

Unravelling the Myths of Enterprise Risk Management (ERM) and Shareholders' Wealth

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Abstract:

Purpose: The primary objective of this study is to explore the extent to which ERM implementation is capable of enhancing shareholders' wealth. **Design/Methodology:** A sample of 283 companies operating in the Main Market of Bursa Malaysia was selected. This study utilized the definition of ERM as the independent variable and shareholders' wealth as dependent variable. **Findings:** The overall observation revealed that ERM was significant in explaining the variation in shareholders' wealth. **Objective setting, event identification, risk response, control activities, information and communication, and monitoring substantiated the hypothesized relationship.** **Originality/Value:** The research framework of this study, which utilized assumptions from stewardship and agency theory, could serve as guidance for future research on organizational control and governance. The study fills the gap in literature which mostly concentrated on the USA and western countries. Secondly, this study applied a ratio-based survey in line with COSO's ERM framework. **Managerial Implication:** The CRO and the board should focus more advising functions at the earlier stage of the ERM implementation and monitoring functions once ERM matured.

Keywords: Enterprise Risk Management, internal audit, financial performance, shareholders' wealth, COSO ERM framework

I. INTRODUCTION

Undeniably, the 2008 financial catastrophe which tarnished the reputation of the most highly respected business corporations placed escalating pressure on management teams to improve governance, including implementation of ERM. In the years 2002-2009, a series of high-profile corporate financial scandals affected companies not only in developing countries but also in developed countries: notable casualties were Enron, WorldCom, Societe Generale, Parmalat, Lehman Brothers, Freddie Mac, Fannie Mae, and AIG. Shareholders from all over the world suffered significantly from these multiple financial tsunamis.

In light of the rising incidence of corporate financial scandals, regulatory agencies around the world have struggled to focus on strengthening measures to prevent further corporate collapses arising from mismanagement or unexpected financial surprises. Analysts have suggested that ERM could offer a safety net against these types of unexpected surprises [1, 2]. The primary objective of ERM is to create, protect, and enhance shareholders' value by managing the uncertainties surrounding the achievement of the organization's objectives [3]. ERM could be one of the alternative governance tools to be deployed to protect companies from a wide range of exposures to risk [4]. Some proponents of ERM have ventured that, because of the improved financial performance of the firm arising from a proper ERM implementation, shareholders' wealth could be augmented, resulting in profitability and increased return on investment (e.g. [5], [6]).

Currently, the majority of studies on ERM have concentrated on the USA and western countries (e.g. [3], [6]-[15]). Little is known about ERM in other geographical locations, particularly Asia. This present study aims to bridge the gap in literature by empirically investigating ERM implementation in Malaysia. In its early stage, ERM implementation in Malaysia was mostly driven by consultants; thus, such implementation was lacking in empirical evidence. In this regard, the adoption of ERM in Malaysia could be attributable either to the influence of a general trend or alternatively to legislation imposing on firms an obligation to implement an ERM.

Considering the fact that Malaysian listed issuers have started to invest in ERM, it is of paramount importance to shed light on the simple yet critical question that may be contemplated by stakeholders: does ERM implementation improve shareholders' wealth? There is an urgent need to search for answers to the above critical question, as all listed issuers in Malaysia are mandated to operate an appropriate system for risk management. Moreover, banking and financial institutions in the US, which were known during the period leading up to the 2008 financial crisis to have sophisticated ERMs in place, were those caught by surprise by the onset of the crisis [16]. Therefore, the primary objective of this study was to explore the extent to which ERM implementation is capable of enhancing shareholders' wealth, thus providing them with a reason for investment in ERM beyond mere fulfilment of the mandatory requirements imposed by Bursa Malaysia.

Secondly, much of the existing research utilized a simple measure of ERM or an aggregate figure to reflect the adoption and implementation of ERM (e.g. [11]-[13], [15], [17]-[19]). This study aimed to fill this gap by utilizing a more comprehensive ratio-based survey reflecting the eight components of ERM as suggested by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). Instead of measuring the adoption, this study measured the degree of the ERM implementation.

II. LITERATURE REVIEW

ERM, by adopting an integrated approach to managing risks, has been highlighted as one of the corporate governance tools that could help organizations to be better prepared for unexpected surprises. Reference [20] has highlighted that the implementation of ERM demands a continuous effort and it is affected by an organization's board of directors, management, and internal personnel. The COSO further proposed that the implementation of ERM must take place across the whole organization, involving every business unit and entity. The COSO suggested eight components of an integrated ERM framework: 1) internal environment, 2) objective setting, 3) event identification, 4) risk assessment, 5) risk response, 6) control activities, 7) information and communication, and 8) monitoring. The main criteria for evaluating the effectiveness of ERM is to measure the extent to which the eight components of the framework are executed.

To date, studies providing empirical evidence of the impact of ERM implementation on financial performance are in their infancy (e.g. [5], [6], [11], [21], [22]). The need for more research is critical considering the current tendency of regulatory authorities to shift their attention to ERM. There exists the possibility that companies currently implementing ERM are not truly exemplifying the philosophy of ERM and, thus, may eventually jeopardize ERM as an effective governance tool. This risk is evidenced by the collapse of a number of US financial institutions in the years leading up to 2008 most of which had a sophisticated ERM system [16].

Indeed, advocates of ERM have claimed that ERM is capable of enhancing shareholders' wealth; nevertheless, there have been mixed results surrounding this significant claim. Among the early studies on ERM was as in [23] which found that investors considered and valued risk management activities in making investment decisions. The significance of ERM was further substantiated when a study found that ERM was reported to improve performance predictability, thus providing reassurance to key stakeholder groups that an organization had a reliable long-term business [8]. In fact, among the documented benefits of ERM implementation are earnings growth, consistency, and expense reduction [3].

The research as in [10] concerning the behavior of risk managers in trying to avoid negative earnings further substantiated the favorable impact of ERM on shareholders' wealth. She found that investors who derived information about shareholder value from a firm's net earnings and the stock price movement also placed reliance on the risk management strategy pursued by managers. This is consistent with one of the ERM objectives—to improve shareholder value. The improvement in risk management may help companies reduce risk exposure, hence reducing its impact on their financial performances and eventually improving returns [24]. Further, the study as in [25] corroborated the fact that proper risk management is capable of enhancing the ROA and ROE.

ERM has also been claimed to add value to organizations by requiring them to establish and maintain risk profiles, thereby ensuring that they experience fewer shocks; ultimately this leads to a reduction in the cost of capital and the delivery of better comfort to shareholders [26]. ERM implementation has also been reported to improve stakeholders' confidence via its stable earnings projection [27]. A study as in [28] on risk management in 896 companies revealed that effective risk management improves an organization's ability to reduce the negative effects of various risk events and eventually leads to superior financial performance, such as retained earnings, return on assets, and growth in market value.

Reference [11] revealed that the relationship between ERM and firm performance is contingent on other elements such as environment uncertainty, industry competition, firm size, firm competitiveness and monitoring by the board. Their study suggested that ERM's relationship with financial performance was not as simple as it was perceived. Therefore, taking cognizance of the suspected complexity, Gordon et al. incorporated intervening variables into their analysis, setting ERM research on a new trajectory.

Reference [6] further extended the research on the value relevance of ERM. Their study involved 275 insurance companies in the US. They reported that insurance companies with an ERM program were valued significantly more highly than those companies without an ERM program. Most importantly, study as in [6] further corroborated most of the previous studies by reporting a positive relationship between firm value and ERM.

In addition, study as in [5] enhanced the value of ERM by providing empirical support for the relationship of ERM with shareholders' wealth. Their study applied unique measures of ERM implementation by utilizing the Standard and Poor's (S&P) risk management ratings for insurance companies. The study involved a sample of 82 publicly traded insurance companies and, as noted, reported a positive relationship between ERM ratings and firm value.

It is interesting to note that ERM practice has evolved over the years and, since 2010, the focus has shifted from mere announcement of implementation of ERM to the appointment of a Chief Risk Officer (CRO) with responsibility for oversight and regulatory compliance. Reference [29] and [30] found that the existence of the CRO related to reduction in the volatility of stock prices. The involvement of CRO was also reported to positively influence firm value [6].

It is possible that, over the years, ERM implementation has reached maturity, as recent studies have started to reveal more consistent sets of results on the impact of ERM on organizations. Reference [31] extended the study of ERM by analyzing ERM maturity in the period 2006 to 2011, based on the Risk and Insurance Management Society's Risk Maturity Model. Their study suggested that firms demonstrated progressively higher value as the ERM matured. Further, study as in [32] suggested that the use of a dedicated risk manager is capable of improving the firm's operating performance and emphasized that the existence of a direct reporting line from the risk manager to the board or CEO could lead to superior firm value.

The fact that most of the existing studies concentrated on the USA and western countries obviously created a gap in the literature. Interesting, there are two studies from Malaysia that could shed light on ERM implementation in a different geographical setting. A study conducted as in [33], which aimed to investigate the extent to which the

effectiveness of ERM is capable of enhancing shareholders' value, revealed critical empirical evidence. The study, which involved 85 Malaysian listed issuers, discovered that ERM was not the main factor leading to value creation. This finding, in fact, contradicted all the previous studies, which reported a connection between ERM and shareholders' value.

Another empirical study in Malaysia on the relationship between ERM implementation and financial performance surprisingly further substantiated study as in [33] findings. The study, involving 362 respondents from government-linked companies in Malaysia, aimed to assess the extent to which ERM implementation is capable of enhancing financial performance. To the authors' knowledge, this was among the first empirical study in Malaysia to employ the COSO's ERM framework in assessing the degree of ERM implementation. Interestingly, the study reported that ERM implementation was not a significant variable in predicting variations in financial performance [34]. This is despite the fact that ERM was premised as a mechanism that is capable of leading to an improvement in shareholders' wealth.

The empirical findings as in [33] and [34] provide interesting grounds for further investigation as they are contrary both to the objective of ERM as highlighted in [20] and to various existing studies - (i.e., [6], [8], [10]-[12], [15], [17]-[19], [22]-[26], [28], [30]). These contradictory findings should not be ignored as the world was taken by surprise by the USA credit crisis which occurred in late 2008 and it is possible that the future will yield ever more shocking financial crises.

Remarkably, a recent study on ERM in China substantiated previous ERM studies in the USA and western countries. The study as in [35], involving 254 Chinese non-financial state-owned enterprises between 2006 and 2011, further confirmed the significance of ERM. They reported that ERM significantly increased firm value. Although study as in [35] put tremendous effort into tackling the sampling issues, their approach to measuring ERM was nonetheless somewhat superficial. They merely measured ERM based on firms' announcement of the adoption of ERM.

More studies in ERM had incorporated corporate governance elements such as the board and senior executive management. Board was reported to be the most significance factor leading to an increase in senior management involvement in risk oversights. A study as in [13] offers new insights in ERM literature by incorporating multi-theoretical approach utilizing a combination of institutional, agency resource dependency theory. Their study investigates maturity and board involvement in the ERM. It was reported that ERM matured firms tend to have more involvement from the board and senior management in the ERM monitoring task [13].

The latest study as in [15] also incorporated various corporate governance attributes in an effort to understand ERM implementation among Italian private firms. They had incorporated six control variables, namely, profitability, leverage, firm dimension and complexity, quality of external audit, corporate ownership and industry characteristics. They concluded that ownership structure and size of the firm are capable of enhancing ERM implementation.

III. HYPOTHESES DEVELOPMENT

The implementation of ERM among Malaysian listed issuers is mandated by Bursa Malaysia's Practice Note 9 [36] and Listing Requirements, paragraph 15.26(b) which states: "*A listed corporation must ensure that its board of directors makes the following additional statements in its annual report: (b) a statement about the state of risk management and internal control of the listed corporation as a group*"

Bursa Malaysia issued a document entitled *Statement on Risk Management & Internal Control: Guidelines for Directors of Listed Issuers* embodying guidelines on compliance with listing requirements. The guidelines basically require companies to disclose their governance policies and identify the obligations of management and the board of directors in relation to risk management and internal control. The guidelines also emphasize the adoption of the ERM framework as proposed by COSO. Apparently, the implementation of ERM is mandatory for listed issuers in Malaysia and such requirement therefore validates the control mechanisms highlighted in agency theory. There is apparent justification for the notion that agency theory may be an appropriate tool for theorizing on the impact of ERM implementation on firm value [37].

Reference [22] suggested that the use of agency theory is likely to simplify the complexity inherent in real business environments. Indeed, further review of the individual attributes of the COSO's ERM framework revealed not only monitoring attributes but also advisory functions. In fact, seven out of the eight attributes of the ERM framework demanded a higher number of advisory than monitoring functions. Perhaps, the assumptions of stewardship theory provide a more satisfactory explanation of the advisory nature of the functions of the board and CRO in the context of successful implementation of ERM within an organization, particularly in the early stage of implementation. Appointing and training suitable executives is pivotal to establishment of an ERM framework. With reference to monitoring, the gap left by stewardship theory could be perfectly covered by the assumptions by agency theory that supports monitoring of overall ERM implementation.

Based on existing literature, this study identified five firms' specific attributes as control variables to overcome any undue influence on the ERM implementation. As the ERM is mandated for all listed companies in Malaysia, for the purpose of developing a comprehensive panoply of ERM tools, large firms may utilize greater financial resources than a small firm (e.g. [12], [13], [17], [18]). Total revenue was used as proxy for firm size.

The second and third control variables were the existence of a separate ERM unit and the existence of a CRO (e.g. [6], [18], [29], [30]). Small firms may not be able to afford a dedicated department focusing on ERM. Instead, these small firms may have just a Chief Audit Executive (CAE) to oversee this function. This is not the ideal concept for a perfect ERM environment. At the other end, firms with a dedicated and well-structured ERM unit are often led by a CRO. The CRO is supposedly well-trained executive with technical and relevant competencies for a wide-ranging ERM

implementation. Considering the diverse nature of the respondents, the possibility existed that firms with separate ERM units and CROs would tend to have a more structured ERM system, thereby facilitating alignment of the ERM model to the business model.

The fourth control variable was the duration of the ERM implementation as a proxy for ERM maturity. Despite the mandatory requirement for ERM, not all listed firms had the same maturity or degree of ERM implementation. At the initial stage, firms may allocate most resources to educating staff and creating awareness of the ERM than on the design of an appropriate ERM framework. At the later stage, the focus inevitably shifts to the implementation of the ERM. Studies have revealed that mature firms demonstrate superior ERM implementation than less mature companies (e.g. [12], [13], [17]).

Firms in different industries may be subject to different types and frequencies of risk; the varying level of risk thus served as one of the control variables. Generally, banking and financial institutions would be more exposed to various risks and would be more likely to have a more comprehensive ERM system. Existing literature reported that the degree of the ERM implementation is affected by industry classification (e.g. [13], [15], [38], [39]).

It is hypothesized that, upon controlling for the effect of the above control variables, significant relationships would exist between ERM implementation and shareholders' wealth, as measured by firm value (e.g. [5], [6], [10]), earnings before interest, taxes, depreciation and amortization (EBITDA) (e.g. [24], [25]), and ROE [25]. The equation below depicts the hypothesized relationships. Figure 1 summarizes the expected relationships between ERM implementation and shareholders' wealth.

$$Y = \alpha_0 + \gamma_1 X_{c1} + \gamma_2 X_{c2} + \gamma_3 X_{c3} + \gamma_4 X_{c4} + \gamma_5 X_{c5} + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + \epsilon$$

where Y = Shareholders' Wealth (Proxy: Firm Value, EBITDA and ROE)

- X_{c1} = Firm size (Proxy: Total Revenue)
- X_{c2} = Separate ERM unit
- X_{c3} = Existence of CRO
- X_{c4} = ERM maturity
- X_{c5} = Industry classification
- X₁ = Internal Environment
- X₂ = Objective Setting
- X₃ = Event Identification
- X₄ = Risk Assessment
- X₅ = Risk Response
- X₆ = Control Activities
- X₇ = Information and Communication
- X₈ = Monitoring
- ε = Error Term

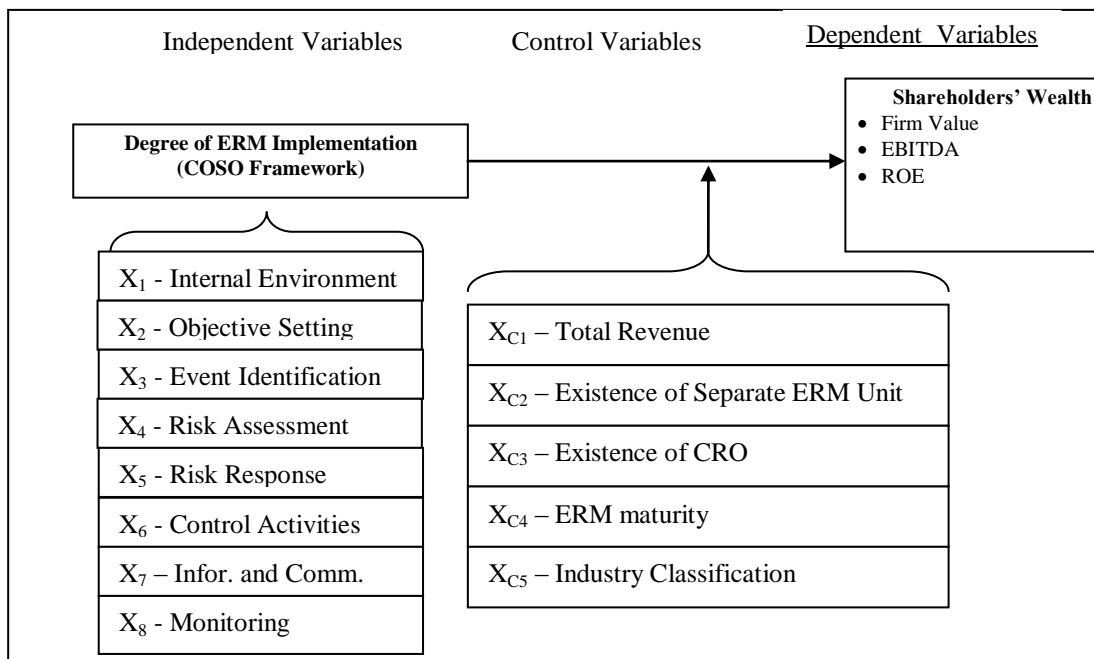


Figure 1: Expected relationships between ERM implementation and shareholders' wealth

IV. METHODOLOGY

ERM is a concept that is subject to various interpretations and differing methods for its measurement. Reference [22] listed 13 different definitions of ERM in the literature and further analyzed the mixed nature of measures applied to ERM. Some studies measured ERM on the basis of corporate announcement of adoption of ERM whereas others measured ERM in terms of implementation (disclosure of information on ERM or appointment/ existence of CRO) (e.g.

[6], [9], [29], [39]). Certain studies developed unique measures of ERM via index and external ratings (e.g. [11], [12]). Recent study as in [15] incorporated the COSO's eight ERM attributes but limited their analysis to 14 items with binary coded (categorical) data. It is hoped that this present study will offer a unique contribution to the literature by measuring the degree of ERM implementation. It measured the percentage of compliance with the eight ERM attributes proposed in COSO's ERM framework. It could perhaps be viewed as an improved version of the instrument used as in [15].

The study utilized the definition of ERM and the framework proposed as in [20] as the independent variable. A self-reported instrument was used to measure the degree of ERM implementation. The instrument was adopted from [34] and consisted of 30 questions measuring the degree of ERM implementation based on eight attributes of ERM as suggested by COSO. The instrument also used unique measurement scales that enabled ratio data to be collected (as such data measure the degree of implementation or compliance with the COSO ERM framework). An extract sample of the instrument is attached in the appendix.

This study focused on the Malaysian listed issuers in the Main Market of Bursa Malaysia. There were 823 listed companies on Bursa Malaysia. Ideally a sample size of 263 companies should be sufficient for a satisfactory sample size. Considering the possibility of a lower response rate, a total of 823 copies of the questionnaires were distributed by mail to all the companies in the population. A copy with return paid envelope was mailed to the CRO for companies that had a Risk Management department/ unit; otherwise it was mailed to the CAE heading the Internal Audit department.

The data collection procedure took place from December 17, 2014 to June 30, 2015. Significant efforts were devoted to ensuring the highest response rate via multiple emails and text messages. This series of follow-up was made by the end of every month, starting January up to June, 2015. Eventually, 306 copies of the questionnaires were returned of which 23 copies were blank. A total of 269 copies were returned within the data collection period while another 14 surveys were received in July 2015. Finally, the total number of respondent companies was 283.

With regard to the dependent variable, firm value, EBITDA and ROE were the proxies used as a basis for measuring shareholders' wealth. All these financial data for responding companies were obtained from the Osiris database between July 1, 2015 and July 31, 2015. The data were extracted from the latest available financial data, mostly for the year ended December 31, 2014.

V. RESULTS

Table 1 depicts the respondents' demographic information coupled with descriptive statistics of all relevant variables. All variables that were subject to multiple regressions were transformed using Inverse Distribution Function method. Results of the variable normality test (Kolmogorov-Smirnov) are presented in Panel B of Table 1. This study utilized mail survey, thus necessarily raising concern in relation to non-response bias. An approach to test for non-response bias was performed, based on the Time Trends Extrapolation Method suggested in [40]. This method assumed that respondents who responded less readily were more likely to have similar characteristics to those who did not respond at all. Reference [40] defined 'less readily' as referring to those who responded later or those that needed follow up. Questionnaires returned within the data collection period (December 17, 2014 to June 30, 2015) were treated as normal responses whereas questionnaires returned after this period was treated as late responses (timeframe limit, July, 31). The responses from these two groups of respondents were then compared. The results of the Independent Samples Test presented in Table 2, Panel C revealed no significant difference for the responses from these two groups for the primary ERM variables.

Table 1: Descriptive Statistics

Panel A				
Variables	Definition	Frequency	Percent	
Industry class	Banking, insurance and financial institution	118	41.7	
	Plantation	17	6.0	
	Construction	32	11.3	
	Trading	60	21.2	
	Automotive	56	19.8	
	Total	283	100.0	
ERM maturity (Duration of the ERM)	in the first year of the ERM implementation	24	8.5	
	in the 2-3 years of the ERM implementation	167	59.0	
	in the 4-5 years of the ERM implementation	40	14.1	
	beyond fifth years of ERM implementation	52	18.4	
	Total	283	100.0	
Separation of ERM unit	separate ERM unit/ Department	230	81.3	
	no separate ERM unit	53	18.7	
	Total	283	100.0	
Existence of CRO	with CRO	224	79.2	
	without CRO	59	20.8	
	Total	283	100.0	

Panel B

	N	Mean		Std.	KS	Asym.
		Statistic	Std. Error	Deviation	- Z	Sig. (2-tailed)
Firm Value (in million of RM)		5244.35	581.500	9782.337	.613	.846
Total revenue (in million of RM)		2648.88	292.773	4925.204	.106	1.000
EBITDA (in Million of RM)		485.62	65.102	1095.188	.104	1.000
ROE		1.4898	0.7469	2.93877	0.404	.997
Internal Environment		.0005	.05851	.98249	1.132	.154
Objective Setting	283	.0108	.05937	.99879	1.141	.148
Event Identification		-.0038	.05804	.97459	1.122	.161
Risk Assessment		.0003	.05836	.98000	1.157	.137
Risk Response		.0001	.05855	.98322	1.133	.153
Control Activities		.0096	.05910	.99415	1.141	.148
Information and Communication		.0002	.05847	.98191	1.111	.169
Monitoring		-.0006	.05840	.98070	1.141	.148

The degree of ERM implementation was measured by 38 questions designed to reflect COSO's ERM framework. Factor analysis was performed, the results of which are presented in Table 3. There were eight components extracted (Varimax with Kaiser Normalization, suppressed at 0.50) from the analysis and factor scores from each were used to test the hypothesized relationships. Each factor was then named accordingly. Factor 1 was termed Monitoring, Factor 2—Event Identification, Factor 3—Information and Communication, Factor 4—Objective Setting, Factor 5—Risk Response, Factor 6—Risk Assessment, Factor 7—Control Activities and Factor 8—Internal Environment. The factors were then rearranged to reflect the sequence in the COSO ERM framework.

Table 4 presents the results of Pearson Correlation between ERM variables. Objective Setting, Event Identification and Risk Assessment were found to have positive relationships with other ERM variables, namely, Objective Setting—Control Activities (R, 0.120, p-value, 0.044); Event Identification—Risk Assessments (R, 0.118, p-value, 0.049); Event Identification— Control Activities (R, 0.163, p-value, 0.006); and Risk Assessments—Risk Response (R, 0.179, p-value, 0.003). Despite the significant relationships within the ERM variables, there were no examples of extreme relationships between the variables capable of creating multicollinearity issues in the hypotheses testing.

Table 2: Results Of Non-Response Bias Test

Panel A: Descriptive Statistics

		Frequency	Percent	Valid Percent
Valid	submit within the period	269	95.1	95.1
	submission after the period	14	4.9	4.9
Total		283	100.0	100.0

Panel B: Independent Samples Test

Levene's Test for Equality of Variances

		F	Sig.	t	df	Sig. (2-tailed)	Std. Error Difference
Internal Environment	Equal variances assumed	1.007	.316	-.617	281	.537	.27442902
	Equal variances not assumed			-.475	13.764	.643	.35709728
Objective Setting	Equal variances assumed	1.482	.224	.350	281	.727	.27455525
	Equal variances not assumed			.314	14.086	.758	.30594247
Event Identification	Equal variances assumed	.038	.845	.138	281	.891	.27460585
	Equal variances not assumed			.154	14.795	.879	.24513430
Risk Assessment	Equal variances assumed	.524	.470	1.539	281	.125	.27346462
	Equal variances not assumed			1.693	14.721	.111	.24862944
Risk Response	Equal variances assumed	1.142	.286	.984	281	.326	.27414286
	Equal variances not assumed			.801	13.869	.437	.33708850
Control Activities	Equal variances assumed	.033	.856	-1.950	281	.052	.27277652
	Equal variances not assumed			-1.849	14.230	.085	.28764566
Infor. and	Equal variances assumed	.232	.631	-2.002	281	.046	.27267665

Comm.	Equal variances not assumed			-1.926	14.270	.074	.28346984
Monitoring	Equal variances assumed	.856	.356	-.176	.281	.860	.27459991
	Equal variances not assumed			-.236	15.718	.816	.20498361

Table 5 depicts the results of the hierarchical multiple regressions on the hypothesized relationships. Multiple analyses were performed to substitute different measures or proxies for shareholders' wealth. There were five control variables in the analyses – 1) Total Revenue, 2) existence of separate ERM unit, 3) Existence of CRO, 4) ERM maturity, and 5) Industry Classification.

The overall observation revealed that ERM was significant in explaining the variation in shareholders' wealth. With reference to firm value, X₂ – Objective Setting (coeff. 881.576, p-value 0.045), X₃– Event Identification (coeff. 95.947, p-value 0.040), X₅ – Risk Response (coeff. 1013.621, p-value 0.026), X₆ – Control Activities (coeff. 944.610, p-value 0.037) and X₇– Information and Communication (coeff. 1128.478, p-value 0.014) were among the ERM variables that reported significant direct/ positive relationships with firm value. It is significant that, after controlling for the effect of five variables, all ERM variables reported positive relationships with firm value, thus supporting the hypothesized relationship that ERM implementation leads to better firm value.

The second proxy utilized, EBITDA, revealed an interesting pattern of results. X₁ – Internal Environment and X₂ – Objective Setting reported negative relationships with EBITDA. All other ERM variables (X₃–Event Identification, X₄ – Risk Assessment, X₅ – Risk Response, X₆ – Control Activities, X₇ – Information and Communication and X₈ – Monitoring) revealed positive relationships with EBITDA, though not at 0.05 levels of significance.

The third measure of shareholders' value, ROE, revealed four ERM variables reported significant relationships with ROE. X₃ – Event Identification (coeff. 0.409, p-value 0.003), X₅ – Risk Response (coeff. 0.093, p-value 0.032), X₇ – Information and Communication (coeff. 0.204, p-value 0.047) and X₈ – Monitoring (coeff. 0.397, p-value 0.002). All other ERM variables reported mixed (positive and negative) relationships with ROE but not at 0.05 significance levels. The unique insignificance pattern of results for EBITDA certainly raised some concern.

Table 3: Factor Analysis

Panel A: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.935
Bartlett's Test of Sphericity	Approx. Chi-Square	14919.745
	df	703
	Sig.	.000

Panel B: Extracted Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	23.042	60.638	60.638	23.042	60.638	60.638	5.932	15.612	15.612
2	2.243	5.902	66.540	2.243	5.902	66.540	5.826	15.332	30.944
3	1.625	4.276	70.816	1.625	4.276	70.816	5.682	14.953	45.897
4	1.295	3.409	74.224	1.295	3.409	74.224	3.861	10.161	56.058
5	1.215	3.198	77.423	1.215	3.198	77.423	3.722	9.794	65.852
6	.894	2.353	79.776	.894	2.353	79.776	2.516	6.620	72.473
7	.801	2.107	81.883	.801	2.107	81.883	2.235	5.883	78.355
8	.705	1.854	83.737	.705	1.854	83.737	2.045	5.382	83.737

Extraction Method: Principal Component Analysis.

Panel C: Rotated Component Matrix^a

	Component							
	1	2	3	4	5	6	7	8
ERM25_1)	.716							
ERM30.1_1)	.715							
ERM30.2_1)	.689							
ERM26_1)	.641							
ERM27_1)	.630							
ERM30.3_1)	.625							
ERM28_1)	.594							

ERM6_1)	.565								
ERM1_1)		.761							
ERM11_1)		.706							
ERM14_1)		.643							
ERM2_1)		.624							
ERM9_1)		.583							
ERM20_1)		.559							
ERM12_1)		.513							
ERM23_1)			.865						
ERM22_1)			.826						
ERM24_1)			.787						
ERM21_1)			.725						
ERM29_1)			.544						
ERM7_1)				.661					
ERM8_1)				.650					
ERM5_1)				.601					
ERM15.2_1)				.527					
ERM18.2_1)					.765				
ERM18.3_1)					.744				
ERM18.1_1)					.679				
ERM18.4_1)					.632				
ERM15.1_1)						.759			
ERM15.3_1)						.647			
ERM15.4_1)						.511			
ERM16_1)							.710		
ERM17_1)							.608		
ERM3_1)								.798	
ERM4_1)								.510	
ERM10_1)								.501	

Table 4: Correlations Between ERM Variables

		Internal Envt.	Obj. Setting	Event Ident.	Risk Asmt.	Risk Respn.	Control Activities	Infor. and Comm.	Mntr.
Internal Environment	Pearson Corr.	1	-.022	-.002	.032	.022	-.039	.023	-.087
	Sig. (2-tailed)		.711	.978	.597	.715	.515	.706	.144
	N	283	283	283	283	283	283	283	283
Objective Setting	Pearson Corr.	-.022	1	.084	-.012	-.104	.120*	-.017	.025
	Sig. (2-tailed)	.711		.158	.835	.082	.044	.772	.673
	N	283	283	283	283	283	283	283	283
Event Identification	Pearson Corr.	-.002	.084	1	.118*	.094	.163**	-.044	.070
	Sig. (2-tailed)	.978	.158		.049	.117	.006	.467	.241
	N	283	283	283	283	283	283	283	283
Risk Assessment	Pearson Corr.	.032	-.012	.118*	1	.179**	.075	.022	-.004
	Sig. (2-tailed)	.597	.835	.049		.003	.210	.717	.953
	N	283	283	283	283	283	283	283	283
Risk Response	Pearson Corr.	.022	-.104	.094	.179**	1	.059	.027	.083
	Sig. (2-tailed)	.715	.082	.117	.003		.326	.650	.165
	N	283	283	283	283	283	283	283	283
Control Activities	Pearson Corr.	-.039	.120*	.163**	.075	.059	1	-.095	.029
	Sig. (2-tailed)	.515	.044	.006	.210	.326		.113	.623
	N	283	283	283	283	283	283	283	283
Information and Comm.	Pearson Corr.	.023	-.017	-.044	.022	.027	-.095	1	-.052
	Sig. (2-tailed)	.706	.772	.467	.717	.650	.113		.387
	N	283	283	283	283	283	283	283	283

Monitoring	Pearson Corr.	-.087	.025	.070	-.004	.083	.029	-.052	1
	Sig. (2-tailed)	.144	.673	.241	.953	.165	.623	.387	
	N	283	283	283	283	283	283	283	283

*. Correlation is significant at the 0.05 level (2-tailed).

Table 5: Impact of ERM Implementation on Shareholders' Wealth

Type of Observations	Firm Value				EBITDA				ROE					
	Variables	Coef.	Std. Error	p-value	VIF	Coef.	Std. Error	p-value	VIF	Coef.	Std. Error	p-value	VIF	
Constant	3055.083	2662.692	.252			141.853	354.864	.690			1.961	.751	.010*	
X _{C1} - Total Revenue	1.397	.113	.000*	1.702		.121	.015	.000*	1.702		.000	.000	.000*	1.737
X _{C2} - Separate ERM unit	1079.168	1384.861	.437	1.657		137.428	184.564	.457	1.657		-.514	.413	.214	1.826
X _{C3} - Existence of CRO	1173.936	1395.054	.401	1.823		162.210	185.923	.384	1.823		.160	.409	.696	1.897
X _{C4} - ERM maturity	-623.284	545.802	.254	1.206		4.298	72.740	.953	1.206		-.090	.167	.590	1.532
X _{C5} - Industry Classification	-913.455	352.769	.010*	1.871		-127.441	47.014	.007*	1.871		-.409	.099	.000*	1.861
X ₁ - Internal Environment	-7.770	435.237	.986	1.034		-3.226	58.005	.956	1.034		.080	.128	.533	1.090
X ₂ - Objective Setting	881.576	437.881	.045*	1.082		-42.898	58.358	.463	1.082		.168	.127	.188	1.112
X ₃ - Event Identification	95.947	473.319	.040*	1.203		22.278	63.080	.724	1.203		.409	.135	.003*	1.185
X ₄ - Risk Assessment	240.428	459.253	.601	1.145		70.267	61.206	.252	1.145		-.074	.132	.577	1.141
X ₅ - Risk Response	1013.621	453.745	.026*	1.126		38.443	60.472	.526	1.126		.093	.132	.032*	1.130
X ₆ - Control Activities	944.610	450.246	.037*	1.133		61.523	60.005	.306	1.133		-.140	.128	.273	1.111
X ₇ - Information and Com.	1128.478	457.133	.014*	1.139		34.133	60.923	.576	1.139		.204	.140	.047*	1.304
X ₈ - Monitoring	369.798	450.203	.412	1.102		2.236	60.000	.970	1.102		.397	.129	.002*	1.118
R				.700					.528					.754
R ²				.490					.279					.568
Adj. R ²				.465					.244					.547
Std. Error of the estimate				7036.53136					937.77712					1.98414
R ² change				.038					.010					.043
F change				2.495					.468					3.288
Sig. F change				.013					.878					.001
F value				19.741					7.934					26.532
p-value				.000					.000					.000

* Significance at the 0.05 level

Most probably, this is due to the fact that majority (59 percent) of the respondent were in the 2-3 years period of the ERM implementation which reflect their ERM's maturity. Perhaps the intended impact of the ERM on the primary business operations is yet to be visualized. Interestingly, ERM seems to have a favorable impact on firm value and ROE. Two control variables reported a consistent pattern of results throughout the three regression analyses. X_{C1} – Total Revenue and X_{C5} – Industry Classification revealed to be significant variables capable of influencing the overall relationship between ERM variables and shareholders' wealth.

VI. DISCUSSION OF RESULTS

The present results justified the dual-theoretical approach that combines stewardship and agency to theorize the relationships between the advising and control functions exercised by the CRO and board. One may argue that ERM itself is part of a set of external control mechanisms as it is mandated by regulatory agencies. Nevertheless, the implementation of ERM within an organization involves a combination of both advising and control functions.

Evidently, overall results supported the hypothesized relationships and further substantiated recent studies on the significance of ERM in enhancing shareholders' wealth (e.g. [12], [13], [15], [17]-[19]). Specifically, the following ERM attributes reported significant positive impacts on shareholder's wealth—objective setting, event identification, risk response, control activities, information and communication and monitoring.

Though this study was conducted in a similar research setting to two earlier studies on ERM in Malaysia as in [33] and [34], the present results interestingly failed to substantiate the findings of those two studies, particularly the fact that ERM did not have a significant influence on shareholders' wealth. Five ERM variables reported significant positive results for firm value, while four for ROE. Though it was not significant, certain ERM variables (internal environment, objective setting, risk assessment and control activities) reported inverse relationships with EBITDA and ROE, thus further complementing the mixed nature of the ERM literature. Why and how could such a pattern of results emerge?

VII. CONCLUSIONS

Up until now, ERM literature concentrated on US and western countries; this study enriches the literature by offering fresh insights in different geographical settings. ERM implementation in Malaysia is consultant-driven; thus, it lacks empirical evidence to support the suggestion that ERM is capable of enhancing shareholders' wealth. This study both provided much-needed empirical input concerning the extent and nature of ERM implementation and identified the theoretical foundation underlying ERM as a governance tool. Indeed, the implementation of ERM is capable of enhancing shareholders' wealth. The present study also substantiated the notion that the primary objective of ERM is to create, protect, and enhance shareholders' wealth. It is hoped that the results of this study will enrich the current ERM literature. The results support the validity of a dual-theoretical construct based on stewardship and agency to theorize the dynamic interrelations between firms' advising and control functions. It is anticipated that this study will shed light on and promote additional empirical studies to further test both its hypothesized relationships and its theoretical justifications. The results rationalized the mandatory requirements imposed as in [36] concerning the implementation of ERM.

This study is among the very few empirical studies that utilized the COSO's ERM framework to assess the degree of ERM implementation. Nonetheless, it was measured using self-reported questionnaires and hence is affected by various limitations commonly found in studies using self-reported instruments. The study relied solely on self-reported responses and failed to corroborate the results with alternative measures. Future studies may fruitfully explore alternative approaches to self-reported measures—such as those used in [11], [6] and [5]—while at the same time retaining a similar theoretical foundation.

VIII. MANAGERIAL IMPLICATIONS

Presently, most companies in Malaysia depend heavily on the CAE to establish the ERM unit as required by Malaysian Listing Requirements [36]. Undeniably, the implementation of ERM relies heavily on the continuous support of the board. This study chose to view ERM implementation as part of the firm's advising and control functions based on stewardship and agency theory; thus, the board and CRO are assumed to be the primary entities responsible for the success of ERM implementation. Primarily, the board should consider having a dedicated/separate ERM unit instead of one attached to an existing unit, such as internal auditing. Such separation should be headed by the CRO and this structure would thus resolve the current absence of independence currently affecting internal auditors in supervising the ERM unit.

Secondly, the board should consider establishing a proper reporting line whereby the CRO would report directly to the board. Such a direct reporting line could enhance the value of the ERM unit and eventually translate into superior operating performance [32]. The board must embrace the vision of ERM as a new management philosophy in the organization; thus, great effort, in the form of monetary investment and manpower, must be expended. This initial investment would augment the role of the CRO in planning and executing various programs to educate the management team as well as to obtain feedback and support in ERM implementation. The length of time before an organization would visualize the impact of ERM may vary depending on the degree of maturity of the ERM. Recent studies have reported a positive relationship between ERM and firm value following maturation of the ERM [13].

In addition to the board, the CRO must assume significant responsibility for promoting, defending, and proving the importance of ERM to the entire organization. At the initial stage, the CRO must emphasize the significance of the ERM unit by showing that he has a direct reporting line to the board. This has been reported as one of the key success factors of successful implementation of ERM [32]. The CRO must propose and be ready to defend the incorporation of an ERM initiative into the organization's strategic objectives, mission, and vision. Further, the CRO could lobby the board and CEO to incorporate elements of ERM into staff performance appraisals, thus indirectly forcing the staff to embrace the ERM philosophy in their daily business operations.

A continuous education program across various units in the organization is an indispensable element of an ERM strategy. Nonetheless, the CRO must be creative and seek to simplify ERM terminology with the aim of improving its acceptance by lower-level management. Complicated ERM terminologies have been cited as one of the reasons for the failure of ERM to gain support. Ultimately, once the ERM philosophy has pervaded the organization's daily routine, the CRO and the board will be able to visualize not only a significant improvement in business operations, but also an increase in shareholders' wealth.

NOTE

The ERM instrument utilized in this study is available upon request. Kindly contact the author: m.ariff@ajman.ac.ae

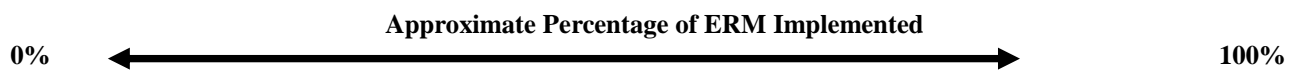
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Appendix: Extracted ERM Instrument



With regard to ERM, your organisation:

- 1. considered and understood the risk appetites of the key groups of stakeholders. _____ % implemented
- 2. established procedures to suit all key stakeholders' risk appetites. _____ % implemented