
	N	400	400	400	400	400
OR	Pearson Correlation	.805**	.839**	1	.833**	.662**
	Sig. (2-tailed)	.000	.000		.000	.000
	N	400	400	400	400	400
CR	Pearson Correlation	.728**	.764**	.833**	1	.555**
	Sig. (2-tailed)	.000	.000	.000		.000
	N	400	400	400	400	400
BSC	Pearson Correlation	.643**	.626**	.662**	.555**	1
	Sig. (2-tailed)	.000	.000	.000	.000	
	N	400	400	400	400	400

\*\* . Correlation is significant at the 0.01 level (2-tailed).

The multicollinearity test used the variance inflation factor to detect tolerance for multicollinearity as shown below:

$$VIF = 1/\text{Tolerance}$$

It is recommended that a tolerance under the cut off level of 0.2 and a VIF above 5 indicating that the model contains multicollinearity between items will

manifest large output changes as a consequence of small variations in input [44]. Since, in this case, the tolerance levels are high (0.6 and above >>0.2) whereas VIF levels are low ( $1.46 < VIF < 1.67$ ,  $VIF \ll 5$ ), it indicates that the probability of multicollinear items is very low in this model.

**Table 4.** Multicollinearity test

Model	Collinearity Statistics	
	Tolerance	VIF
(Constant)		
Strategic Risk	.68	1.47
Financial Risk	.65	1.55
Operational Risk	.65	1.54
Compliance Risk	.60	1.66

The analysis of variance indicates a probability of 1% for the model's explanatory power to be coincidental. This also correlates with the individual p-values on the factors of the model, which are all  $0.000 < 0.01$ .

Thus, the individual p-values and that of the model invalidate the null hypothesis with a probability of 99% on a normal distribution of population.

**Table 5.** ANOVA<sup>a</sup>

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	13404.182	4	3351.046	90.837	.000 <sup>b</sup>
	Residual	14571.915	395	36.891		
	Total	27976.098	399			

a. Dependent Variable: BSC

b. Predictors: (Constant), SR, FR, OR, CR

In addition, the R squared  $R^2 = 0.622$  and adjusted R squared values  $R^2_{Adj} = 0.612$  show that the model has robust explanatory power to be accounted for 61% of the observed effect in 99% of the cases. The Durbin

Watson value  $DW = 1.998$  falls in the interval [0,4] and very close to the value of 2 showing that there is no autocorrelation in the sample.

**Table 6.** Coefficients

Model		Unstandardized Coefficients		Standardized	t	Sig.
		B	Std. Error	Coefficients Beta		
1	(Constant)	.318	.151		2.108	.001
	SR	.252	.030	.322	4.190	.000
	FR	.128	.032	.155	2.031	.000
	OR	.230	.036	.248	4.473	.000
	.288	-.980	.040	.290	3.959	.000

a. Dependent Variable: BSC

R = .789 R Square = .622 Adjusted R Square = .612

Std. Error of the Estimate = .30350 Durbin Watson = 1.998

This study confirmed that the 5-variable model composing of strategic, financial, operational, and compliance risk management and balanced scorecard utilization in SMEs increase performance. Notably, the descriptive statistics show that the balanced scorecard is the preferred mean of improving business performance by practitioners, with a mean  $M = 4.17$  and a standard deviation  $SD = 0.57$ , the highest and respective lowest values in the set indicating high agreement and importance. This is indeed the case throughout the existing literature, with the balanced scorecard being awarded to a central place among the tools and techniques that practitioners can use to measure performance [27; 47; 6; 15]. The power of the balanced scorecard likely comes from its potential to lead to improvements when slippages in performance are observed. Indeed, the scorecard is a straightforward way to maintain

## 5. Conclusion

This research study tested the effectiveness of risk management as a method to improve business performance of SMEs in Bangkok, Thailand by using the quantitative means. The independent variables strategic, financial, operational, and compliance risk and balanced scorecard have been integrated in a model used to predict the operational business performance. The respondent sample was selected from the ranks of SMEs registered during 2016 and was composed of  $n = 400$  participants, a sample size calculated with the Yamane formula. The data was collected through self-administered questionnaires, which have been previously tested by using the item-objective congruence value on a pilot sample of 3 experts ( $IOC = 0.87$ ). Further testing ensued from using the Cronbach Alpha formula (alpha values of all items were above 0.8). The results show high Pearson Correlation values between each pair of the

visibility over the gap to the business goal [3; 23; 39]. Moreover, the scorecard alone fails to associate with improvements in business performance when practitioners simply observe it rather than using it for interventions [49]. Another reason for failure is that balanced scorecards may not always measure the business critical areas accurately or completely [15]. At the opposite end of the spectrum, the compliance risk management seems to bring the least business value and be a rather mandatory factor than one that can improve performance. In contrast, the compliance management aids larger corporations to exploit opportunities offered by, for example, consumer environmental consciousness [30] but is less applicable to SMEs. Finally, strategic, financial, and operational risk managements are as significant to SME performance as expected from previous studies [40; 13; 12; 11; 59].

independent variables at a certainty level of 99%. The analysis of variance shows positive correlations between determinants and the dependent variable at a certainty level of 99%. The model can be accounted for 61% of the observed effect due to  $R^2_{Adj} = 0.612$ . Therefore, the null hypothesis is rejected.

This research study thus demonstrated that the management of strategic, financial, operational, and compliance risks in SMEs and the usage of balanced scorecards to measure internal performance are highly correlated with business success.

## 6. Recommendations

Based on the findings of this research study, the first most evident recommendation to practitioners is to implement balanced scorecards in their organizations as soon as possible as they are potentially powerful performance management tools. However, practitioners must pay special attention to the business aspects they measure and to the measures

necessary to correct performance slippages, otherwise the balanced scorecards may be ineffective. Moreover, the risk management measures of strategic, financial, and operational nature must be taken; for example, by streamlining business processes, shortening payment terms, or implementing more cost-effective procurement processes. Ultimately, compliance risks must be covered as well by ensuring compliance with the law although they are less of a source of business performance improvement in SMEs than they are in corporations.

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