

# Conceptualising Risk Culture on Enterprise Risk Management (ERM) Implementation in Construction Companies

Wong Ching Ching, F.A. Mohd-Rahim, Loo Siaw Chuing, N.Zainon, N.M. Aziz.  
Centre for Building, Construction & Tropical Architecture (BuCTA)  
Faculty of Built Environment, University of Malaya,  
50603 Kuala Lumpur  
Corresponding author: [azli@um.edu.my](mailto:azli@um.edu.my)

## ABSTRACT

Received: 22 June 2019  
Reviewed: 9 March 2020  
Accepted: 25 March 2020

*In today's global economy, inadequate risk management and lack of risk culture can threaten a company's viability. Since construction industry is subjected to uncertainty, construction Public Listed Companies (PLCs) need to implement Enterprise Risk Management (ERM) as an effective technique in managing risk holistically. Although the importance of ERM is widely accepted, the influence of risk culture in its' implementation is unexplored. This paper presents a conceptual model that shows the relationship between risk culture and ERM implementation. The dependent variable is ERM implementation, consist of four dimensions namely risk identification and risk assessment; risk treatment; monitor and consult; communicate and consult. The independent variables, risk culture comprise of six dimensions, which are risk policy and risk appetite; key risk indicators; accountability; incentives; risk language and internal relationships. This study aims to empirically test the relationship between risk culture and ERM implementation among Malaysian construction public listed companies. Quantitative method through questionnaire survey is adopted as data collection for this study. Risk culture is expected to have direct effects and significantly influence ERM. This study contributes to enhance the body of knowledge in ERM especially in understanding significant of risk culture that influence its' implementation from Malaysian perspective.*

**Keywords:** *enterprise risk management, risk culture, construction companies*

## INTRODUCTION

Unprecedented levels of business complexity and changing geopolitical threats make risk abounds nowadays. The financial crisis in 2007 caused a panic that rippled across global markets and consequently led to frizzling credit markets in the following year. Hence, the numerous organisational failures due to inadequate risk management and culture that resulted in considerable financial loss and damaged company reputations (Ashby & Power, 2014; Beasley, Branson, & Hancock, 2010; De Jonghe, Edelsten, & Xavier, 2013; Mcconnell, 2013).

Thereafter, Enterprise Risk Management (ERM) came into the limelight as a popular strategy that attempts to holistically evaluate and manage all of the risks faced by an organization (Pagach & Warr, 2010). This paradigm concept is emphasizing a more comprehensive view of risk and replacing the silo approach, which compartmentalized from a department to another in an organisation. According to Lam (2014), "ERM is a comprehensive and integrated framework for managing key risks in order to achieve business objectives, minimise unexpected earning volatility and maximise firm value.

When an organisation manages risk through ERM that adopts a systematic and consistent approach, it tends to lower the organization's overall risk of failure and thereby increase performance and the value of the organization (Gottwald & Mensah, 2016). The results from some studies indicate that ERM implementation has significant positive linear relationship with firm's performance and value (Eckles, Hoyt

and Miller, 2014; Hoyt and Liebenberg, 2011, 2015). Besides, ERM positively contributes to construction companies in term of reducing losses, acting as performance indicators, improving decision making and control on projects (Liu, Low, & He, 2011; Low et. al., 2013; Zhao et. al., 2013a).

Furthermore, risk culture is frequently mentioned as the key contributor to banking scandals during the global financial crisis (Ashby, Palermo, & Power, 2013; De Jonghe et al., 2013; Mcconnell, 2013). Risk culture comprises of the attitudes and behaviours of individuals and groups within an organisation related to risk awareness, risk-taking and risk management (Deloitte, 2012; EY, 2014a). Muralidhar (2010) and Rao & Marie (2007) observe that unsupportive organisation culture is a factor that hinder ERM implementation. Besides, Rao & Marie (2007) point out culture is the barrier to ERM implementation in organizations. According to Muralidhar (2010), corporate culture is considered one of the structural challenges but risk culture is considered as operational challenges for ERM implementation in the oil and gas industry. Cooper et al. (2013) also found organization culture either important or very important on ERM implementation for a significant percentage of organizations.

However, risk culture is not only unique to banks and other financial institutions but also mentioned in real estate, insurance and construction industry studies (Roeschmann, 2014; Schoenfeld, 2013; Zhao et al., 2013). Construction companies are not an exception from energy industry, banking or oil and gas industry in terms of facing various types of risk in the globalisation area. Naturally, construction companies are exposed to various risks at different stages of project implementation.

Project risk management concentrate on increasing the probability and impact of positive events, and decrease the probability and impact of negative events simultaneously (PMI, 2013). In addition to project risks, construction companies are facing different types of risk with the increased projects size, technology advancement and market competition (Liu, Zou, & Gong, 2013). Subsequently, construction companies can manage various type of risks holistically in strategic setting to ensure its survival and growth through ERM (Mohd, Asmah, & Isahak, 2011).

Despite numerous studies on ERM in various industries especially banking and insurance, there are very few studies focusing on construction industry. There is little academic research exists about the implementation and culture on ERM in construction companies. Therefore, this paper aims to conceptualise risk culture and shed more light on its role in ERM implementation for construction Public Listed Companies (PLCs) in Malaysia. The objectives of this study are to determine the current ERM practices and to explore the risk culture dimensions in the construction companies. This paper presents a conceptual model to explore empirically the relationship between risk culture and ERM implementation. It is followed by the research methodology before the conclusion is presented.

## **CONSTRUCTION INDUSTRY IN MALAYSIA**

Malaysia's economy has expanded to 4.3% in the third quarter of 2016 with 7.9% of construction sectors driving the overall economic performance (Department of Statistics: Malaysia, 2016). Furthermore, the value of work performed in Malaysian construction industry had increased steadily from RM 13.2 billion in 2008 to RM31.9 billion in 2016 (Department of Statistics: Malaysia, 2016). Since it is an important industry to the country's economy, construction industry must implement ERM successfully to manage the various types of risk encountered due to its' challenging business.

Hence, the target population of this study is construction PLCs listed in the Main Board of the Malaysia Bursa. It is because they are typically large companies with huge operations and more likely to have the resources to implement ERM. It is also similar to studies by Hoyt & Liebenberg (2011) whereby the size of the company is associated with the extent of ERM adoption.

## ENTERPRISE RISK MANAGEMENT

Risk and opportunities are synonymous, which means every risk has an opportunity and every opportunity has a risk. Risk is the chance of something happening that will have impact on objectives that may have a positive or negative impact (AS/NZS, 2009). Meanwhile, risk management is the culture, processes and structures that are directed towards realising potential opportunities while managing adverse effects (AS/NZS, 2009).

ERM is focus on managing and correlating all types of risk faced by the organisation holistically (McShane, Anil, & Rustambekov, 2011). At the same time, Bromiley et al. (2014) argues academics and industry practitioners have different opinions on what is ERM. Some globally acclaimed frameworks and standards from Committee of Sponsoring Organisations of the Treadway Commission (COSO, 2004b), Australia Standard/New Zealand Standard-AS/NZS ISO: 31000 (AS/NZS, 2009), International Standards Organizations- ISO 31000 (ISO, 2009) and Committee of Casualty Actuarial Society (CSA, 2003) are available to assist organizations in designing ERM around their organizational needs, type of industry and size.

In regard to this, Lam (2014) highlights organizations to adopt ERM framework that best fit their business scope and complexity as there is no perfect ERM definition applicable to every organization. Therefore, each organization might have different ERM frameworks depending on its corporate structure, strategic direction and business objectives (Mikes, 2009). Generally, there are five sequential process steps in regard to ERM framework (AS/NZS, 2009; COSO, 2004b; CSA, 2003; IRM, AIRMIC, & ALARM, 2002; ISO, 2009), which are;

- i. Establish the context (including organisation's strategic objectives, internal environment, objective setting);
- ii. Risk identification and assessment (including risk analysis and risk evaluation, analysing/quantifying risk, integrating risk, assessing/ prioritizing risk);
- iii. Risk treatment (including treating/ exploiting risk; risk response);
- iv. Monitor and review (including control activities and monitoring); and
- v. Communicate and consult (including risk reporting threats and opportunities, decision and residual risk reporting)

'Establish the context' process embody the risk culture inspiration for improved decision making and risk governance. Thus, the elements in this process are considered as dimension for risk culture. While, risk identification and assessment; risk treatment; monitor and review; communicate and consult are selected as ERM implementation dimensions.

### Establish the Context

'Internal environment', 'Establish context' or 'Objective setting' components in the five ERM framework focusing on how organizations implement strategies by incorporating possible risky events that will affect their business activities. Consequently, it will set the basis on how risks is viewed and managed by the employees including top management in the organization. The AS/NZS (2004), COSO (2004), CSA (2003), ISO (2009)(AS/NZS, 2009; COSO, 2004b; CSA, 2003; IRM et al., 2002; ISO, 2009) emphasise the culture aspects through these components to gain an understanding on the external, internal and risk management context of the organization. This component is considered as the foundation of risk culture in organisation that comprises of six dimensions after the four dimensions, which formed ERM.

### Risk Identification and Assessment

Identifying events that take into account external and internal conditions, which could affect the achievement of the organization's objectives is the start of the risk management process (AS/NZS, 2009; ISO, 2009). Residual risk is the remaining risk after treatment and inherent risk emerges due to the way the

organisation operates (AS/NZS, 2009). A comprehensive list of events including sources of risk, causes and potential consequences are generated from this process (AS/NZS, 2009; ISO, 2009). Generally, these events identified can be categorised into various types such as financial/non-financial or external/internal

The identified potential events impact on the achievement of the organization's objectives is deliberated at the risk analysis phase. Based on risk category, events are assessed from likelihood and impact perspectives to determine the levels of risk (AS/NZS, 2009; COSO, 2004a; ISO, 2009). Factors or sources that affect the likelihood and impact should be identified. These inputs help to decide which risk requires treatment before determining the most appropriate strategies. Existing controls must also be taken into consideration before deciding on the new treatment (AS/NZS, 2009; ISO, 2009).

## **Risk Treatment**

Based on the outcome of risk analysis, risks that require treatment and priority of treatment implementation are decided in risk evaluation (AS/NZS, 2009; ISO, 2009). Some risks may not require treatment, while some risks require maintaining existing controls from evaluation. However, other risks may require further analysis when new controls proposed from evaluation. First step in risk treatment involve selecting risk response that can balance the costs and efforts of implementation against the benefits it is derived (AS/NZS, 2009; ISO, 2009). Decisions on the selected treatment is also based on technical, financial, social and other criteria depending on the organisation's goals and objectives. Several treatment options include avoiding, reducing, sharing and retaining the risk.

A risk treatment plan is used to monitor risk responses and assess their effectiveness. The plan comprises of proposed actions, responsibilities, timing, performance measures, reporting and monitoring requirements (AS/NZS, 2009; ISO, 2009). Risk treatment itself can introduce new risk or produce residual risk. New risk is subjected to the cyclic process of assessment, treatment and monitoring. As for residual risk, it can be decided to retain the risk or repeat the treatment process depending on the levels (AS/NZS, 2009; ISO, 2009).

## **Monitor and Review**

Monitoring helps to determine the effectiveness based on proposed and implemented risk treatment. The actual progress on risk treatment plans is a good reporting system and an important performance measurement or key risk indicator (AS/NZS4630,2004;ISO,2009). Lessons can be learned from events successes and failures that can be complied through monitoring and review (AS/NZS, 2009; ISO, 2009).

Monitoring is an ongoing process involving various mechanisms such as the normal routine, self-assessment and independent assessment. Event identification, risk analysis and risk treatment are considered the normal monitoring routine (COSO, 2004a). Periodic monitoring involves self-assessment on each component in the ERM by the management team (COSO, 2004a). Internal auditors and external consultant conduct independent assessment to assist organizations in monitoring and obtaining unbiased opinion on the overall ERM implementation (COSO, 2004a).

## **Communicate and Consult**

Communication seeks to improve members of organisation understanding on risk and its process (AS/NZS, 2009). This includes increasing awareness on their roles and responsibilities with consideration on their views on risk management (AS/NZS, 2009). Engaging employees from different areas of expertise in risk assessment and treatment can ensure accountability, appreciation and support on the risk treatment plan.

Communicating actual risk information in a timely manner from top down, bottom up and across the departments ensures the transparency into taking risk in daily operation and decision making (Deloitte, 2012; EY, 2014b; IRM, 2012; Protiviti, 2014; PwC, 2012). Significant risk information is reported to the

board and top management in a periodic or timely manner (Dafikpaku, 2011). Meanwhile, employees as a whole are notified critical information and decisions from the top management.

## **TOWARDS THE CONCEPT OF RISK CULTURE**

In the context of organisation, culture provides a sense of identity for members, generating of larger commitment and reinforcing standards of behaviour (Greenberg, 2011). Rohit & Webster (1989) define organisation culture as the pattern of shared values and beliefs that provide individuals the norms for behaviours in the organisation. Organisation culture reside in the way people perceive what goes on their organisation environment (Hofstede, 2011). As a subset of organization culture, how an organization manages risk has implications not only to the dynamic system but also the members is risk culture (Hardy, 2015).

Essentially, the popularised view of culture focuses on the relations among the people in the organisation (Schein, 1999). Thus, the ERM framework places importance on the involvement all level of employee in organization and not only top management in the implementation of ERM (COSO, 2004b; Irzan, Nik, Mohamad, & Fazli, 2012). Although the mandate for risk management comes from the highest level, employees at all levels within the organization are responsible for the success of the risk management initiative too (Ashby, Palermo, & Power, 2012; Irzan et al., 2012; Sax & Torp, 2015). ERM involves participation from not only top management but also all level of employees with a systematic approach integrating risk management process holistically.

According to Protiviti & RMA (2013), risk culture is ‘the set of encouraged and acceptable behaviours, discussions, decisions, and attitudes toward taking and managing risk within an institution. As for Deloitte (2012), ‘risk culture encompasses the general awareness, attitudes and behaviours of an organization’s employee toward risk and how risk is managed within the organization’. ‘Risk culture is the norms of behaviour for individuals and groups within an organization that determine the collective ability to identify and understand, openly discuss and act on the organization’s current and future risks’ based on (Twining et al., 2010).

## **RISK CULTURE IN ENTERPRISE RISK MANAGEMENT**

As culture is an important building block of good governance, risk culture is an essential foundation risk management architecture (Rossiter, 2001). However, key aspects or characteristics of risk culture are still undetermined (Althonayan, Keith, & Killackey, 2012; Ashby et al., 2012). Schein (1999) further elaborated that culture consists of three main components; external adaption, internal integration and basic underlying assumptions. This concept is similar to the ERM frameworks through ‘Establish the context’(AS/NZS, 2009; CSA, 2003; ISO, 2009), ‘Internal environment’ and ‘Objective setting’ (COSO, 2004b) components.

Based on Hopkin, 2017, organisation taking actions to improve the risk culture as well as ERM implementation must lead to the improvements in ERM outputs and performance. This, in turn, should have a positive impact that delivers greater benefits from ERM. The following are discussions on risk culture dimensions namely risk policy and risk appetite; key risk indicators; accountability; incentives, risk language and internal relationships.

### **Risk Policy and Risk Appetite**

Identifying the core mission and goals are usually part of an organisation’s strategy process. When consensus core mission and goals provide solutions that work repeatedly, they can be perceived as potential cultural elements (Schein, 1999). Muralidhar (2010) points out that by declaring the ERM initiative in the organization’s vision and mission statements is a way to link risk into strategy. Subsequently, the critical linkage between strategy execution and risk management is through the determination of risk appetite level (COSO, 2004b). Risk appetite is an essential part of risk governance by making explicit the amount of risk that an organization is willing to take in strategic decision (COSO, 2004b; CSA, 2003; Deloitte, 2015; EY,

2013, 2014a; FSB, 2014; Mcging & Brown, 2014). The persistent challenge is to ensure consideration of risk appetite is truly embedded in organization daily operations where core objectives are understood and driving behaviours at all levels of employee (EY, 2014b).

## **Key Risk Indicators**

Besides that, organisation's performance needs to be monitored to track the progress of goal's achievement. Consensus on the criteria for information gathering of an organisation performance can become central elements of its culture (Schein, 1999). Similarly, senior management can identify key risk indicators (KRIs) for monitoring purposes as they execute the chosen strategic initiatives. KRIs are also developed in concert with strategic plans for individual business units and incorporate acceptable deviations from plan that fall within the overall risk appetite of the organization (Beasley et al., 2010). Risk owners are required to update the KRIs related to the organization's top risk exposures.

## **Accountability**

Risk appetite coupled with KRI not only contribute to monitoring the achievement of organization's objectives but also improving accountability (Aureli & Salvatori, 2012; Jackson, 2015). Risk is owned by the ones closest to its occurrence (FSB, 2014) usually through bottom-up steps that build on existing functional capabilities (Muralidhar, 2010). However, it is should not be seen as replacing a top-down approach but acting in parallel and reinforcing manner. Regardless of the top-bottom or bottom-up approach, everyone in the organization is responsible for managing risk (Mcging & Brown, 2014).

## **Incentives**

Employees understand their roles in ERM implementation and feels involved in creating a common risk culture when accountability is well defined coupled with incentives. In this manner, KRIs as well as accountability can be linked to risk-based incentives, defined for risk owners of all hierarchical levels (Aureli & Salvatori, 2012; De Jonghe et al., 2013). The linkage between incentives and risk management to the achievement of organization's objectives also can generate a greater responsibility of top and middle managers in their decision making. When incentives are in the picture, employees are also more active in risk assessment and response (FSB, 2014; Mcging & Brown, 2014). Thus, employees' contribution in discussion can result in greater efficacy of risk management and create a risk culture (Aureli & Salvatori, 2012; Dafikpaku, 2011; Jackson, 2015).

## **Risk Language**

In addition, communicating in common language and conceptual categories are critical for people of an organisation to agree on what to do, what is important and so on (Schein, 1999). An ERM mind-set and common risk language create a natural risk habitat and together dictate everyone's enterprise wide involvement (Althonayan et al., 2012). It is important organizations communicate through common risk language (Althonayan et al., 2012; Boulwood & Dominus, 2014; Muralidhar, 2010) to ensure everyone is "on the same page". Besides creating an intimidation free atmosphere, continual performance improvement with consistent risk information can be shared across business units (Hallowell, Molenaar, & Fortunato, 2013). Risk information such as risk appetite or response can be openly expressed in a common risk language so everyone can take action in order to achieve organization's goals.

## **Internal Relationships**

Delivering consistency between leadership, employee behaviour and alignment with other process are important for organisation in developing risk culture (EY, 2014b). Relationships between management and employees with coordination among other departments on ERM implementation can develop risk culture in organisations (Gupta, 2011). Clear and open communication with participation in implementing ERM

create a transparent environment, which eventually developed risk culture in the organisation (Kenwood & Rafferty, 2017).

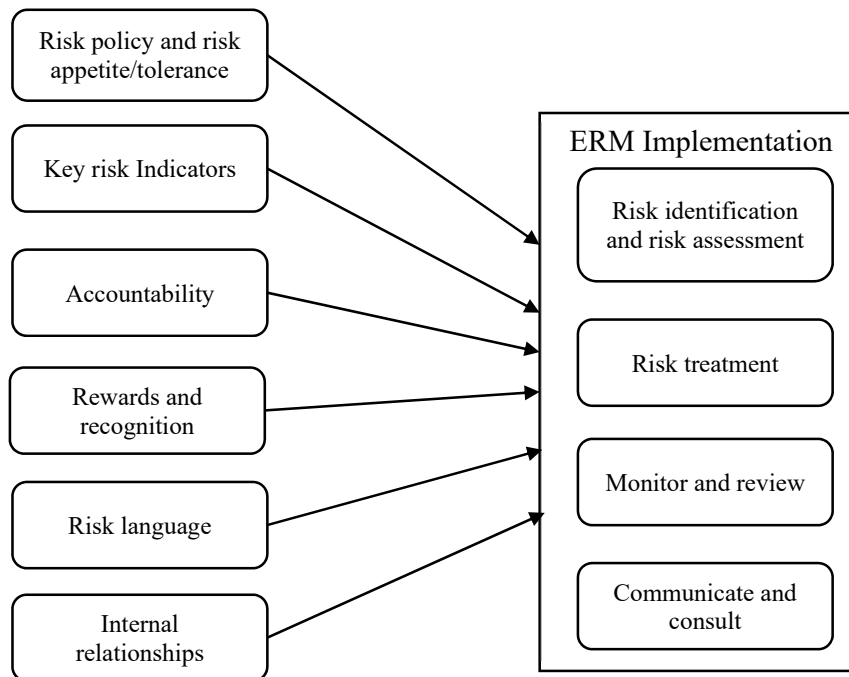
Lloyd-walker, Mills, & Walker (2014) and Mikes & Kaplan (2014) found that top management support in creating a no-blame culture can encourage employees to speak up and discuss risk issues they were worried about. Employees at different levels can communicate with their immediate supervisor about current and emerging risks that is critical to the organisation. As a way to gain employees' commitment by involvement, building risk culture can be complemented with more social and opinion sharing meeting (Dafikpaku (2011).

## THE CONCEPTUAL FRAMEWORK

The conceptual framework determines the way a researcher formulates research problem, investigate the problem and attaches the meaning to the data accruing from the investigation. It is self-designed, formed from literature review to determine the effect of risk culture on ERM implementation among Malaysian construction public listed companies as showed in Figure 1.

The dependent variable (criterion variable or endogenous latent variable) is the main variable that lends itself as a viable factor for research (Sekaran & Bougie, 2013). They are the outcomes or results of the influence of the independent variables (Creswell, 2014). As for independent variable (predictor variables or exogenous latent variable), it is one that influences the dependent variable either a positive or negative way (Cavana, Delahaye, & Sekaran, 2001; Sekaran & Bougie, 2013).

The dependent variable for this study is ERM implementation, which is measured by the four dimensions namely risk identification and risk assessment; risk treatment; monitor and consult; communicate and consult. Based on the literature, the independent variables under risk culture are risk policy and risk appetite; key risk indicators; accountability; incentives; risk language and internal relationships. In summary, this paper proposes the conceptual framework to test the significant influence of risk culture on ERM implementation in Malaysia.



**Figure 1:** The Proposed Conceptual Framework

## RESEARCH METHODOLOGY

The target population for this study is company listed under construction main board of Bursa Malaysia. PLCs are usually large size company with more complex operations, volatile earnings and most probably expose to threatening events (Waweru & Kisaka, 2013). Therefore, large size company are more likely to adopt ERM in their operations (Waweru & Kisaka, 2013).

This study will conduct questionnaire survey as the research method. Firstly, the questionnaire is pre-tested to examine the content validity and face validity before proceeding with pilot study. The pilot test will involve respondents in the construction industry with experience in implementing ERM. Then, the questionnaires can be posted, emailed electronically or personally handed to the construction PLCs. Data collected from questionnaire is analysed using a software called PLS-SEM.

PLS-SEM focuses on the prediction of a specific set of hypothesized relationships that maximizes the explained variance in the dependent variable. It is more likely to render a specific relationship significant when it is in fact significant in the population due to its' greater statistical power (Hair et al., 2017). Other than mining data from different sources in a short time, the cost of the software is also reasonable and it is a user-friendly software.

## CONCLUSION

This study proposed a conceptual framework to investigate the relationship between risk culture and ERM implementation. The risk culture namely risk policy and risk appetite; key risk indicators; accountability; incentives; risk language and internal relationships are expected to have significant and direct effects on ERM. This study is important to determine the risk cultures' factors that might enhance the ERM implementation especially among construction public listed companies in Malaysia. Future studies can focus on the other factors that might influence its' implementation in an organization such as the effects of risk culture and Chief Risk Officer on the relationships between top management support and ERM.

## ACKNOWLEDGEMENT

This study is part of the project funded by the research grant, IIRG007C-2019, Risk Assessment Model for Smart Damage Diagnostic Algorithm to Assess Black Swan Events.

## REFERENCES

- Althonayan, A., Keith, J., & Killackey, H. (2012). Shifting into an ERM culture. *The Risk Management Association Journal*, 12–19. Retrieved from <https://www.rmahq.org/CustomTemplates/ProductDetail.aspx?id=12145&productid=12806815>
- AS/NZS, S. A. and S. N. Z. (AS/NZS ISO 31000) Risk Management: Principles and Guidelines (2009). Sydney, Australia and Wellington, New Zealand.
- Ashby, S., Palermo, T., & Power, M. (2013). *Risk Culture in Financial Institutions: A Research Report*. London. Retrieved from <http://www.lse.ac.uk/accounting/CARR/pdf/Final-Risk-Culture-Report.pdf>
- Aureli, S., & Salvatori, F. (2012). An Investigation on Possible Links Between Risk Management, Performance Measurement and Rewards Schemes. *Accounting and Management Information Systems*, 11(3), 306–334. Retrieved from [ftp://ftp.repec.org/opt/ReDIF/RePEc/ami/articles/11\\_3\\_1.pdf](ftp://ftp.repec.org/opt/ReDIF/RePEc/ami/articles/11_3_1.pdf)
- Banks, E. (2012). *Risk Culture: A Practical Guide to Building and Strengthening the Fabric of Risk Management*. London, UK: Palgrave Macmillan.
- Beasley, M. S., Branson, B. C., & Hancock, B. V. (2010). *Developing Key Risk Indicators to Strengthen Enterprise Risk Management*. COSO. Retrieved from <papers2://publication/uuid/A17DB7CA-6EC5-4F23-84FE-DB4996794C37>
- Bromiley, P., McShane, M., Nair, A., & Rustambekov, E. (2015). Enterprise Risk Management: Review,



- Critique, and Research Directions. *Long Range Planning*, 48, 265–276. <https://doi.org/10.1016/j.lrp.2014.07.005>
- Cavana, R. Y., Delahaye, B. L., & Sekaran, U. (2001). *Applied Business Research: Qualitative and Quantitative Methods*. Milton, AUS: John Wiley & Sons Australia, Ltd.
- Cooper, T., Faseruk, A., & Khan, S. (2013). Examining Practitioner Studies to Explore ERM and Organizational Culture. *Management Policy and Practice*, 14(1), 53–69. Retrieved from [http://www.na-businesspress.com/JMPP/CooperT\\_Web14\\_1\\_.pdf](http://www.na-businesspress.com/JMPP/CooperT_Web14_1_.pdf)
- COSO, C. of S. O. of the T. C. (2004a). *Enterprise Risk Management — Integrated Framework: Application Techniques*. <https://doi.org/10.1504/IJISM.2007.013372>
- COSO, C. of S. O. of the T. C. Enterprise Risk Management — Integrated Framework: Executive Summary (2004). <https://doi.org/10.1504/IJISM.2007.013372>
- Creswell, J. W. (2014). *Research Design: Qualitative, Quantitative and Mixed Methods Approaches* (4th ed.). Thousand Oaks, CA: Sage Publications, Inc.
- CSA, C. A. S. (2003). *Overview of Enterprise Risk Management*. <https://doi.org/10.1002/9780470404324.hof003007>
- Dafikpaku, E. (2011). The Strategic Implications of Enterprise Risk Management: A Framework. In *Enterprise Risk Management Symposium* (p. 49). Retrieved from <https://pdfs.semanticscholar.org/deb7/d16b649090cbd7f2a5941f600d4d45fba98a.pdf>
- De Jonghe, F., Edelsten, M., & Xavier, I. (2013). The Cultural Revolution in Risk Management. *The Journal of Financial Perspectives*, 1(2), 13. Retrieved from [fsinsights.ey.com/...evolution-in-risk-management.pdf](http://fsinsights.ey.com/...evolution-in-risk-management.pdf)
- Deloitte. (2012). *Cultivating a Risk Intelligent Culture: Understand, Measure and Strengthen*. Retrieved from <https://www2.deloitte.com/content/dam/Deloitte/us/Documents/center-for-corporate-governance/us-ccg-cultivating-a-risk-intelligent-culture-050212.pdf>
- Deloitte. (2015). *Global Risk Management Survey, 9th edition*. Retrieved from <https://dupress.deloitte.com/dup-us-en/topics/risk-management/global-risk-management-survey-financial-services.html>
- Eckles, D. L., Hoyt, R. E., & Miller, S. M. (2014). The Impact of Enterprise Risk Management on the Marginal Cost of Reducing Risk: Evidence from the Insurance Industry. *Journal of Banking & Finance*, 43, 247–261. <https://doi.org/10.1016/j.jbankfin.2014.02.007>
- EY. (2013). *Remaking Financial Services: Risk Management Five Years After the Crisis*. Retrieved from [http://www.ey.com/Publication/vwLUAssets/Remaking\\_financial\\_services\\_risk\\_management\\_five\\_years\\_after\\_the\\_crisis/\\$FILE/Remaking\\_financial\\_services\\_risk\\_management\\_five\\_years\\_after\\_the\\_crisis.pdf](http://www.ey.com/Publication/vwLUAssets/Remaking_financial_services_risk_management_five_years_after_the_crisis/$FILE/Remaking_financial_services_risk_management_five_years_after_the_crisis.pdf)
- EY. (2014a). *Assessing Risk Culture — Questions Firms Should Be Asking*. Retrieved from [http://www.ey.com/Publication/vwLUAssets/EY\\_-\\_Key\\_elements\\_of\\_a\\_sound\\_risk\\_culture/\\$FILE/EY-Exec-Briefing-Assessing-risk-culture-Jan-2014.pdf](http://www.ey.com/Publication/vwLUAssets/EY_-_Key_elements_of_a_sound_risk_culture/$FILE/EY-Exec-Briefing-Assessing-risk-culture-Jan-2014.pdf)
- EY. (2014b). *Risk Culture: Meeting Regulatory Expectations and Assessing Culture*. Retrieved from [http://www.ey.com/Publication/vwLUAssets/EY-Building-a-strong-risk-culture/\\$FILE/EY-GRN-Executive-Briefing-Risk-culture-June-2014.pdf](http://www.ey.com/Publication/vwLUAssets/EY-Building-a-strong-risk-culture/$FILE/EY-GRN-Executive-Briefing-Risk-culture-June-2014.pdf)
- FSB, F. S. B. (2014). *Guidance on Supervisory Interaction with Financial Institutions on Risk Culture*. London, UK. Retrieved from <http://www.fsb.org/wp-content/uploads/140407.pdf>
- Gottwald, W. D., & Mensah, G. K. (2016). Enterprise Risk Management: Factors Associated with Effective Implementation. *Risk Governance & Control: Financial Markets & Institutions*, 6(4), 175–206. <https://doi.org/10.1017/CBO9781107415324.004>
- Greenberg, J. (2011). *Behaviour in Organisations*: (10th ed.). Essex, UK: Pearson Education Limited.
- Gupta, P. K. (2011). Risk Management in Indian Companies: EWRM Concerns and Issues. *The Journal of Risk Finance*, 12(2), 121–139. <https://doi.org/10.1108/15265941111112848>
- Hair, J. F. J., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2017). *A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM)* (2nd ed.). Thousand Oaks, CA: Sage Publications, Inc.
- Hallowell, M. R., Molenaar, K. R., & Fortunato, B. R. (2013). Enterprise Risk Management Strategies for State Departments of Transportation. *Journal of Management in Engineering*, 114–122. [https://doi.org/10.1061/\(ASCE\)ME.1943-5479.0000136](https://doi.org/10.1061/(ASCE)ME.1943-5479.0000136)
- Hofstede, G. (2011). Dimensionalizing Cultures: The Hofstede Model in Context. *Online Readings in*

- Psychology and Culture*, 2(1), 1–26. <https://doi.org/http://dx.doi.org/10.9707/2307-0919.1014>
- Hopkin, P. (2017). *Fundamentals of Risk Management: Understanding, Evaluating and Implementing Effective Risk Management* (4th ed.). London, UK: Kogan Page Limited.
- Hoyt, R. E., & Liebenberg, A. P. (2011). The Value of Enterprise Risk Management. *Journal of Risk and Insurance*, 78(4), 795–822. <https://doi.org/10.1111/j.1539-6975.2011.01413.x>
- Hoyt, R. E., & Liebenberg, A. P. (2015). Evidence of the Value of ERM. *Journal of Applied Corporate Finance*, 27(1), 1–9. Retrieved from <http://eds.b.ebscohost.com/eds/pdfviewer/pdfviewer?vid=3&sid=53e4dfb0-3246-4286-91d5-20c6aa4faafc%40sessionmgr103>
- Ingram, D., Underwood, A., & Thompson, M. (2014). Risk Culture, Neoclassical Economics and ERM. In *Enterprise Risk Management Symposium* (p. 12). Retrieved from <https://www.soa.org/globalassets/assets/files/resources/essays-monographs/2014-erm-symposium/mono-2014-erm-ingram.pdf>
- IRM. (2012). *Risk Culture: Under the Microscope Guidance for Boards*. <https://doi.org/10.1057/9781137263728>
- IRM, I. of R. M., AIRMIC, T. A. of I. and R. M., & ALARM, T. P. R. M. A. A Risk Management Standard (2002). Retrieved from [www.theirm.org](http://www.theirm.org)
- Irzan, I., Nik, M. N. A. R., Mohamad, A. H. M., & Fazli, I. (2012). Assessing Employee Affective Commitment as a Mediator on the Relationship Between Risk Assessment and Effective Enterprise Risk Management (ERM). *Journal of Business and Policy Research*, 7(3), 60–77. Retrieved from [http://s3.amazonaws.com/academia.edu.documents/7563408/423-irzan.pdf?AWSAccessKeyId=AKIAIWOWYYGZ2Y53UL3A&Expires=1501643445&Signature=8POqL9T0ivsT86JqMq1%2F1R6qUIY%3D&response-content-disposition=inline%3Bfilename%3DASSESSING\\_EMPLOYEE\\_AFFECTIVE\\_COMMITMEN](http://s3.amazonaws.com/academia.edu.documents/7563408/423-irzan.pdf?AWSAccessKeyId=AKIAIWOWYYGZ2Y53UL3A&Expires=1501643445&Signature=8POqL9T0ivsT86JqMq1%2F1R6qUIY%3D&response-content-disposition=inline%3Bfilename%3DASSESSING_EMPLOYEE_AFFECTIVE_COMMITMEN)
- ISO, I. O. for S. (ISO 31000) Risk Management: Principles and guidelines (2009).
- Izah, M. T., & Ahmad, R. R. (2011). The Relationship between ERM and Firm Value: Evidence from Malaysian Public Listed Companies. *International Journals Economics and Management Science*, 1(2), 32–41. Retrieved from <https://sriv.pw/fuhez-w.pdf>
- Jackson, P. (2015). Understanding Risk Culture and Its Challenges. *Banking Perspective*, 48–54. Retrieved from [http://www.ey.com/Publication/vwLUAssets/EY-understanding-risk-culture-and-its-challenges/\\$FILE/EY-understanding-risk-culture-and-its-challenges.pdf](http://www.ey.com/Publication/vwLUAssets/EY-understanding-risk-culture-and-its-challenges/$FILE/EY-understanding-risk-culture-and-its-challenges.pdf)
- Kenwood, P. A., & Rafferty, P. D. (2017). Exploring the Culture of Risk-Awareness Among the Professoriate: The Implementation of Enterprise Risk Management in Higher Education. *Journal of Higher Education Management*, 32(1), 243–256. Retrieved from [http://www.aaua.org/journals/pdfs/JHEM\\_32-1\\_2017\\_FINAL.pdf#page=155](http://www.aaua.org/journals/pdfs/JHEM_32-1_2017_FINAL.pdf#page=155)
- Lam, J. C. (2014). *Enterprise Risk Management: From Incentives to Controls* (2nd ed.). Hoboken, NJ: John Wiley & Sons, Inc.
- Levy, C., Krivkovich, A., Ouali, M. E., & Graf, J. (2015). Managing the People Side of Risk – Risk Culture Transformation. *Global Risk Practice*, (March), 1–4. Retrieved from <https://www.mckinsey.com/business-functions/risk/our-insights/managing-the-people-side-of-risk>
- Liu, J. Y., Low, S. P., & He, X. (2011). Current Practices and Challenges of Implementing Enterprise Risk Management in Chinese Construction Enterprises. *The International Journal of Construction Management*, 11(4), 49–63. <https://doi.org/10.1080/15623599.2011.10773178>
- Liu, J. Y., Zou, P. X. W., & Gong, W. (2013). Managing Project Risk at the Enterprise Level: Exploratory Case Studies in China. *Journal of Construction Engineering and Management*, (September), 1268–1274. [https://doi.org/10.1061/\(ASCE\)CO.1943-7862.0000717](https://doi.org/10.1061/(ASCE)CO.1943-7862.0000717)
- Lloyd-walker, B. M., Mills, A. J., & Walker, D. H. T. (2014). Enabling construction innovation: the role of a no-blame culture as a collaboration behavioural driver in project alliances. *Construction Management and Economics*, 32(3), 229–245. <https://doi.org/10.1080/01446193.2014.892629>
- Low, S. P., Liu, J., & He, S. (2009). External Risk Management Practices of Chinese Construction Firms in Singapore. *KSCE Journal of Civil Engineering*, 13(2), 85–95. <https://doi.org/10.1007/s12205-009-0085-9>
- Low, S. P., Liu, J. Y., Ng, S. H. M., & Liu, X. (2013). Enterprise Risk Management and the Performance of Local Contractors in Singapore. *The International Journal of Construction Management*, 13(2), 27–41. Retrieved from

- [http://www.bre.polyu.edu.hk/ijcm\\_Abstract/2013/13V13I2\\_Abtract/Abstract\\_IJCM\\_Vol13\\_No2\\_Chapter\\_3.pdf](http://www.bre.polyu.edu.hk/ijcm_Abstract/2013/13V13I2_Abtract/Abstract_IJCM_Vol13_No2_Chapter_3.pdf)
- McConnell, P. J. (2013). A Risk Culture Framework for Systematically Important Banks. *Journal of Risk and Governance*, 3(1), 24–67. Retrieved from [https://www.academia.edu/5188510/A\\_RISK\\_CULTURE\\_FRAMEWORK\\_FOR\\_SYSTEMICALLY\\_IMPORTANT\\_BANKS](https://www.academia.edu/5188510/A_RISK_CULTURE_FRAMEWORK_FOR_SYSTEMICALLY_IMPORTANT_BANKS)
- Mcging, S., & Brown, A. (2014). Risk Culture Leadership, Measurement & Management: A Comparison Across Industries. In *Actuaries Institute Financial Services Forum* (p. 29). Retrieved from <https://www.actuaries.asn.au/Library/Events/FSF/2014/BrownMcGing.pdf>
- McShane, M. K., Anil, N., & Rustambekov, E. (2011). Does Enterprise Risk Management Increase Firm Value? *Journal of Accounting, Auditing & Finance*, 26(4), 641–658. <https://doi.org/10.1177/0148558X11409160>
- Mikes, A. (2009). Risk Management and Calculative Cultures. *Management Accounting Research*, 20(1), 18–40. <https://doi.org/10.1016/j.mar.2008.10.005>
- Mikes, A., & Kaplan, R. S. (2014). *Towards a Contingency Theory of Enterprise Risk Management*. Harvard Business School. <https://doi.org/10.2139/ssrn.2311293>
- Mohd, A. bin K., Asmah, A. A., & Isahak, K. (2011). *Enterprise Risk Management in Malaysia: A Study of the Status of Implementation, the Role of Internal Audit and The Impact on Organisational Performance* (1st ed.). Germany: LAP LAMBERT Academic Publishing GmbH & Co. KG.
- Muralidhar, K. (2010). ERM in The Middle East Oil Industry: An Empirical Investigation Across GCC Countries. *International Journal of Energy Sector Management*, 4(1), 59–86. <https://doi.org/10.1108/17506221011033107>
- Pagach, D., & Warr, R. (2010). *The Effects of Enterprise Risk Management on Firm Performance*. Unpublished Paper. Retrieved from [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=1155218](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1155218)
- PMI, P. M. I. (2013). *A Guide to Project Management Body of Knowledge. A Guide to the Project Management Body of Knowledge (PMBOK Guide)* (5th ed.). United States of America. <https://doi.org/10.1007/s13398-014-0173-7.2>
- Protiviti. (2014). *Establishing and Nurturing an Effective Risk Culture*. Retrieved from [https://www.protiviti.com/sites/default/files/united\\_states/insights/cro-series4-establishing-and-nurturing-an-effective-risk-culture-protiviti.pdf](https://www.protiviti.com/sites/default/files/united_states/insights/cro-series4-establishing-and-nurturing-an-effective-risk-culture-protiviti.pdf)
- Protiviti, & RMA. (2014, January). Risk Culture From Theory To Evolving Practice. *The Risk Management Association Journal*, 24–26. Retrieved from [www.rmahq.org](http://www.rmahq.org)
- PwC. (2012). *The Risk Culture Survey*.
- Rao, A., & Marie, A. (2007). Current Practices of ERM in Dubai. *Management Accounting Quarterly*, 8(3), 14. <https://doi.org/10.1057/palgrave.rm.8250031>
- Roeschmann, A. Z. (2014). Risk culture: What it is and how it affects an insurer's risk management. *Risk Management and Insurance Review*, 17(2), 277–296. <https://doi.org/10.1111/rmir.12025>
- Rohit, D., & Webster, F. E. (1989). Organisational culture and marketing: defining the research agenda. *Journal of Marketing*, 53(1), 3–15. <https://doi.org/10.2307/1251521>
- Rossiter, C. (2001). Risk culture - up close and personal. *CA Magazine*, 45-46,50.
- Sax, J., & Torp, S. S. (2015). Enhancing risk performance with enterprise risk management, leadership style and employee voice. *Management Decision*, 53(7), 26. Retrieved from <http://www.emeraldinsight.com/doi/full/10.1108/MD-10-2014-0625>
- Schein, E. H. (1999). *The Corporate Culture Survival Guide*. San Francisco, CA: Jossey-Bass, Inc.
- Schoenfeld, D. (2013). *Organisational Risk Culture: Differences between Managerial Expectations and Employees Perception*. University of Gloucestershire. Retrieved from [http://eprints.glos.ac.uk/2260/1/Schoenfeld\\_Denise\\_Risk\\_Culture\\_Thesis\\_28052014\\_Redacted\\_signature\\_only.pdf](http://eprints.glos.ac.uk/2260/1/Schoenfeld_Denise_Risk_Culture_Thesis_28052014_Redacted_signature_only.pdf)
- Sekaran, U., & Bougie, R. (2013). *Research Methods for Business: A Skill-Building Approach* (6th ed.). West Sussex, UK: John Wiley & Sons Ltd.
- Twining, J., Levy, C., & Lamarre, E. (2010). *Taking Control of Organizational Risk Culture* (No. 16). McKinsey & Company. Retrieved from <http://www.mckinsey.com/business-functions/risk/our-insights/taking-control-of-organizational-risk-culture>
- Waweru, N., & Kisaka, E. (2013). The Effect of Enterprise Risk Management Implementation on the Value of Companies Listed on the Nairobi Stock Exchange. *Journal of Applied Finance & Banking*,

3(3), 81–105. Retrieved from  
[http://www.scienpress.com/journal\\_focus.asp?main\\_id=56&Sub\\_id=IV&Issue=606](http://www.scienpress.com/journal_focus.asp?main_id=56&Sub_id=IV&Issue=606)  
Zhao, X., Hwang, B. G., & Low, S. P. (2013). Critical Success Factors for Enterprise Risk Management in Chinese Construction Companies. *Construction Management & Economics*, 31(12), 1199–1214.  
<https://doi.org/10.1080/01446193.2013.867521>