Enterprise Risk Management and Firm Performance Validated Through Economic Value Added Factors

Muhammad Kashif Shad\(^1\) Fong-Woon Lai\(^2\)
Department of Management and Humanities\(^1,2\)
Universiti Teknologi PETRONAS
Bandar Seri Iskandar, 32610 Tronoh, Perak, Malaysia
Email: mkashifshad@gmail.com\(^1\); laifongwoon@petronas.com.my\(^2\)

Abstract—Enterprise Risk Management (ERM) is an essential technique, used to manage a myriad of risks in a holistic manner. This paper presents an ERM implementation framework which is operationalized by fourteen elements. It highlights the impact of ERM towards the firm’s performance measured through Economic Value Added (EVA) factors. The research design incorporates descriptive and cross-sectional analysis. Data was collected from 120 public listed companies in Bursa Malaysia through questionnaires survey. Results of the empirical analysis show that ERM implementation has significant positive impact on firm’s performance. The results support the hypothesis that the firms which implements ERM will enhance their performance as validated through the perceived measurement of EVA factors. This study offers a perspective of measuring ERM implementation impact through EVA factors as compared to the accounting measures.

Keywords—Enterprise Risk Management, Firm Performance, Performance Measurement, Economic Value Added.

I. INTRODUCTION

Risk management has occupied an important place in business operations and become a necessity instead of an option for enterprises. It is the process of managing and thinking systematically about the risks encountering the organization [1]. The concept of risk management in the form of Enterprise Risk Management is most advocated in business world [2]. The aim of this paper is to propose a value enhancing model of ERM implementation validated through Economic Value Added (EVA) analysis. This paper empirically examines the impact of ERM towards firm’s performance vis-à-vis the espoused EVA model.

ERM is defined as “the process of identifying and analyzing risk from an integrated, company-wide perspective”. It is a structured and disciplined approach in aligning strategy, processes, people, technology and knowledge with a purpose of evaluating and managing the uncertainties the enterprise faces as it creates value [3] [4]. Recently ERM became an important issue and received much attention globally including in Malaysia for all types of organizations regardless of their size [5]. According to [6], one tenth of 800 listed companies in Malaysia suffered losses due to financial crisis occurred in 1997/98 and destitute risk management was the foremost cause of companies fragility. Additionally, [7] postulated that companies operating in Malaysia are exposed to many kinds of risks, internally or externally due to the economic fluctuation, political, cultural, religious and technological advancement [8]. Therefore, the scenario of ERM practices and its regulatory consequences presents a backdrop of the essence of ERM implementation among Corporate Malaysia.

ERM is believed to have positive impact on firm’s performance [9]. Value maximization theory of risk management postulates that ERM implementation leads to various tangible and intangible benefits [3]. These benefits then lead towards improvement in operating margin, lowering cost of capital maximizing return on invested capital which ultimately will improve the performance of the firm.

Various kinds of accounting and traditional measures are available for firm’s performance appraisal e.g. return on assets, return on equity, earning per share, and Tobin’s q etc. Despite the fact that traditional or accounting measures are widely used they are often under severe criticism. According to [10], most of the performance measurements techniques did not provide comprehensive scenario for decision making. Furthermore, they do not incorporates the cost of capital in terms of risk (i.e., market volatility) and the time value of money in assessing investment return or performance [11]. Thus, those measurement techniques do not help investors to understand the complex process of value creation [12] [13]. Value based performance measure approach like EVA has attracted the attentions of financial analysts and researchers due to its supremacy and ability to show a genuine value of the enterprises.

However, few empirical studies were done on the effect of ERM toward value based firm performance, much less through EVA analysis. EVA is still a new approach for performance measurement purposes in developing countries like Malaysia [14]. Hence, this study evaluates the applicability of using a value based performance measurement system such as that of economic value added among the Malaysian public listed companies (Plc’s) as a result of ERM implementation.

II. LITERATURE REVIEW

A. ERM Implementation Model

The study adopts a value enhancing model for ERM implementation presented by [15]. The model comprises three dimensions namely: Structure Governance, and Process. These three dimensions are classified into seven areas.
Fourteen elements are instituted to operationalize these seven areas. For example, the Structure dimension covers two areas; ERM definition, performance measurement that will be measured by four implementation elements. The Governance dimension also covers two areas; Information and roles, and Compliance measured with four implementation elements. While the third dimension Process covers three areas; integration of business strategy and objectives, risk identification and response, and risk quantification will be measured by six implementation elements. Table I, presents the adopted ERM implementation model with its three dimensions, seven areas, and corresponding fourteen elements.

Table I: Dimensions and Areas of ERM Implementation

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Areas</th>
<th>Element / Statement</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Structure</strong></td>
<td>ERM Definition</td>
<td>Provides common understanding of the objectives of each ERM initiative</td>
</tr>
<tr>
<td></td>
<td>Performance measurement</td>
<td>Provides common terminology and set of standards of risk management</td>
</tr>
<tr>
<td></td>
<td>Information and roles</td>
<td>Identifies the key risk indicators (KRIs)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Integrates risk with key performance indicators (KPIs)</td>
</tr>
<tr>
<td>Governance</td>
<td></td>
<td>Provides enterprise-wide information about risk</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Enables everyone to understand his/her accountability</td>
</tr>
<tr>
<td></td>
<td>Compliance</td>
<td>Reduces risk of non-compliance</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Enables tracking costs of compliance</td>
</tr>
<tr>
<td></td>
<td>Integration of business strategy and objectives</td>
<td>Integrates risk with corporate strategic planning</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Integrated across all functions and business units</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ERM strategy is aligned with corporate strategy</td>
</tr>
<tr>
<td></td>
<td>Risk identification and response</td>
<td>Aligns ERM initiatives to business objectives</td>
</tr>
<tr>
<td></td>
<td>Risk quantification</td>
<td>Provides the rigor to identify and select risk responses (i.e. risk-avoidance, reduction, sharing and acceptance)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Quantifies risk to the greatest extent possible</td>
</tr>
</tbody>
</table>

B. Economic Value Added (EVA)

The fundamental objective of an organization is to maximize the value of its shareholders. Various traditional or accounting measures like return on assets, return on equity, return on capital employed, return on net worth, earning per share, Tobin’s q etc. are widely used by organizations to evaluate their business performance. However, according to [16], the accounting performance measurement tools have failed to explain how much value has been created by the organization in the context of risk adjusted cost of capital invested.

To overcome the problems related to traditional performance measures, Stern Stewart & Co in 1980’s proposed an alternative theory and a new performance measurement system namely economic value added (EVA).

EVA is a superior financial performance measure that reflects the accurate and true value of the company by incorporating the cost of capital [17]. It is computed by the deducting capital charge (Weighted Average Cost of Capital WACC x Invested Capital) from NOPAT (Net Operating Profit after Taxes). Empirical studies such as [14], [16], [17], [18] articulated the superiority of EVA and stated that “it is really better to use value based measures than traditional performance measures to evaluate the financial performance of the companies”. EVA can be presented in the following equation:

$$EVA = NOPAT - (WACC \times Invested\ Capital)$$

where

$$NOPAT = \text{Net operating profit after tax}$$

$$WACC = \text{Weighted Average Cost of Capital}$$

$$(WACC \times Invested\ Capital) = \text{capital charge}$$

EVA is a better performance measure because it combines various factors like economy, accounting, and market information in the evaluation of the enterprise performance [19]. According to [17], performance evaluated via EVA assists financial analysts to make better investment decisions, identify new and better ways for expansion of business, attract new investors and maintain the existing ones.

The fundamental concept behind the measurement of the firm’s performance via EVA is to provide maximum return to shareholders for their risk taking. In other words, shareholders have to earn at least an equal return as similarly risky investment in equity markets. If they do not receive the above mentioned required return, then there is no excess return being made, hence, no value being created by the firm to its shareholders rendering a zero EVA. As such, EVA analysis provides the basic advantage that shows the true profit of an organization by incorporating the cost of capital in its performance assessment [20]. In short, if EVA of a firm is greater than zero, value is created during the period under analysis. On the other hand, if EVA is less than zero, value is destroyed.

C. ERM Implementation and Firm Performance

Modern portfolio theory claims risk management concept is irrelevant to the shareholders’ value because shareholders can use two tools, asset allocation, and diversification to reduce the risks they face [21]. The emergence of ERM since 1990’s has made risk management a substantial part of an organization’s strategic plan and objectives. Nonetheless, in one perspective, ERM implementation challenges the notion of modern portfolio theory (ERM-firm specific risk management is irrelevant to shareholder value) as ERM enables companies to make better risk-adjusted decisions that enhance shareholder value [9].

ERM improves the awareness of risks within the firm which helps in making better operational and strategic decisions [22] [23]. Better decision making enables the management to meet strategic goals, reduce earnings volatility, and increase profitability. Furthermore, ERM is beneficial in the reduction of expected taxes, mitigation of incentive
conflicts, and creation of new opportunities. Risk management has the ability to minimize the volatility of reported income and the progressivity of most of the world’s tax codes [24]. By reducing fluctuations in taxable income, ERM can lead to lower tax payments by ensuring that the largest possible proportion of corporate income falls within this optimal range of tax rates. The increase in sales and profitability, reduction in tax payments and cost of goods sold through ERM implementation will positively impact the NOPAT component of EVA of the enterprise.

Moreover, [3] articulated that ERM minimizes the cost of debt and cost of equity. ERM program in the organization motivates the debt markets to provide debt financing, reduces systematic risks which ultimately reduces the cost of capital. Also, risk management minimizes the cost associated with external financing, reduce corporate taxes, and agency costs. Therefore, reduction in the cost of capital of the firm will reduce the WACC component on the EVA. The Trade-off Theory assumes that there is an advantage for firms to finance through debt (interest tax shield benefit) but they do need to consider the bankruptcy costs and agency costs associated with debts. Hence, firms trade off the benefits of debt and equity financing to find an optimal capital structure that will minimize the cost of capital and maximize the firm value [25]. Hence, ERM implementation ensures that the ownership of the company will not be transferred to debtholders through bankruptcy. (The increase in volatility in return increases the chance of bankruptcy). According to [6], the bankruptcy of numerous enterprises is caused by poor risk management.

The empirical evidence on the relationship between ERM and firm performance appear to be mixed. Some of the studies found a positive relationship between ERM and firm value, while others found a negative relationship. The study by [26] in the United States insurance companies articulates that ERM implementation enhances the firm’s value.

Moreover, the study indicates that the value of Tobin’s q is higher in the firm practicing ERM and vice versa. A study by [7] about value enhancing ERM implementation framework among listed companies claims that ERM implementation in organization reduce firm’s specific risks, persuade debt markets to provide low-cost debt, reduce risk premium which eventually reduce cost of capital of the firm [27]. Furthermore, the study indicates that ERM implementation improves the price to earnings ratio. This is because the investors are willing to pay higher price for the company’s share at a given level of earnings-per-share (EPS) due to the firm’s perceived lower risk profile [28]. All of the above value enhancing outcome of ERM implementation will contribute to enhance EVA of the organizations.

III. Conceptual Framework

This paper proposes a conceptual framework featuring an ERM implementation model which will have positive and significant relationships with firm performance to be measured through EVA. Figure I depicts the dependent and independent variables relationships of the proposed conceptual framework.

The conceptual framework sees that the adopted implementation model of ERM (independent variable) has a positive impact on a firm performance (dependent variable) and that performance can be validated through EVA factors, namely NOPAT and Capital Charge. The adopted ERM model has been presented in Table I.

Firm performance can be measured through objective and perceived measures. Objective measures are typically secondary data such as financial or accounting data whereas perceived measures are usually primary data collected through survey and questionnaire instruments.
In this study, we present the firm performance of EVA factors through some proxy perceived measures collected via questionnaire instrument. EVA encompasses two factors, NOPAT and Capital Charge (see equation in section 2.2). In this study, we proxy NOPAT measure by two constructs namely, Profit Margin and Tax Performance which in turn, are measured by four and two questionnaire items respectively. On the other hand, Capital Charge is proxied by two constructs namely, Lower Bankruptcy Risk and Lower Cost of Capital. The two constructs are measured by three items respectively. Table II below presents the respective construct proxies of the EVA factors and their corresponding variables (questionnaire items):

Table II: Perceived measures proxies for EVA factors

<table>
<thead>
<tr>
<th>Construct</th>
<th>Variables</th>
</tr>
</thead>
<tbody>
<tr>
<td>Profit Margin</td>
<td>ERM improves awareness of risks</td>
</tr>
<tr>
<td></td>
<td>ERM reduces earning volatility</td>
</tr>
<tr>
<td></td>
<td>ERM reduces general &amp; administrative expenses</td>
</tr>
<tr>
<td></td>
<td>ERM improves return on assets of the firm</td>
</tr>
<tr>
<td>Tax Performance</td>
<td>ERM reduces company’s expected taxes</td>
</tr>
<tr>
<td></td>
<td>ERM reduces the agency cost of the firm</td>
</tr>
<tr>
<td>Lower Bankruptcy Risk</td>
<td>ERM improves corporate reputation</td>
</tr>
<tr>
<td></td>
<td>ERM boosts investors’ confidence</td>
</tr>
<tr>
<td></td>
<td>ERM reduces costs of efinancial distress</td>
</tr>
<tr>
<td>Lower Cost of Capital</td>
<td>ERM reduces external capital costs of the company</td>
</tr>
<tr>
<td></td>
<td>ERM improves the retained earnings of the firm</td>
</tr>
<tr>
<td></td>
<td>ERM protects company’s investment</td>
</tr>
</tbody>
</table>

This study hypothesizes that ERM implementation maximizes Profit Margin and reduces Tax Payments, Bankruptcy Risk and Cost of Capital. Enhancement in Profit Margin and reduction in Tax Payments positively impact the NOPAT component of EVA and lower Bankruptcy Risk and Cost of Capital will reduce Capital Charge component of EVA. Hence, enhance firm performance in terms of EVA.

IV. HYPOTHESES

In relation to the above conceptual framework, the following hypotheses are developed:

H₁: ERM implementations has an effect on profit margin.
H₂: ERM implementations has an effect on lowering tax payments.
H₃: ERM implementations has an effect on reducing cost of financial distress.
H₄: ERM implementations has an effect on reducing cost of external financing.

V. COMPARISON WITH PREVIOUS METHODS

This study carried out an empirical examination of the formulated hypotheses to validate the hypothesized relationship among the variables. Due to the significance of ERM implementation and performance evaluation in an organization, the study proposed a value enhancing model based on the work of [15]. Moreover, the substantial part in this study is the introduction of value based measurement tool known as economic value added analysis to assess the firm’s performance as a result of ERM implementation. This study further enlightens the arguments of [15] by employing EVA analysis to validate the proposed value enhancing transmission mechanism of the positive impacts of ERM implementation.

VI. METHODOLOGY

A. Sampling Frame and Procedure

The sampling frame defines a set of elements from which researcher can select a sample of the target population [29]. The sampling frame for this study comprises 941 listed companies on the stock exchange in Malaysia (Bursa Malaysia) that is our target population excluding financial companies. The reason for excluding financial companies in this study is because the financial companies are highly regulated enterprises and they have their own clear set of risk management framework pertaining to the market, credit, liquidity, operational and legal risks in compliance to the Bank Negara guidelines as well as to that of Basel committee’s risk management regimes.

Probability sampling technique called stratified sampling method is used in this study. Stratified sampling is a method in which the population is segregated into sub populations or strata’s [30]. The benchmarks used to stratify the sample in this study is the market capitalization of the public listed companies in Bursa Malaysia. Market capitalization is defined as the total market share value of the Plc’s [28]. There are fourteen market sectors as per Bursa Malaysia classification. Under stratified sampling, this study selected top 280 companies from fourteen sectors based on market capitalization. Number of sampled elements was kept at 280 which shows the sampling rate of 30% against the target population. The reason to target top ranked companies by market capitalization in the survey is that it is believed that more information will be gathered for companies ERM program. And also they have gained more experience in implementing ERM program and realizing ERM upshots. See the summary of sampling design in Table III.

Table III: Sampling Design summary

<table>
<thead>
<tr>
<th>Target Population</th>
<th>Public Listed Companies in Malaysian Stock Exchange. (941)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sampling Frame</td>
<td>The dataset compiled from Bursa Malaysia’s online database.</td>
</tr>
<tr>
<td>Sampling Technique</td>
<td>Stratified sampling. Top 280 companies contacted.</td>
</tr>
</tbody>
</table>

B. Data Collection

EVA analysis by design use objective (financial) measurement data, but here we use primary (perceived) data. We carried out an email and drop-off research method for survey data collection. From the research population of 941 listed companies in Bursa Malaysia 280 companies were
tion and capital costs. The test for significance is performed by
financial distress cost, and reduction in external capital costs.
implementation (independent variable) and its impact on
way of examining the strength of associations between ERM
implementation and its impact on profit margin, tax
performance, financial distress cost and Cost of external
capital situations (Dependent variables)

C. Mode of Analysis

Linear regression analysis is employed in this study to
analyze the data. The correlation and regression coefficient is
obtained based on which the direction, impact of
relationships can be determined. R, R-square, and p- value
(significance) have been used to scrutinize the results. This is
performed by observing the relationship between ERM
implementation and its impact on profit margin, tax
performance, financial distress cost and Cost of external
capital. Below section will discuss the results of the empirical
tests.

VII. ANALYSIS AND FINDINGS

A. Reliability Analysis

SPSS is used to perform reliability analysis to compute
Cronbach’s alpha on the variables. Table IV show the results of
reliability analysis with the Cronbach’s alpha scores for the
respective constructs composite scale. All the coefficient
alpha are above 0.70, indicating satisfactory internal
consistency of the instrument [31]. On the basis of these
results the researchers can confidently run the other tests on
formulated hypotheses. Each construct consists of items with
five-point Likert scale. Likert scales range from 1 (Strongly
Disagree) to 5 (Strongly Agree).

Table IV: Reliability Statistics

<table>
<thead>
<tr>
<th>Constructs</th>
<th>Items</th>
<th>scales</th>
<th>Cronbach’s alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>ERM implementations</td>
<td>14</td>
<td>i1 to i14</td>
<td>0.80</td>
</tr>
<tr>
<td>Profit margin</td>
<td>4</td>
<td>p1 to p4</td>
<td>0.81</td>
</tr>
<tr>
<td>Tax performance</td>
<td>2</td>
<td>t1 and t2</td>
<td>0.89</td>
</tr>
<tr>
<td>Lower Bankruptcy Risk</td>
<td>3</td>
<td>d1 to d3</td>
<td>0.71</td>
</tr>
<tr>
<td>Lower Cost of Capital</td>
<td>3</td>
<td>e1 to e3</td>
<td>0.75</td>
</tr>
</tbody>
</table>

B. Hypotheses Testing

Linear regression analysis is used for testing the hypotheses
H1, H2, H3, and H4 presented in section 4. This is performed by
way of examining the strength of associations between ERM
implementation (independent variable) and its impact on
profitability maximization, lowering tax payments, lowering
financial distress cost, and reduction in external capital costs.
(Dependent variable). The test for significance is performed by
examining the following hypotheses.

H0: β = 0
H1: β ≠ 0

The null hypothesis H0, demonstrates that there is no linear
relationship between the variables. The alternative hypothesis
H1 implies there is statistically significant linear relationship
between the variables.

C. Hypothesis H1

Hypothesis, H1 features that the adopted ERM
implementation model will positively affect the profit margin of
the firm. The increase in firm’s profitability contribute to
enhance the net operating profit after tax of the firm (NOPAT),
hence create value for the firm. Table V presents the
regression results of H1.

Table V: Regression Analysis Results H1

<table>
<thead>
<tr>
<th>H1</th>
<th>R</th>
<th>R²</th>
<th>Adjusted R²</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1</td>
<td>0.596</td>
<td>0.356</td>
<td>0.350</td>
<td>0.000</td>
</tr>
</tbody>
</table>

a Predictor: ERM Implementation
b Dependent Variable: Profitability

H1 result indicates that p-value is 0.000 (p<0.05) which
means a significant relationship exists between ERM
implementation and firm’s profit margin.

The Pearson coefficient R-value is 0.596. The positive R-
value shows that the relation between ERM implementation
and firm’s profit margin is positive, demonstrating that
increase in ERM practices will increase the profitability. The
value of R² is 0.356 indicating that 35.6% of variance of
dependent variable is explained by the independent variable.

The profitability of the organization is maximized by
implementing ERM, increase in profitability contribute to an
increase in NOPAT hence firm’s performance will be
enhanced.

D. Hypothesis H2

Hypothesis H2 reads that ERM implementation will reduce
firm’s tax payments. Table VI below presents the results of H2
testing.

Table VI: Regression Analysis Results H2

<table>
<thead>
<tr>
<th>H2</th>
<th>R</th>
<th>R²</th>
<th>Adjusted R²</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>H2</td>
<td>0.538</td>
<td>0.290</td>
<td>0.283</td>
<td>0.000</td>
</tr>
</tbody>
</table>

a Predictor: ERM Implementation
b Dependent Variable: Tax performance

The results indicate that ERM implementation has a
positive and significant relationship with its effect on lowering
the tax payment of the firm. The correlation coefficient value
indicated by R is 0.538 specifies that ERM implementation
enhance firm performance by reducing firm’s tax payments.

Obtained value of R² is 0.290 indicates that 29% variance in
the reduction of taxes can be predicted by ERM
implementation. The p-value showing the significance of
the relationship between the variables is 0.000 (p<0.05) indicating
that a significant linear association between ERM
implementation and its impact on reducing tax payment of the
firm exists. Henceforward, the null hypothesis of no
relationship between ERM implementation and reduction in
tax payments is rejected. Consequently, hypothesis H2 is
accepted that attesting ERM implementation minimizes the
firm’s tax payments.
E. Hypothesis H3

Hypothesis H3, the results indicates that ERM implementation has a positive and significant relationship with a reduction in the cost of financial distress. The correlation coefficient value indicated by R is 0.640. The value of R² is 0.410. Meaning that 41% variance in reduction of financial distress cost can be predicted by ERM implementation. The p-value is 0.000 (p<0.05) indicating that a significant linear association between ERM implementation and its impact on reducing financial distress cost of the firm exists.

Hence, the null hypothesis of no relationship between ERM implementation and reduction in the cost of financial distress is rejected. Subsequently, hypothesis H3 is accepted and proving that ERM implementation minimizes the firm’s cost of financial distress. Table VII presents the H3 results.

Table VII: Regression Analysis Results H3

<table>
<thead>
<tr>
<th>H3</th>
<th>R</th>
<th>R²</th>
<th>Adjusted R²</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>H3</td>
<td>0.640</td>
<td>0.410</td>
<td>0.405</td>
<td>0.000</td>
</tr>
</tbody>
</table>

a Predictors: ERM implementation
b Dependent Variable: Cost of Financial distress

F. Hypothesis H4

Hypothesis H4 demonstrates that ERM implementation has an effect on reducing the cost of external financing. Results indicate that the relationship between ERM implementation and reduction in the cost of external financing is positive and significant. The correlation coefficient, R is 0.397. The value of R² is 0.158 indicates that 15.8% variance in reduction of cost of external financing can be predicted by ERM implementation. The p-value is 0.000 (p<0.05) indicating that a significant linear association between ERM implementation and its impact on reduction of cost of external financing of the firm exists.

Hence, the null hypothesis of no relationship between ERM implementation and reduction in cost of external financing is rejected. Consequently, hypothesis H4 is accepted and proving that ERM implementation minimizes the firm’s cost of external financing. But the value of Pearson coefficient is 0.397 which is very low which means that the effect of ERM implementation in lowering cost of external financing in the firm is not strong, albeit the R-value is 0.397 with positive sign indicating positive relationship between both dependent and independent variables exists. Below Table VIII presents the results of H4

Table VIII: Regression Analysis Results H4

<table>
<thead>
<tr>
<th>H4</th>
<th>R</th>
<th>R²</th>
<th>Adjusted R²</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>H4</td>
<td>0.397</td>
<td>0.158</td>
<td>0.151</td>
<td>0.000</td>
</tr>
</tbody>
</table>

a Predictor: ERM Implementation
b Dependent Variable: Cost of external financing

VIII. HYPOTHESES TESTING SUMMARY

Four hypotheses were developed to test the impact of ERM implementation on profit margin, tax performance, financial distress cost and Cost of external capital. All of the four hypotheses H1, H2, H3, and H4 are accepted and they generated positive results. Table IX summarizes the results of hypotheses testing.

Table IX: Hypotheses Testing Summary

<table>
<thead>
<tr>
<th></th>
<th>R</th>
<th>R²</th>
<th>p-value</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1</td>
<td>0.596</td>
<td>0.356</td>
<td>0.000</td>
<td>Accepted</td>
</tr>
<tr>
<td>H2</td>
<td>0.538</td>
<td>0.290</td>
<td>0.000</td>
<td>Accepted</td>
</tr>
<tr>
<td>H3</td>
<td>0.640</td>
<td>0.410</td>
<td>0.000</td>
<td>Accepted</td>
</tr>
<tr>
<td>H4</td>
<td>0.397</td>
<td>0.158</td>
<td>0.000</td>
<td>Accepted</td>
</tr>
</tbody>
</table>

As shown in Table IX, four of the hypotheses formulated in this study are accepted and they yielded positive results. Results of the linear regression analysis showed that the Pearson correlation and regression co-efficient of ERM implementation are significant at p<0.05. This indicates that ERM implementation have significant positive linear association with maximizing profit margin, lowering tax payment, financial distress cost, and the cost of external capital. The enhancement in the firm profit margin and lowered tax payments significantly contributes to enhance NOPAT of the firm, while the reduction in the cost of external capital and financial distress cost will lead to reduce the capital charge. Therefore, the economic value of companies listed in Bursa Malaysia will be improved. In summary, the performance of the firms will be enhanced. The results are encouraging and consistent with the value maximization hypotheses of enterprise risk management [32]. The results demonstrate that the effective ERM implementation in firm operating structure is helpful in order to enhance their performance measured through EVA.

IX. CONCLUSION

This study validates ERM implementation and its impact on firm’s performance through EVA factors. The discussion above demonstrates that ERM implementation significantly enhance the performance of public listed companies in terms of EVA factors derived through perceived measurement metric. Linear regression analysis is used to analyze the data. Results of the regression analysis suggest a significant and positive relationship between ERM and firm performance. The results of the study support the contention of the experts in the field of ERM for instance [5], [24], [26], [33], [28], [34].

REFERENCES


