

**International Conference on Public Policy & Social Sciences 2023**

13-15 September 2023

Organized by the Faculty of Administrative Science & Policy Studies, Universiti Teknologi MARA (UiTM), Seremban Campus, Negeri Sembilan, Malaysia, and International University of Sarajevo (IUS), Bosnia and Herzegovina

**Developing Enterprise Risk Management Disclosure Index  
using Factor Analysis**

**Sharifah Faatihah Syed Mohd Fuzi<sup>1\*</sup>, Mohamat Sabri Hassan<sup>2</sup>,  
Sarina Othman<sup>1</sup>, Noorie Haryaniee Moulton<sup>1</sup>**

*\* Corresponding Author*

<sup>1</sup> Faculty of Administrative Science and Policy Studies, Universiti Teknologi MARA, Negeri Sembilan, Malaysia

<sup>2</sup> Faculty of Economics and Management, Universiti Kebangsaan Malaysia, Selangor, Malaysia

shaatihah@uitm.edu.my\*, msabir@ukm.edu.my, sarina583@uitm.edu.my, noori639@uitm.edu.my  
Tel: +60173634397

---

**Abstract**

This study aims to explore the Enterprise Risk Management (ERM) disclosure by publicly listed firms in Malaysia. This study analyses a sample of 832 non-financial publicly listed firms in Malaysia between 2016-2019. This study used a more comprehensive index by embedding COSO-integrated ERM framework 2017 and ISO 31000. The data is analyzed using factor analysis to develop the ERM disclosure index. The results show that ERM disclosure consists of 4 main components: governance and culture, performance, objective setting, and reporting approach. Meanwhile, the level of ERM disclosure is still at a moderate level.

**Keywords:** Enterprise risk management; corporate disclosure; corporate governance; factor analysis

eISSN: 2398-4287 © 2024. The Authors. Published for AMER and cE-Bs by e-International Publishing House, Ltd., UK. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>). Peer-review under responsibility of AMER (Association of Malaysian Environment-Behaviour Researchers), and cE-Bs (Centre for Environment-Behaviour Studies), College of Built Environment, Universiti Teknologi MARA, Malaysia  
DOI: <https://doi.org/10.21834/e-bpj.v9iSI22.5883>

---

**1.0 Introduction**

In a complex business environment and financial crisis, firms demand effective corporate governance and risk management practices. Risk management has become one of the important strategies to cope with higher environmental uncertainty in the markets (Abu Afifa & Saleh, 2021). The traditional risk management (TRM) model is seen as having flaws in managing a wide range of risks faced by firms. TRM model refers to a 'silo-based approach' that focuses mainly on managing financial risks and is carried out by individual departments or an isolated business unit (dos Santos et al., 2017). Thus, starting in 1990, the concept of Enterprise Risk Management (ERM), which uses a more holistic or integrated approach to manage risks, was introduced. The ERM concept emphasises the management of financial and non-financial risks, risks that cater to both downside and upside risks, and managing overall risks interdependently

eISSN: 2398-4287 © 2024. The Authors. Published for AMER and cE-Bs by e-International Publishing House, Ltd., UK. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>). Peer-review under responsibility of AMER (Association of Malaysian Environment-Behaviour Researchers), and cE-Bs (Centre for Environment-Behaviour Studies), College of Built Environment, Universiti Teknologi MARA, Malaysia  
DOI: <https://doi.org/10.21834/e-bpj.v9iSI22.5883>

(McShane, 2018). The comprehensive framework of ERM is suitable for managing the complexities of financial risks in an increasingly complex and hostile business environment (Lechner & Gatzert, 2018).

In corporate governance, transparency is essential in reducing information asymmetry, lowering uncertainty about intrinsic value, increasing liquidity, and weakening the impact of financial crises (Cheng et al., 2020). Based on the agency theory hypothesis, disclosure of risk information and the ways firms handle those risks may reduce information asymmetries between the manager and stakeholders (Adam-Müller & Erkens, 2020). The authors also asserted that corporate reporting is affected by the need for information from the firm's stakeholders. The stakeholders, such as lenders, financial analysts, and international investors, could influence disclosure compliance due to the larger need for risk information in monitoring the firms.

Firms should inform their stakeholders about the implementation of ERM for several reasons. First, based on disclosure principles, firms should not hide significant information about their own value from the market (Pineiro-Chousa et al., 2017). Therefore, the market will anticipate that the communicative firms are those that invest in the ERM or implement ERM components. In contrast, those firms that did not disclose ERM were the ones that did not invest in the ERM or implement ERM components. Second, risk governance information, such as establishing a risk management committee, signals to the market about the good risk management practices of the firms (Abdullah & Abdul Shukor, 2017). The authors' findings also revealed that the risk management committee can improve the communication of risk management information, which later enhances firm value.

A substantial number of empirical studies investigated the ERM through the appointment of a Chief Risk Officer (CRO) as a proxy (e.g. Khan et al., 2016) or a single keyword like 'enterprise-wide risk management', 'risk management', 'holistic risk management' etc (Ghafoor et al., 2022; Abdullah et al., 2017). Using a single proxy may not truly reflect the actual ERM implementation by the firms. Since the ERM concept highlights the holistic and comprehensive framework for managing risks, thus, the assessment of ERM implementation shall be explored using a multidimensional approach. Thus, this study aims to develop more comprehensive ERM disclosure components via the index. Besides this study also examines the extent of ERM disclosure by publicly listed companies in Malaysia. Since the concept of ERM is still evolving, most scholars have developed their own index (Abu Afifa & Saleh, 2021). However, the existing ERM indexes have some limitations. The existing index measures only a few items of ERM, which is five (5) to eleven (11) items (see Abu Afifa & Saleh, 2021). Besides, the existing ERM index fails to assess the ERM implementation level or the ERM program's maturity (Malik et al., 2020). Hence, this study develops an ERM disclosure index by mainly referring to the COSO ERM integrated framework 2017, ISO 31000, and prior literature on ERM. This paper contributes to the ERM literature by providing 40 items that can be used in assessing the ERM implementation of the firms through public information disclosure like annual reports.

## 2.0 Literature Review

### 2.1 Risk Management Disclosure

The fundamental aim of corporate governance reform is information transparency through voluntary disclosure. Based on agency theory, voluntary disclosure is needed due to the information asymmetry between the firm's insiders (such as between majority and minority shareholders) or between the firm's insiders and outsiders (Engel et al., 2019). Shareholders prefer more voluntary disclosure and use stock incentives to encourage managers to share timely information (Golden & Kohlbeck, 2017). In the disclosure or reporting context, different degrees of transparency and disclosure can be identified, which are low, medium, and high (Pineiro-Chousa et al., 2017). A large number of the literature identified enterprise risk management practices through the disclosure of information in the annual report or other reports. For example, González et al. (2020) used keyword searches in the annual reports, management reports and corporate governance reports of Spanish-listed companies to explore the existence of risk management systems and examine the quality or degree of ERM implementation. The authors found an increasing trend of ERM implementation among Spanish-listed companies for certain variables such as risk committee, chief risk officer, risk map, and compliance with ISO31000 standards for 2012-2015. However, the study found a decreasing trend for companies that follow COSO standards.

By looking into the disclosure perspective, the firms' mandatory and voluntary information disclosed can influence investors' confidence. Voluntary disclosure of information can reduce information asymmetries and provide the public with a better understanding of business strategies and the relevant risks involved (Neifar & Jarboui, 2018). Furthermore, examining the value relevance of disclosure activities makes it possible to determine the benefits and economic viability compared to costs and expenditures (Ibrahim & Hussainey, 2019). Therefore, the ERM implementation disclosure is expected to enhance firm value since the stakeholders can better understand the firm's risk management practices and reduce uncertainty. Management may also use discretion in reporting voluntary information to the stakeholders (Hassanein, 2022). Thus, the voluntary information pertaining to ERM implementation may be highly or less likely to be disclosed by the management.

Several factors may influence ERM implementation as well as risk management disclosure. McShane (2018) argued that organizational context and circumstances can influence the effective function of risk management. The internal context of corporate governance, such as independent directors, concentration of chairman and chief executive officer responsibilities, Shariah supervisory board and type of external auditor, significantly impacts Islamic banks' voluntary disclosure of operational risk (Neifar & Jarboui, 2018). Meanwhile, external factors such as market competition can influence the level of risk reporting and how it is reported (the tone of reporting) (Hassanein, 2022).

### 2.2 Enterprise Risk Management

In recent years, ERM has received growing attention from the firms, regulators and other stakeholders. According to Adam et al. (2023), the rising interest in ERM due to the issuance of regulations at the global and national level, such as the COSO Framework on ERM issued by the Committee of Sponsoring Organisations of the Treadway Commission (COSO), Basel II framework issued by Basel Committee on Banking Supervision, and applicable regulatory frameworks. ERM has been suggested as the best risk management practice that focuses on managing all risks in an integrated manner rather than looking at each risk separately (Abu Afifa & Saleh, 2021). COSO Integrated Framework (2017) outlined five (5) main risk management components: governance and culture, strategy and objective setting, performance, review and revision, and lastly, information, communication, and reporting.

### 3.0 Methodology

#### 3.1 Sample study

This study focuses on ERM disclosure practices adopted by publicly listed firms/companies (PLCs) in Malaysia from 2016 to 2019. This study excludes financial institutions since this sector is regulated by the Financial Services Act 2013 (FSA) and the Islamic Financial Services Act 2013 (IFSA). In Malaysia, all PLCs are narratively stipulated under Paragraph 15.26(b) of the Bursa Securities Listing Requirement to disclose their risk management and internal control practices. This study examines the 2016-2019 period mainly because PLCs were required to have a statement of risk management and internal control due to the recommendation made by the Malaysian Code on Corporate Governance 2012. Hence, by the year 2016, firms may have more mature ERM implementation and better disclosure of risk management and internal control practices. The final sample for this study is 832 firms.

#### 3.2 Measurement

The ERM disclosure (ERMD) index is constructed by adopting the key components as suggested by the COSO integrated framework 2017. The list of indicators for each ERM construct is developed by referring to COSO 2017, ISO 31000, MCGG, and a review of past literature. The ERM disclosure index items are grouped into the following themes: risk governance and culture, strategy and objective settings, performance, review and monitoring, and information, communication, and reporting. The contents of the annual reports were examined according to the ERM disclosure index. The dichotomous value of "1" is given when the item is present in the annual report and "0" when the item is not present in the annual report. ERM implementation is calculated based on the total percentage of ERM items present in the annual report over the total items of the ERM disclosure index. To avoid giving the wrong code to the items using a manual coding system, the researcher also used the keyword search 'risk', 'crisis', and 'warning', to collect the data from the annual report. After fully coding all the items related to the ERM implementation, the following formula is used to calculate the total ERMD score by summing up the weight of all the items divided by the total items to derive the possible total score of all items. Factor analysis is used to determine the final items that shall be included in the ERMD index.

$$\text{Total ERMD score} = \frac{\text{Total items presence in the annual report}}{\text{Total items in the ERMD}} \times 100$$

#### 3.3 Data Analysis

We tested the validity and reliability of items for the ERM disclosure index to answer the first research objective, which is to develop a comprehensive ERM disclosure index. First, factor analysis was used to validate the instruments for the ERMD index. The significant value of factor loadings depends on the sample size. According to Hair et al. (2014), factor loadings of 0.55 are considered significant for a sample of 100. Meanwhile, factor loadings of 0.3 are considered significant for a sample of 350 and more. Since this study's total observations are 832, the factor loadings above 0.3 are considered significant. After finalizing the ERMD index by deleting items that have factor loading less than 0.3, the final items of the ERMD index are presented in the findings. Second, Cronbach's alpha method was used to check the internal consistency reliability between each factor. The Cronbach's alpha coefficient should be more than 0.6 to ensure good internal consistency. Third, this study analyzed the data of ERM disclosure based on the percentage of mean value to answer the second objective on the degree of ERM disclosure by the study sample.

### 4.0 Findings

This section presents the findings on the factor analysis for the ERM disclosure index based on the information disclosed in the firms' annual reports. Based on Table 1, the results of the KMO test show that the sample used in the study is adequate to run the exploratory factor analysis by using the principal component analysis, which is more than 0.7. Besides that, Bartlett's test of sphericity is also significant, with a p-value of less than 0.05. This study uses the principal component analysis with varimax rotation in determining the factor loadings. Factor loadings of more than 0.3 are maintained, and ones less than 0.3 are deleted. Since using five factors may reduce the reliability of one component (review), the results from factor rotation show that the review component falls under the performance component. The review component also indicates process/performance besides risk assessment and identification. Hence, only four main factors are requested. The factor extraction produced 40 items for the ERMD index. Similar to the prior study by Adam et al. (2023), this study also suggests a multifaceted approach to ERM implementation. The factor loadings can testify to the validity of the instruments used in the study (Abu Afifa & Saleh, 2021).

Table 1. Principal Component Analysis

Criterion	Sub-criterion	1	2	3	4
Governance & culture	G1	Risk committee (RC) at the board level	.682		
	G2	Risk committee stand-alone/ not merged with other board committees	.508		
	G3	CRO presence	.330	.355	.315
	G4	Central department		.516	
	G7	In-house internal audit		.419	
	G13	Risk management policies		.493	
	G15	Adopted risk management framework		.395	
	G16	Risk awareness		.395	
	G18	Risk management culture		.341	
	S5	Link between strategy and risk management	.328	.346	
Performance	S6	Allocation of resources for risk management		.456	
	R2	Review risk management policies		.403	
	G5	Risk committee at the management level	.360		
	S4	Management act within risk appetite	.436		
	P2	Risk assessment frequency	.382	.346	
	P3	Risk assessment method	.669		
	P4	Business unit self-assessment	.363		
	P5	Assess risk level	.648		
	P6	Assess likelihood risk occurrence and impact	.648		
	P8	Assigned risk owner	.576		
Strategy	R3	Review risk/profiles	.380		
	R4	Monitor action plan	.481		
	R5	Pursue improvement/corrective action	.442		
	R6	Internal audit used risk-based approach	.357		
	R7	Number of internal audits conducted	.376		
	I2	Existence of risk profiles	.341		
	I3	Existence of risk register/risk scorecard	.445		
	I5	Consolidate risk information	.452		
	I6	RC/CRO report to board	.460	.441	
	S1	Evaluate internal context			.862
Communication approach	S2	Evaluate external context			.899
	P1	Key risk indicators			.886
	P7	Disclose the mitigation/response plan			.811
	S3	Risk appetite statement		.311	.351
	I4	Risk map/risk heat map			.402
	I7	Crisis communication/management			.347
	I8	Communication to internal			.634
	I9	Communication to external			.635
	I10	Method of internal communication			.650
	I11	Method of external communication			.604

Kaiser-Meyer-Olkin Measure of Sampling Adequacy =0.782

Bartlett's Test of Sphericity (Sig.) =0.000

Extraction Method: Principal Component Analysis

Rotation Method: Varimax with Kaiser Normalisation

Rotation converged in 6 iterations

Table 2. Trend Analysis for ERM Disclosure and Its Sub-dimensions

	Mean (%)	Std Deviation	Min (%)	Max (%)	Year			
					2016	2017	2018	2019
ERMD (overall)	38.53	16.04	5	90	30.14	37.34	42.08	44.54
ERM-governance (ERM-GOV)	27.70	20.27	0	91.67	23.56	25.84	29.77	31.65
ERM-performance (ERM-PERF)	52.64	20.80	5.88	100	45.70	51.50	55.68	57.66
ERM-strategy (ERM-STRA)	67.94	41.60	0	100	29.21	67.43	83.77	91.35
ERM-communication (ERM-COMM)	6.00	13.25	0	85.71	4.19	5.49	6.32	8.04

Note: ERMD is total ERM disclosure; ERM-GOV is ERM related to governance and culture; ERM-PERF is ERM related to performance and review; ERM-STRA is ERM related to strategy, and ERM-COMM is ERM related to the communication approach

Table 2 presents the trend analysis for ERM disclosure and its sub-dimension. Overall, the trend of ERM disclosure for each category has increased significantly since the year 2016. Significant changes can be seen from the disclosure of ERM strategy and ERM performance. For the ERM strategy, the changes were 29.21% in 2016 and 91.35% in 2019. The largest change could be associated with the importance of disclosure of information in relation to the evaluation of internal and external context, key risk indicators, and mitigation strategies. Information about firms' anticipated risks is part of the management and discussion analysis statement. ERM performance disclosure showed a score of 45.70% in 2016 and 57.66% in 2019. Meanwhile, the lowest score is the ERM-communication approach, with an overall score of 6%. Similarly, González et al. (2020) also found an increasing trend of ERM implementation by firms. The ERM governance also received more attention from the firms by having a chief risk officer and risk committee. Further, the ERM strategy receives higher disclosure due to providing a better understanding of business strategies and relevant risks faced by the firms (Neifar & Jarboui, 2018).

## 5.0 Discussion

This paper aims to develop a more comprehensive ERM disclosure index by embedding the COSO integrated ERM framework 2017, ISO 31000, and past literature on ERM. Based on the factor analysis results, 40 items remain the final items in the ERM disclosure index. Since previous studies used a single proxy to determine the relationship between ERM and firm value, this study used a more comprehensive measurement of ERM implementation by looking at ERM governance, performance/process, strategy, and communication approach. In Malaysia's context, the firms' disclosure of ERM implementation is on a voluntary basis without specific guidelines as to the items to be disclosed to the stakeholders. Although firms are required to provide a statement on risk management and internal control, some information on ERM implementation is still not available to the stakeholders. Two (2) conditions may lead to such circumstances: (1) firms may implement ERM but do not disclose such information, or (2) firms are still at the early stage of implementing ERM. Therefore, this research is novel by proposing a comprehensive framework of ERM implementation disclosure to be adopted by the firms.

Since this study focuses on the disclosure perspective, the main concern is regarding the firms' comprehensiveness of ERM implementation disclosure. Consistent with agency theory, disclosure of risk information can reduce information asymmetries and monitor managers' behaviour (Adam-Müller & Erkens, 2020). Nevertheless, the disclosure of ERM implementation in the annual report should reflect their performance and initiative in controlling and managing the firm's risks. The findings from this study reveal that ERM disclosure practices by non-financial public listed firms in Malaysia are still at a moderate level. The overall percentage of ERM disclosure is 38.53%. The analysis shows an increasing trend of ERM disclosure from 30.14% in 2016 to 44.54% in 2019. In line with Lundqvist and Vilhelmsson (2018), the authors found increasing trends in ERM implementation through public disclosure by the banking industry and at a moderate level. According to the current finding, less stringent rules in developing countries like Malaysia for the items to be reported in relation to ERM implementation can lead to less information disclosure.

## 6.0 Conclusion & Recommendations

Implementing Enterprise Risk Management (ERM) and disclosing its risk management activities have become more demanding due to the complexities of business risks and financial crisis events. New guidelines and corporate governance reformation improved the firms' governance practices, especially in risk management. Concerningly, the implementation of ERM is still evolving and requires more research to see the types and amount of information disclosed regarding the management of firms' risks. The result of this study contributes to the existing literature on ERM implementation, specifically through the disclosure of public information on risk management in the annual report. In line with good governance, information disclosure reduces information asymmetry between managers and shareholders and reduces conflicts between them (Cheng et al., 2020).

This study conducted an exploratory factor analysis to determine the related ERM disclosure components to ensure the validity and reliability of measurement. This study extends the existing ERMD index by incorporating new suggested components of COSO 2017. This study highlighted five main components of COSO 2017: governance and culture, strategy and objective setting, performance, monitoring and review, and communication approach. The improvements from the previous COSO 2004 could be seen through the importance of governance and culture in risk management and the firms' risk appetite aligning with strategy and objective settings. Besides that, this study also incorporates the requirement of ISO 31000 in some elements of ERM implementation adopted by many firms in Malaysia. Further, the ERM disclosure framework also considers the inputs from past literature on ERM implementation. Hence, the measurement of ERM disclosure in this study provides more comprehensive items to assess ERM implementation.

Findings from this study may guide firms on how to engage in ERM disclosure and what types of information shall be disclosed to the stakeholders. The current study also benefits investors and other stakeholders in examining current ERM practices by firms and the level of maturity that firms have in implementing the ERM. Detailed information disclosure by firms provides adequate information to the firms' investors and other stakeholders in assessing the adequacy of its ERM activities. As a result, it can assist investors in making better decisions regarding their investments.

This study is still subject to several limitations. First, the study's findings are based on non-financial firms listed in the main market of Bursa Malaysia in the context of developing countries. The results may not be appropriate to generalize for developed countries due to different corporate governance structures and regulatory frameworks. However, the same study could also be carried out in developed countries or other institutional settings to see the similarities or differences of the ERM disclosure practices. Since, in the developed countries, they have more stringent requirements and strong corporate governance.

## Acknowledgement

We would like to thank the Faculty of Administrative Science and Policy Studies, Universiti Teknologi MARA, for the financial support (funding file no. 600-TNCPI 5/3/DDF(FSPPP)(009/2023)).

## Paper Contribution to Related Field of Study

This paper shall contribute to the field of enterprise risk management and corporate disclosure policy.

## References

- Abdullah, M. H. S. B., Janor, H., Hamid, M. A. & Yatim, P. (2017). The effect of enterprise risk management on firm value: Evidence from Malaysian technology firms. *Jurnal Pengurusan* 49: 3–11.
- Abdullah, M., & Shukor, Z. A. (2017). The comparative moderating effect of risk management committee and audit committee on the association between voluntary risk management disclosure and firm performance. *Jurnal Pengurusan*, 51(2017), 159-172.
- Abu Afifa, M.M. & Saleh, I. (2021). Management accounting systems effectiveness, perceived environmental uncertainty and enterprise risk management: Evidence from Jordan. *Journal of Accounting and Organisational Change* 17(5): 704–727.
- Adam-Müller, A.F.A. & Erkens, M.H.R. (2020). Risk disclosure noncompliance. *Journal of Accounting and Public Policy* 39(3): 106739.
- Adam, M., Soliman, A. M., & Mahtab, N. (2023). Measuring enterprise risk management implementation: A multifaceted approach for the banking sector. *The Quarterly Review of Economics and Finance*, 87, 244-256.
- Cheng, H., Huang, D. & Luo, Y. (2020). Corporate disclosure quality and institutional investors' holdings during market downturns. *Journal of Corporate Finance* 60(November 2019): 101523.
- dos Santos, R.B., Lima, F.G., Gatsios, R.C., de Almeida, R.B., Santos, R.B. dos, Lima, F.G., Gatsios, R.C. & Almeida, R.B. de. (2017). Risk management and value creation: new evidence for Brazilian non-financial companies. *Applied Economics* 49(58): 5815–5827.
- Engel, P.J., Hack, A., Stanley, L.J. & Kellermanns, F.W. (2019). Voluntary disclosure of individual supervisory board compensation in public family firms. *Journal of Business Research* 101(April): 362–374.
- Ghafoor, Z., Ahmed, I., & Hassan, A. (2022). Audit committee characteristics, enterprise risk management and stock price synchronicity. *Managerial Auditing Journal*, 37(1), 69-101.
- Golden, J. & J. Kohlbeck, M. (2017). The influence of family firm dynamics on voluntary disclosures. *Advances in Accounting* 37: 111–121.
- González, L. O., Santomil, P. D., & Herrera, A. T. (2020). The effect of Enterprise Risk Management on the risk and the performance of Spanish listed companies. *European Research on Management and Business Economics*, 26(3), 111-120.
- Hair, J.F., Black, W.C., Babin, B.J. & Anderson, R.E. (2014). *Multivariate Data Analysis*. 7th edition. Kirby Street, London: Pearson Education Limited.
- Hassanein, A. (2022). Risk reporting and stock return in the UK: Does market competition Matter? *The North American Journal of Economics and Finance* 59(October 2021): 101574.
- Ibrahim, A.E.A. & Hussainey, K. (2019). Developing the narrative disclosure measurement. *International Review of Financial Analysis* 64(May): 126–144.
- ISO31000. Risk Management-Principles and Guidelines. Retrieved from <https://www.iso.org/obp/ui/#iso:std:iso:31000:ed-2:v1:en> [12 December 2021]
- Khan, M.J., Hussain, D. & Mehmood, W. (2016). Why do firms adopt enterprise risk management (ERM)? Empirical evidence from France. *Management Decision* 54(8): 1886–1907.
- Lechner, P. & Gatzert, N. (2018). Determinants and value of enterprise risk management: empirical evidence from Germany. *The European Journal of Finance* 24(10): 867–887.
- Lundqvist, S.A. & Vilhelmsson, A. (2018). Enterprise risk management and default risk: Evidence from the banking industry. *The Journal of Risk and Insurance* 85(1): 127–157.
- Malik, M.F., Zaman, M. & Buckby, S. (2020). Enterprise risk management and firm performance: Role of the risk committee. *Journal of Contemporary Accounting and Economics* 16(1): 100178.
- MCCG. (2017). *Malaysian Code on Corporate Governance 2017*. Securities Commission Malaysia.
- McShane, M. (2018). Enterprise risk management: history and a design science proposal. *Journal of Risk Finance* 19(2): 137–153.
- Neifar, S. & Jarbou, A. (2018). Corporate governance and operational risk voluntary disclosure: Evidence from Islamic banks. *Research in International Business and Finance* 46(146): 43–54.
- Pineiro-Chousa, J., Vizcaino-González, M., López-Cabarcos, M. & Romero-Castro, N. (2017). Managing reputational risk through environmental management and reporting: An Options Theory approach. *Sustainability* 9(3): 376.