



Alignment of ERM with Performance Management:  
The case study of Automotive Industry

A thesis submitted for the degree of Doctor of Philosophy

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## **Abstract**

This research explores the evolution of risk management practices, from traditional to enterprise risk management (ERM), in Iran's automotive industry. It also investigates the alignment of ERM and performance management, and their mutual impact. Academic and industry studies reveal that throughout recent decades there has been an increasing interest into ERM development and its alignment with performance management. However, despite the increase in ERM adoption over recent years, ERM is still in the early stages of implementation and requires further research and development. Moreover, a literature review revealed that the literature in respect of the alignment of ERM with performance management is limited and those existing are mostly of a visionary nature and lack practical implementation. Therefore, the gap identified through the literature review led to the development of a theoretical framework within this research, exploring the main organisational elements significant to the effective alignment of ERM and performance management and its implementation, which will provide practitioners and academics with practical guideline regarding such alignment.

This research was completed through two empirical stages within the context of automotive industry. The primary data were collected and analysed through a mixed methods approach: 30 semi-structured interviewees were conducted with senior managers within the automotive industry (Qualitative). In the second stage, automotive industry professionals' responses were gathered from 101 survey questionnaires (Quantitative).

The theoretical and empirical findings of this research confirm that in the recent decades, risk management has been evolving and transforming from its traditional approach to a strategic foundation, leading organisations towards competitive advantage and value creation. This research also indicates that aligning ERM with organisational performance management is critical in establishing a sustainable ERM and enhancing business performance over time.

Based on the empirical findings of this research supported by theoretical findings, a lack of support from senior managers for effective ERM implementation and its alignment with performance management is considered as one of the significant challenges of sustainable

ERM. In addition, a lack of ERM infrastructure and shareholders' poor understanding of ERM remains as challenging factors in aligning ERM with performance management.

To the Researcher's best of knowledge, there is very limited literature into alignment of ERM and performance management in automotive industry. Therefore, this research's main contribution to the body of knowledge is the development of an effective framework for automotive industry, aligning ERM with organisational performance management, along with guidance for its implementation in practice.

The key limitation associated with this research is that, due to complexity of ERM and its incorporation with other management functions and various organisational elements in the developed framework (Chapter 7, Section 7-1), it might be difficult somewhat to manage at the beginning of the framework adoption. It should be emphasised that the framework has been developed for those organisations that have a good understanding of ERM principles. So, this limitation might apply to those with inadequate knowledge of ERM.

In addition, the developed aligning framework addresses the challenges and concerns of automotive industry organisations in aligning ERM with performance management. Applying this research in other sectors and industries provides the opportunity to investigate the potential changes and/or collaboration of certain elements of the framework based on the business area that the organisation operates in.

The Researcher recommends further investigation into intangible organisational factors, such as how critical ERM culture could be effective in alignment of ERM with performance management. Moreover, the Researcher recommends that as ERM is growing quickly, future studies should continue to reveal and correlate new factors into the current framework. It is further recommended that future researchers could attempt to measure the benefits as well as the shortcomings associated with implementation of the aligning framework. This enables management with in organisations to improve the framework's advantage and to attempt to overcome its limitations.

Research key words: ERM, Performance Management, Alignment

## **Dedication**

To my wonderful parents (Dr Mir Mohammad Matin and Mahnaz Matin) for their everlasting love and endless support. Completing my PhD journey without their prayers and support would have not been possible.

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I would also like to thank Brunel University for giving me the opportunity to carry out this research, and academic and administrative team at Business School for providing needed support through my study.

## **Declaration**

I, Seyedeh Mandana Matin, hereby declare that this PhD thesis is entirely based on my own research. I further declare that the contents contained in this thesis have not been previously submitted for any other qualification.

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## Abbreviations

|       |                                                                  |
|-------|------------------------------------------------------------------|
| BOD   | Board of directors                                               |
| BSC   | Balanced scorecard                                               |
| BSI   | British Standards Institute                                      |
| CDO   | Collateralised debt obligation                                   |
| CEO   | Chief executive officer                                          |
| CFO   | Chief financial officer                                          |
| CORR  | Correlation                                                      |
| COSO  | Committee of Sponsoring Organizations of the Treadway Commission |
| CRO   | Chief Risk Officer                                               |
| df    | Degree of freedom                                                |
| E&Y   | Ernst & Young                                                    |
| ERM   | Enterprise risk management                                       |
| GARP  | Global Association of Risk Professionals                         |
| GFC   | Global financial crisis                                          |
| IMA   | Institute of Management Accounting                               |
| IRM   | Institute of Risk Management                                     |
| ISO   | International Organisation for Standardisation                   |
| IT    | Information technology                                           |
| KPI   | Key performance indicator                                        |
| KRI   | Key risk indicator                                               |
| PDCA  | Plan, do, check, and act                                         |
| PM    | Performance management                                           |
| RIS   | Risk infrastructure system                                       |
| RIMS  | Risk Management Society 19                                       |
| RM    | Traditional risk management                                      |
| RMA   | Risk Management Association                                      |
| S&P   | Standard and Poor's                                              |
| SMART | Specific, measurable, achievable, realistic and timed objectives |

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SNZ Standards New Zealand  
SPSS Statistical Package for the Social Sciences  
USA United States of America

## Chapter 1: Introduction

### 1.1 Background

The recent financial crisis around the world has raised questions on how to manage adverse events that may jeopardise organisational performance. Therefore, organisations have focused their attention on transforming their current risk management practice to an effective risk management approach (Beasley and Frigo, 2010; Aven, 2010; Sadgrove, 2016).

Over the last decade, organisations have changed their view of risk management and are taking a holistic view of risk management rather than looking at risks from a silo-based perspective (Aven, 2010). This holistic approach is called Enterprise Risk Management (ERM) (Gordon *et al.*, 2009). Several frameworks and approaches of ERM – such as: COSO, 2004; ISO 31000, 2009; and Australia/New Zealand Standard 4360, 2004 – were developed with the purpose of helping organisations to manage their risk more effectively. So, ERM has appeared as an approach that attempts to prevail over the limitations of traditional risk management (McKinsey, 2010; Quon *et al.*, 2012; Padro, 2015).

Furthermore, recently attentions have been drawn to the alignment between ERM and performance management (Hoyt and Liebenberg, 2011). Some researchers argue that risk management helps organisations to achieve their goals and create the maximum value for their shareholders (Mikes, 2005; Beasley *et al.*, 2008; Hoyt and Liebenberg, 2011); other researchers discuss that the main target of ERM is to reduce the likelihood of financial disaster. As financial crisis effects business performance, adopting ERM helps organisations to manage all the probabilistic risks and deal with uncertainties while moving toward profit making and economic growth (Paladino *et al.*, 2009; Pegach and Warr, 2011; Quon *et al.*, 2012). The following section considers the initial problems identified through this research regarding organisational risk and performance management.



## 1.2 Research problem

The loss of trillions of dollars in global assets in recent years has focused minds on the importance of risk management. The financial and economic crisis has indicated that a failure in aligning risk management with performance management leaves businesses to flounder in uncertainty (Pegach and Warr, 2010; Hoyt and Liebenberg, 2011; Grace *et al.*, 2015). Nowadays, knowledge regarding the integration between ERM and performance management is rising. Managers of many organisations believe that ERM and performance management are two vital management functions within any organisation and that their alignment is necessary to enabling the organisation to perform effectively and to creating value for its shareholders (Beasley *et al.*, 2008; Hoyt and Liebenberg, 2011). Both ERM and performance management are designed to lead organisations in the right direction and support them to reach their targets and gain success: ERM through identifying and managing those risks that threaten to prevent the organisation from attaining its objectives, and performance management through continual monitoring of those tasks and plans that are accomplished with the aim of achieving organisations goals and objectives (Pegach and Warr, 2010; Hoyt and Liebenberg, 2011). In the other words, aligning ERM with performance management ensures managers that the strategic objectives of their organisation are being met efficiently. However, despite this knowledge, so far, limited organisations have executed the alignment of ERM and performance management in practice. Indeed, although organisations identify the importance of alignment between organisational risk and performance, a gap between awareness and action remains. The following sections (1.3, 1.4, 1.5 and 1.6) discuss this research's aims, objectives, questions and the methodology used for the literature review and data collection.

## 1.3 Research aims

The aims of this research are:

1- To explore the alignment between ERM and performance management in Iran automotive industry.

2- To develop a framework for the effective alignment of ERM and performance management, supported by practical guidance and recommendations for academics and practitioners, aiming at enhancing organisations' performance management.

#### **1.4 Research objectives**

In order to attain this research's aims, the following objectives have been defined by the Researcher:

1- To review various definitions of ERM and performance management and to define a more efficient definition of them.

2- To conduct an in-depth, both general and specific (automotive industry) literature review, and to evaluate existing ERM and performance management frameworks along with their strengths and weaknesses.

3- To investigate the benefits, barriers, and challenges of existing approaches regarding alignment of ERM and performance management in automotive industry of Iran.

4- To explore senior managers' knowledge on ERM and its impact on performance management, and to investigate the importance of their involvement in implementing the alignment between ERM and performance management.

5- To validate the framework aligning ERM with performance management, and discuss its potential benefits and limitations.

#### **1.5 Research questions**

1- Are current ERM approaches of Iran's automotive industry aligned with performance management? If yes, how? If not, why?

- 2- What are the barriers and challenges of aligning ERM with performance management in Iran's automotive industry?
- 3- What are the organisational elements critical for Iran's automotive industry in ERM's alignment with performance management? How they are incorporated into the alignment framework?
- 4- How does aligning ERM with performance management lead to long-term sustainability, competitive advantage, and enhanced organisational performance in Iranian automaker organisations?
- 5- How critical is the role of senior managers in the effective implementation of ERM and its alignment with performance management?

## 1.6 Methodology

Due to increasing complexity in contemporary management matters, it is becoming more challenging to identify the most suitable research methodology (Walliman, 2005). This section discusses the research methodology of this research, which is discussed in more depth in Chapter 4.

According to Bryman and Bell (2007) and Gray (2013), there are two main approaches for academic researches, which are inductive and deductive. The inductive approach starts with specific observations, followed by pattern identification and hypotheses formulation, and terminates by formulating conclusions. The inductive approach normally employs a qualitative method, which is more suitable for the current research. So, the Researcher has adopted inductive methodology for the purpose of this research. Conversely, a deductive approach begins with the germination of a theory, followed by narrowing the theory to a particular hypothesis; the collection of observations then leads to hypothesis acceptance or rejection, and consequently to confirm or contest the original theory. Deductive reasoning

usually is associated with quantitative methods (Bryman and Bell, 2007; Gray, 2013). These two research methods are discussed further in Chapter 4.

The nature of this research is qualitative as it interprets a phenomenon (ERM and performance management alignment) by asking “what, why and how” questions about human behaviour. Indeed, this research investigates why or why not organisations have aligned their ERM and performance management, how this alignment could be achieved, and what are the benefits of this alignment. However, mixed method data collection (interview and questionnaire) is adopted for the purpose of the data collection, performing interviews as the main approach, with questionnaires to support and validate the interviews.

In order to achieve the research’s aims and objectives by using qualitative methodology, relevant articles, books and journals have been reviewed. For the primary part of the research several interviews were conducted (with interviewees whose work is relevant to ERM of the selected organisation, which is in the context of Iran’s automotive industries). In addition, accessible existing reports and documents about the subject organisations’ risk management and performance were reviewed. In the following, Table 1-1 presents the perspective of this research’s methodology.

Table 1-1: Outline of this research’s methodology

| <u>Desk research</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | <u>Field research</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>• Review different definitions of ERM and performance management and define a better definition of them.</li> <li>• Conduct an in-depth review on both general and specific literature and industry reports.</li> <li>• Investigate the impact and benefits of risk management on organisational performance by reviewing the existing literature.</li> <li>• Review and analyse extant frameworks of ERM and performance management to achieve an effective new framework that satisfies the alignment between ERM and performance management.</li> </ul> | <ul style="list-style-type: none"> <li>• Investigate the view of boards, senior managers, experts, and professionals regarding the alignment of ERM and performance management through the analysis of both qualitative (interviews) and quantitative data (questionnaires).</li> <li>• Validate the framework of aligning ERM with performance management, its strengths and limitations.</li> <li>• Provide executives and practitioners with recommendations on the influence of ERM on performance management.</li> <li>• Provide automotive industry executives and academia with guidance in aligning ERM and performance management in practice.</li> </ul> |

Source: The Researcher

Table 1-1 shows the foci of the field and desk research. The desk research’s focus is on collating and reviewing relevant published studies from academic and industry journals, articles and books and consequently forming a baseline to develop a theoretical framework of aligning ERM with performance management (Creswell, 2003). Whereas, the field research includes the undertaking of empirical investigation collected from verbal material (qualitative research) and written data (quantitative study) (Walonick, 1993; Creswell, 2003). The empirical part of this research is accomplished in cooperation with relevant risk professionals in automotive industries. The data are collected through qualitative interviews and quantitative surveys, as the Researcher has adopted mixed data collection and analysis methods. Chapters 6 and 7 of this research analyse this research’s findings, and link them with outcomes of literature review (existing academic and industry studies and contributions, surveys and case studies), in order to produce a good quality practice in ERM and performance management.

### 1.7 Thesis outline

This thesis contains nine chapters and is divided into two parts, distinguishing theoretical and practical research. Table 1-2 below, shows this thesis’s outline.

Table 1-2: Outline of the thesis

| Desk research                                              |   | Field research                                       |
|------------------------------------------------------------|---|------------------------------------------------------|
| Chapter 1: Introduction                                    |   | Chapter 5: Qualitative data collection and analysis  |
| Chapter 2: General and specific literature review          |   | Chapter 6: Quantitative data collection and analysis |
| Chapter 3: Literature evaluation and framework development | ⇒ | Chapter 7: Discussion                                |
| Chapter 4: Research methodology                            |   | Chapter 8: Conclusions and recommendation            |

Source: The Researcher

Part one of the thesis includes five chapters belonging to theoretical research.

Chapter 1: Introduction; focuses on challenges of ERM, the research’s aims, objectives and contribution, and discusses the research’s methodology and structure briefly.

Chapter 2:

- General literature review; identifies the definition of ERM and performance management, considers traditional risk management’s evolution to ERM, and discusses the benefits of ERM. Moreover, several ERM and performance management approaches are reviewed in this chapter, along with their strength and shortcomings.

-Research case study; explores the state of ERM, performance management, and their alignment in emerging market countries, as the case study of this research is the automotive industry of Iran (an emerging market country).

Chapter 3: Literature evaluation; evaluates the approaches of ERM and performance management as discussed in Chapters 2 and 3, and explores their strengths and shortcoming. This chapter develops a theoretical framework aligning ERM with performance management,

which is proposed in order to fill the gap in the extant literature and to increase organisational performance.

Chapter 4: Research methodology; discusses the methodology chosen for this research, and explains the challenge and advantages of selecting each research method. This chapter presents the research design and discusses the procedure of data collections and analysis.

Part two includes four chapters related to empirical research.

Chapter 5: Qualitative data collection and analysis; reports the data collected and analysed from interviews carried out with top and senior managers of Iran's automotive industry.

Chapter 6: Quantitative data collection and analysis; focuses on the data gathered and analysed through survey questionnaires.

Chapter 7: Discussion; uses the findings of this research (Chapters 6 and 7) to validate the framework of aligning ERM with performance management.

Chapter 8: Conclusions and recommendations; discusses the research in summary, explains the Researcher's contributions in this research. This chapter moreover, discusses the research's limitations, draws conclusions and makes recommendations for future studies in this field.

### 1.8 Thesis structure

The structure of this research's chapters is shown in Figure 1-1 below.

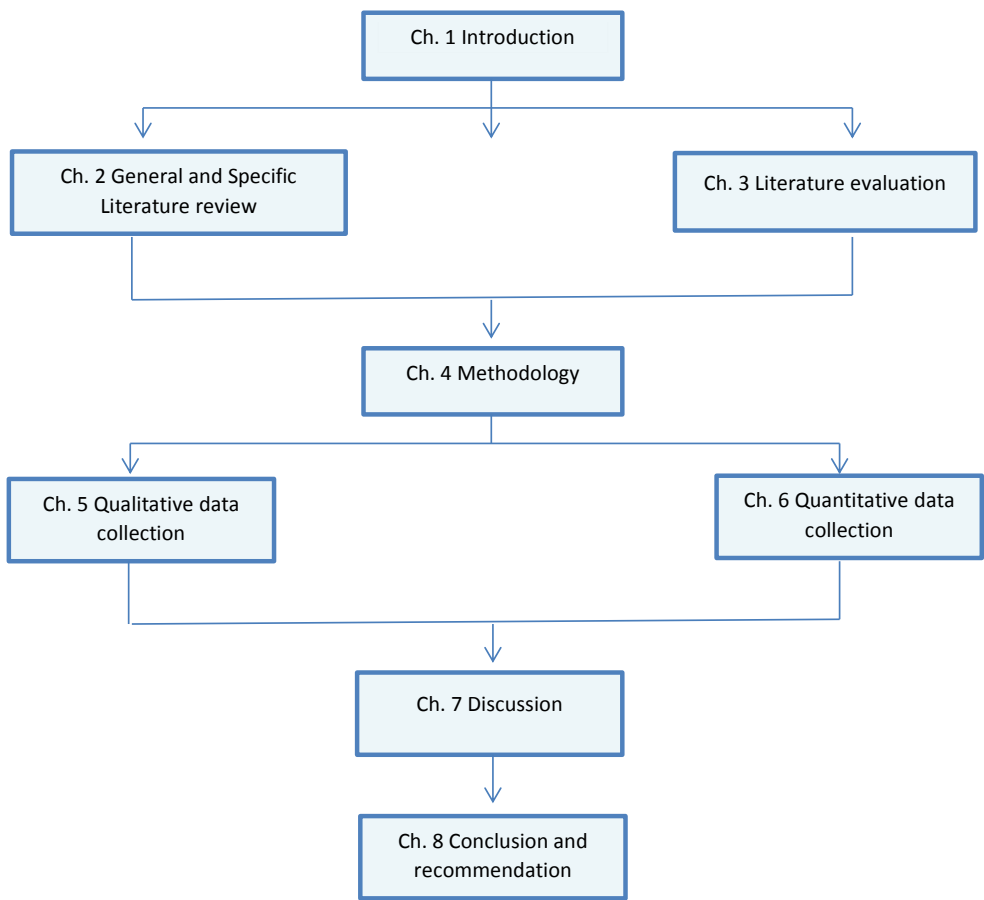


Figure 1-1: Structure of the thesis  
Source: The Researcher



## Chapter 2: Literature review

### 2.1 Introductions

As ERM is a relatively new approach that has drawn attention to the more effective management of risks, most of the academic studies on ERM have been published within the last two decades. Therefore, the present chapter focuses on the studies from the 1990s to the present about ERM and its alignment with performance management. As there has been progressive interest in industries about ERM and its implementation, the scope of this research includes industry journals as well as academic resources. The academic literature has benefitted greatly from empirical data and practical experience of ERM implementation shared by industry researches (Fraser and Henry, 2007).

This research argues on the necessity of developing an alignment framework that aligns ERM with performance management. This chapter reviews the key literature contributions by researches within both academia and industry on ERM and performance management in order to investigate the alignment between enterprise risk management and performance management (which is one of the aims of this research). In respect of this, an understanding of ERM and performance management definitions, a review of the different frameworks of ERM and performance management, and an exploration of the mutual effect of ERM and performance management are required. This chapter comprises a discussion of the relevant literature and industry researches on ERM and performance management along with ERM and performance management frameworks and tools.

In the following, Section 2.2 and its subsections (2.2.1, 2.2.2, and 2.2.3) review the definition of ERM, discuss the difference between ERM and traditional risk management, and assess the importance of ERM. Moreover, the most common frameworks and standards of ERM (COSO, ISO 31000, Australia/New Zealand Standard 4360) and the key risk indicators (KRI) along with their strength and weaknesses are discussed. The evaluation of ERM approaches is presented within Chapter 3.

## 2.2 ERM

Through last decade, researchers have expanded their knowledge on risk management and organisations have changed their view of risk management and taken a holistic view of their risks rather than looking at them from a silo-based perspective. This holistic approach is called Enterprise Risk Management (ERM) (Gordon *et al.*, 2009). In 1992 the Committee of Sponsoring Organisations of the Treadway Commission (COSO) developed a framework of ERM in order to respond to organisations' need to design and implement an effective approach to managing their risks; ERM appeared as a concept that attempts to prevail over the limitations of traditional risk management (McShane *et al.*, 2011).

In recent years, external factors such as uncertainties and economic crisis have caused huge financial losses for organisations, leading them to pay greater attention to their risk management (Quinn, 2009; Hoyt and Liebenberg, 2011; Deloach, 2011; Sadgrove, 2016). Board of directors and senior managers have realised the necessity for an accurate view of their organisations, and for continual reporting on the efficiency of their risk management processes (Quinn, 2009; Kloman, 2010). As a result, the shortcomings of traditional risk management have led organisations to seek a new and effective approach with the aim of managing their organisational risks more effectively (Quinn, 2009; Hoyt and Liebenberg, 2011; McNally, 2013).

### 2.2.1 ERM definition

Lam (2000) defines ERM as “*an integrated framework for managing credit risk, market risk, operational risk, economic capital, and risk transfer in order to maximize firm value*” (Lam, 2000, p. 3). Mikes (2005) defines ERM as an approach of risk managing that considers all organisational risks together and in an ongoing process. Mikes (2005) argues that by managing risk efficiently, organisations will achieve their goals and ultimately create value for their shareholders (Mikes, 2005).

The Institute of Risk Management (IRM) (2002) cites that “*Risk management is a central part of any organisation's strategic management. It is the process whereby organisations methodically address the risks attaching to their activities with the goal of achieving sustained benefit within each activity and across the portfolio of all activities*” (IRM, 2002 p. 2).

Meulbroek (2002) discusses that ERM is a management method that assists an organisation's managers to identify the risks that might affect the organisation's objective achievement, and to manage the risks to create an effective risk management strategy (Meulbroek, 2002). Beasley *et al.* (2005) describe ERM as a discipline that is usable for organisations in any industry to assess, control, exploit and monitor and manage their risk in order to increase the organisation's short and long-term value (Beasley *et al.*, 2005).

Based on Hammond *et al.* (2007) and Bromiley *et al.* (2015), risks generally are viewed as threats. However, if organisations implement an effective approach of risk assessment, they can take many of the risks associated with their organisations as opportunities rather than threats (Hammond *et al.*, 2007). Dix (2008) argues that ERM uses risk as a "main building block" on which to build and manage the organisation (Dix, 2008). ERM helps in risk assessment, the capital requirement in certain scenarios and putting in place processes to deal with these risks (Dix, 2008; Bromiley *et al.*, 2015).

Quinn (2009) and Brustbauer (2016) argue that ERM is a management discipline that attempts to identify, evaluate and manage all the risks faced by an organisation. ERM manages organisations' risks effectively and identifies which risks can be accepted and which must be avoided or mitigated based on organisations' strategic objectives (Quinn, 2009; Brustbauer, 2016).

Beasley and Frigo (2010) and McNally (2013) discuss the difference of traditional risk management and ERM, arguing that in traditional risk management risks are managed in isolation, while ERM considers the effects of the whole organisation's risks on its aim and objectives (Beasley and Frigo, 2010). The purpose of ERM is to enhance the probability of the organisation's objectives achievement and increased shareholder value (Beasley and Frigo, 2010; McNally, 2013).

So, based on several definitions of ERM that discussed above, researchers consider ERM as an approach that identifies controls and manages the risks associated with the achievement of an organisation's aims and objectives. It is argued that implementing an effective ERM will increase organisations' profit making, value creation for shareholders, and long-term sustainability (Beasley *et al.*, 2005; Dix, 2008; Quinn, 2009; Beasley and Frigo, 2010; McNally, 2013; Bromiley *et al.*, 2015; Brustbauer, 2016).

Based on the above definitions, the Researcher defines ERM as a process used by managers to plan, organise and control the activities of their organisation in order to minimize the harm from such risks on their organisation's earning and capital. ERM helps organisations to seize opportunity from risks. This process should include risks associated with financial, strategic, and operational issues. It also should include short-term and long-term objectives.

In the following subsection (2.2.2) the Researcher explores the differences between ERM and traditional risk management and explores the advantage of moving from traditional risk management towards ERM implementation.

### **2.2.2 Difference between ERM and traditional risk management (RM)**

Traditional risk management focuses mostly on reducing the probability of adverse events or financial losses rather than considering risks as potential value adding opportunities (Heal, 2005; Mikes, 2011). At the time that the risk management concept emerged, the global economic was relatively stable and organisations had few concerns about their businesses. However, in the 1970s a massive economic change happened and organisations began to experience more complex risks and volatility exposure (International Monetary Fund [IMF], 2014). By starting the new millennium using a silo-based approach to risk management was no longer an adequate solution for organisations to manage their risk (Lam, 2003; Dickinson, 2005).

In the following, Figure 2-1 illustrates the key reasons for moving from traditional risk management to ERM.

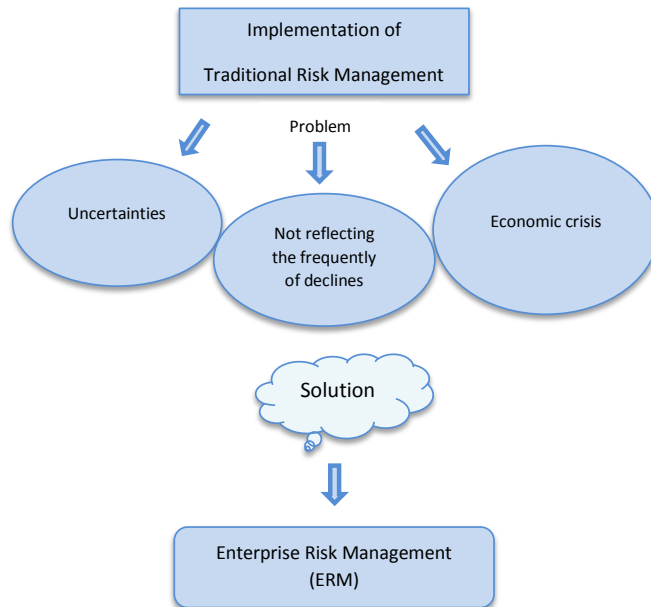


Figure 2-1: From traditional risk management to ERM  
Source: The researcher

At the start of the 2000s, ERM was emerging as a new approach to risk management, with the purpose of overcoming the ineffectiveness of silo-based risk management by generating enterprise-wide consistency (Power, 2009). By evolving risk management from a traditional to an enterprise wide approach, the definition of ERM also changed (Power, 2009; Tysiac, 2012).

According to Beasley and Frigo (2010), traditional risk management and ERM are different. In traditional risk management risks are identified and managed in isolation by managers of various departments within an organisation. This minimises the consideration of how each departments risk management could affect other departments' function (Beasley and Frigo, 2010). However, ERM considers interaction of various organisational risks in order to balance the risk portfolio of an organisation. ERM's aim is to increase the realisation of strategic objectives and ultimately enhance value (Beasley and Frigo, 2010; Lam, 2014).

Mcshane *et al.* (2011) discuss that ERM aims to manage all of an organisation's risks, including those of corporate governance, supply chains, auditing, IT, distribution systems and human resources. Unlike silo-based risk management, ERM endeavours to gain an accurate

understanding of the correlations among risks. ERM's fundamental concept is to gather all risks into a portfolio; ERM is more effective and value increasing than traditional risk management, which deals independently with each risk (Nocco and Stulz, 2006; Mcshane *et al.*, 2011). The following table (2-1) summarises the various opinions of several researchers about the differences between traditional risk management and ERM.

Table 2-1: Differences between ERM and traditional risk management

| Traditional risk management                                                   | ERM                                                                                  |
|-------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| Risk is considered as a silo and individual hazard                            | Holistic and global view of risk                                                     |
| Specific risks are analysed                                                   | All the risks across the organisation are analysed                                   |
| Tactic orientation is applied                                                 | Strategic orientation is applied                                                     |
| Focus on control and minimise risks                                           | Focus on critical risks and competitiveness                                          |
| Disaggregated methods for risk analysis                                       | Aggregated methods                                                                   |
| Risk identification and valuation                                             | Developing risk portfolio                                                            |
| Concentrate on discrete risks                                                 | Concentrate on critical risks                                                        |
| Focus on risk mitigation                                                      | Focus on risk optimisation                                                           |
| Reactive                                                                      | Proactive                                                                            |
| Risks with unknown roots                                                      | Identification of risk's responsible                                                 |
| Risk does not have responsible                                                | Everyone is responsible for the risks                                                |
| Individual risk analysis                                                      | Interdependent risk analysis                                                         |
| Risk aversion based decisions                                                 | Risk intelligence decisions                                                          |
| Lack of coordination among the diverse risk management sections               | Integrated decision making among all risk activities                                 |
| Latency of potential interdependencies of risks among organisation activities | Identification of interdependencies of risks among organisation activities           |
| Duplication of risk management process over time                              | Avoidance of risk management duplication cost by discovering the main roots of risks |

Source: The Researcher

In the following, Subsection 2.2.3 explores the importance of ERM, with reference to several researchers' opinions.

### 2.2.3 Why is ERM important?

During the last decades, several researchers (Lam, 2000; Basley, 2004; Hampton, 2009; Gordon *et al.*, 2009; Fox and Epstein, 2010; Deloach, 2011; Trehan, 2011; Hoyt and Liebenberg, 2011; Ulrey, 2012; McNally, 2013; Lam, 2014; Olson and Wu, 2015) have argued on ERM and its fundamental role in organisational success and sustainability. In this subsection, existing researches on the advantages of ERM implementation are presented.

According to Gordon *et al.* (2009) ERM helps managers to identify and evaluate the risks associated with an organisation's key performance indicators. An effective ERM framework enables managers to assess risk as an opportunity in addition to considering it as an adverse event (Heal, 2005). As the ERM approach identifies, monitors and controls various risks among an organisation, it helps organisations to reduce the cost and time of duplicating risk management processes across different organisational levels (Gordon *et al.*, 2009). Chitakornkijasil (2010) states that ERM enables organisations to manage their costs effectively, it leads to effective market managing in economic and competitive environments and allows organisations to coordinate with investment custodians more effectively, manage their capital, and make wiser decisions (Chitakornkijasil, 2010).

According to Fox and Epstein (2010) and Sadgrove (2016), our world is constantly changing. So, dealing with unmanaged risks is the biggest source of wasted wealth for an organisation. Organisations experience many positive and negative issues during their function while some of these issues are under organisations' control and many of them not. However, not being prepared to deal with unexpected events is harmful for an organisation's sustainability. ERM enables organisations to be aware of probable risks, and prepares managers to deal with upcoming issues (Fox and Epstein, 2010; Sadgrove, 2016).

Hoyt and Liebenberg (2011) argue that as ERM integrates and assesses all risk management activities together, it eases the identification of those potential risks that are unlikely to be discovered in traditional risk management (Hoyt and Liebenberg, 2011).

Deloach (2012) and Bromiley *et al.*, (2015) emphasises on the importance of ERM through discussing various factors that every CEO and board members should consider while managing their risk. Deloach (2012) argues that the market is full of changes and unexpected issues, and that effective risk management secures early movers in the marketplace, therefore

organisations should pay greater attention to the speed of a risk's impact while estimating the risk's probabilities (Deloach, 2012). No matter what managers know about their organisation, it is vital that their risk management method recognises and makes them aware of emerging risks (Deloach, 2012).

Ulrey and Sargent (2013) discuss that an organisation may lack risk communication between their different departments due to varying issues, such as security matters. This mind-set prevents organisations from identifying their strategic risks and, therefore, prevents them from achieving their strategic objectives. Ulrey and Sargent (2013) state that ERM can overcome the lack of risk communication and in doing so will increase consistency and communication about the organisation's risks, providing a framework that engages all members of the organisation and creating opportunities for coordination between all sections and layers in that organisation (Ulrey and Sargent, 2013).

The figure below (2-2) illustrates the benefits and importance of ERM adoption, as mentioned and discussed by the researchers above.



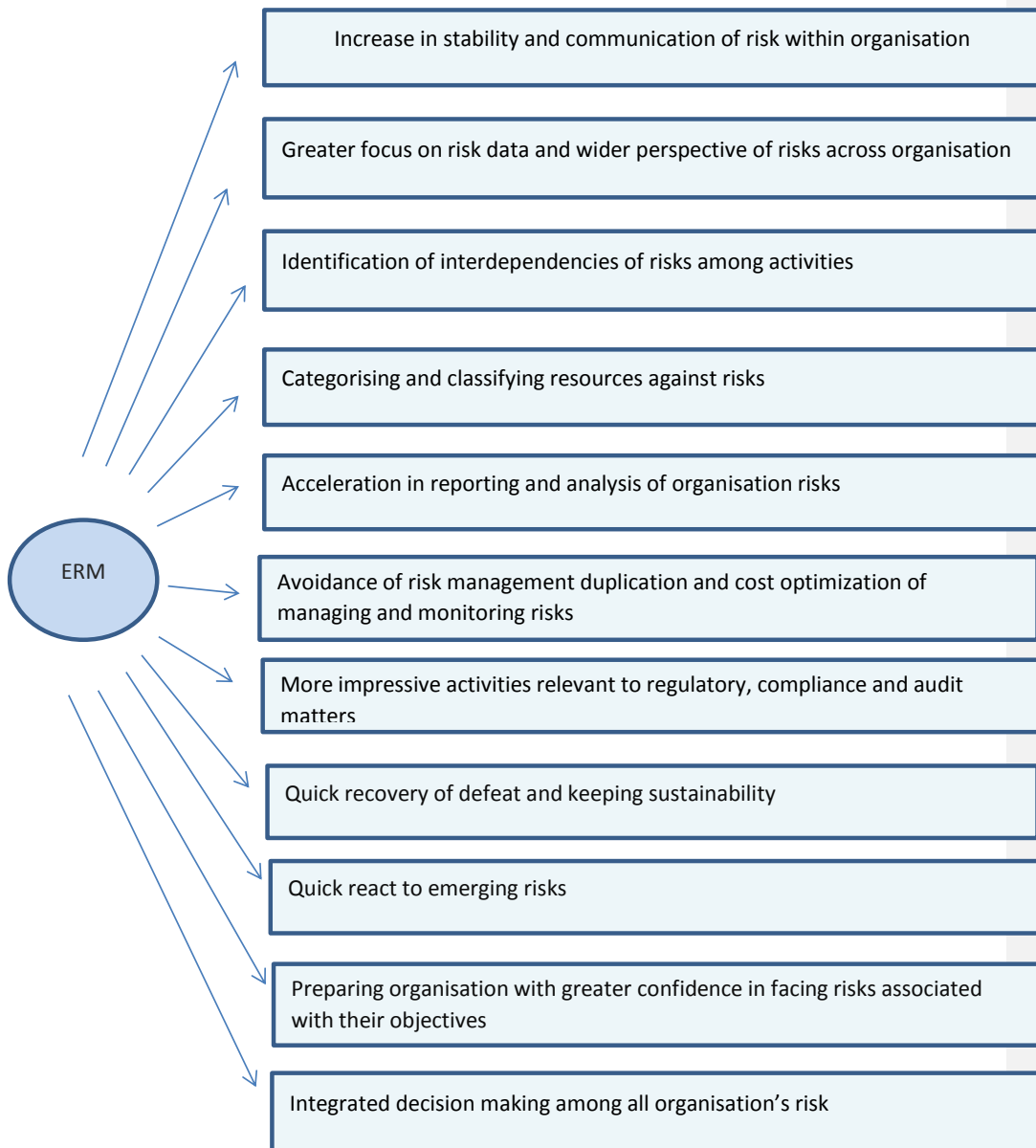


Figure 2-2: Importance of ERM adoption  
Source: The Researcher

Based on several studies (Gordon *et al.*, 2009; Fox and Epstein, 2010; Hoyt and Liebenberg, 2011; Deloach, 2011; Ulrey and Sargent, 2013; Bromiley *et al.*, 2015), the Researcher argues that an effective ERM framework gathers all organisational risks together under one process. This enables the organisation to manage adverse events that may threaten its objectives. The Researcher moreover discusses that ERM helps an organisation to identify the potential opportunities of risk events. ERM enhances risk communication among the organisation and provides all members with a comprehensive perspective of the organisation's goals and objectives; this helps everyone within the organisation to understand the value of their role in the organisation's success and goal achievement. Having a holistic view of an organisation's risks helps board of directors and senior managers to make more effective decisions. In the following, the most common ERM approaches along with their strengths and weaknesses are discussed, while their evaluation is undertaken in Chapter 3.

The next subsection (2.2.4) reviews the content, strength and shortcomings of COSO as one of the common frameworks of ERM.

#### **2.2.4 Committee of Sponsoring Organizations of the Treadway Commission (COSO)**

COSO was developed in 1985 jointly by five major private sector organisations in the United States of America (USA) in order to provide guidance in dealing with three interrelated subjects, one of which is enterprise risk management (ERM). COSO published guidelines regarding the organisation's internal control in (1992), which in (2004) was upgraded to an integrated framework of Enterprise Risk Management, defining ERM as:

*"a process, effected by an entity's board of directors, management and other personnel, applied in strategy setting and across the enterprise, designed to identify potential events that may affect the entity, and manage risks to be within its risk appetite, to provide reasonable assurance regarding the achievement of entity objectives"* (COSO, 2004, p. 2).

COSO's framework became a universal model for the best practice of risk management (Moeller, 2007; Power, 2009).

According to the above definition, an ERM framework does not function effectively in silo structure situations (Branson, 2010). COSO's ERM includes different groups of shareholders,

it not only protects organisations from threats and loss but also increases shareholder values (Branson, 2010). The COSO (2004) framework has stronger risk approach conceptualisation in comparison to the Framework of Internal Control developed in (1992). For instance, COSO (2004) developed a new ERM concept by adding a fourth objective – Strategic. The COSO framework (2004) considers internal control as a part of ERM, it emphasises that organisations should build objectives at the strategic level in order to identify both risks and opportunities that can affect the organisation.

In 2013, COSO developed a new version of internal control – an integrated framework with the purpose of responding to the increasing complexity in businesses and operating environments (McNally, 2013). COSO suggests principles for each of the five elements of internal control “*control environment, risk assessment, control activities, information and communication, and monitoring activities*” (COSO, 2013). COSO (2013) argues that the upgraded version of this framework leads organisations’ managers firstly to identify and deal with the risks more quickly, and secondly to overcome the weaknesses and deficiencies of organisations’ internal controls (McNally, 2013). Figure 2-3 illustrates the evolution of the COSO integrated framework over the past two decades.

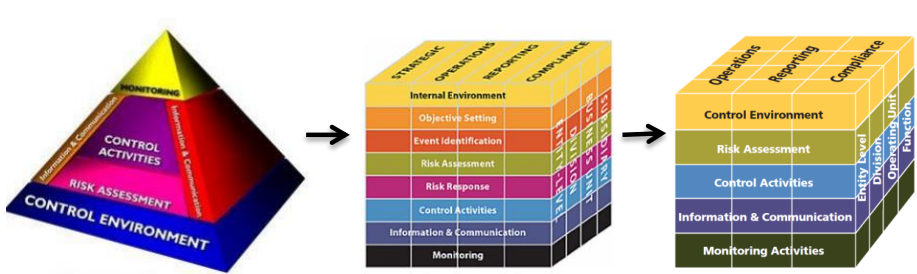


Figure 2-3: Evolution of the COSO ERM “Rubik” cube 1992–2004–2013  
 Source: COSO (1992; 2004; 2013)

As discussed above, COSO is considered as one of the most common and widely used risk management frameworks. However, although several scholars are COSO’s advocates, a number of researchers criticise the COSO framework and argue its weaknesses and shortcomings. The following subsection (2.2.4.1) discusses COSO’s shortcomings.

#### **2.2.4.1 Shortcomings of COSO (1992, 2004) ERM framework**

Although the COSO framework has undergone sequential revisions over the years, unanswered questions on its robustness are still raised by several researchers.

Paape and Spekle (2012) argue that the COSO framework does not support the link between an organisation's risk management and an increase in their business performance. Moreover, Leech (2012) argues that COSO ignores communication and objective setting as important parts of its integrated framework (Leech, 2012).

Samadkhan (2005) identify the lack of COSO's focus on operational risk. Samadkhan (2005) discusses that ERM is a process that identifies potential adverse events and manages organisational risks in maintenance of the organisation's objectives; however, COSO does not control or manage operational risks. Furthermore, Samadkhan (2005) classifies COSO's shortcomings as follows:

- 1- COSO does not have an effective understating of the area of real risk. It might steer organisations to focus and increase their control in some over-controlled areas, while areas with a lack of control may be totally ignored.
- 2- According to the basis of the COSO framework, it is required that all processes within an organisation be assessed constantly and on an annual basis in order to all risks in every process be recognised and recorded. With reference to time and cost, this process takes a long time and is rather costly as it needs a large number of persons to manage it.
- 3- Based on COSO, the business managers are the persons who are asked for risk information; however, while they might be qualified to manage and run their business, they might not be aware of all risks associated with their organisation. Managing risks needs skilled managers with specific knowledge and ability to identify the most significant risks and to prioritise their management based on the organisation's strategic objectives. The managers must also estimate the likelihood of each risk and its effect on their business aims.

- 4- According to the COSO framework, the worst result is defined by the highest probability multiplied by the greatest impact. However, in reality, there are no such high likelihood–high impact events (Smadkhan, 2005).

Conversely, a study by Purdy, 2010 cited in Marks (2011), argues that the COSO framework is complex and lacks useful implementational guidance, forcing organisations to ask for help in how to implement risk management. (Purdy, 2010 cited in Marks, 2011) summarises the identified weaknesses as following:

- 1- COSO focuses on internal factors and neglects the reflection of external risks on the organisation's success, this fails to show the influence of external factors such as regulatory conditions, external stakeholders and the business environment on the organisation's risks. However, most of the risks occur when there are mismatches between the organisation's objectives and the external stakeholder's objectives. This is critical weakness of COSO that isolates the organisation from external opinion.
- 2- COSO considers a risk as an event, describing events as sudden and acute occurrences, and does not pay attention to slow changes in situations and circumstances, such as deterioration on market sentiments or internal culture that causes critical risks.
- 3- The COSO framework measures risk in terms of the likelihood of an event and its specific consequences. However, an event's consequence will not be same every time.
- 4- COSO considers risks mostly as losses rather than opportunities and focuses on reducing the probability of losses. However, uncertainties sometimes have beneficial consequences on organisational objectives.
- 5- COSO mixes the framework with the process of risk management. However, the framework and the process of risk management should be distinguished. Frameworks include the organisation's structure, policies and arrangements in order to improve the risk management, while the process of risk management comprises the methods that the framework uses to reach the organisation's aim and objectives (such as: the monitoring, assessing and treating of risks) (Purdy, 2010 cited in Marks, 2011).

Table 2-2 summaries the limitations of COSO risk management framework as discussed in the current subsection.

Table 2-2: Shortcomings of COSO (1992–2004) framework of ERM

| COSO's shortcomings                                                                                                      |
|--------------------------------------------------------------------------------------------------------------------------|
| 1- Lack of communication and objective setting                                                                           |
| 2- Focus on some over controlled areas and overlooking some uncontrolled areas                                           |
| 3- Costly and prohibitive continual process of risk assessing, recognising and recording                                 |
| 4- Using unreliable risk information data                                                                                |
| 5- Lack of risk priority in the framework                                                                                |
| 6- nonconcurrence of COSO risk management formula with reality                                                           |
| 7- Focus on internal factors and overlooking external factors                                                            |
| 8- Neglecting the influence of external shareholders on business objectives                                              |
| 9- Ignoring the impact of slow changes in market environment on organisation's objectives                                |
| 10- Misconception and incorrect merging of the term of likelihood and risk conception                                    |
| 11- Considering risks as losses more than opportunities                                                                  |
| 12- Lack of distinction between measuring risks and measuring the consequences of risks by using risk tolerance approach |
| 13- Mixing up the factors and elements of framework and the process of managing risks                                    |
| 14- Failure in addressing the combination of unpredictable and simultaneous attributes                                   |

Source: The Researcher

Considering above points of view about COSO's weaknesses confirms that effective management of organisational risks needs an effective framework, providing managers with reliable information about the organisation's risks and leading them to make the right

decisions at all stage of risk management. Moreover, there is a need for managers' comprehensive knowledge on organisational risk management enabling them to discover over-controlled and under-controlled risks areas based on the organisation's total operational risk tolerance (Smadkhan, 2005; Purdy cited in Marks, 2011; Bonisch, 2012; McNally, 2013).

In the following subsection (2.2.5), ISO 31000:2009, a common standard of risk management, is discussed along with its strength and weaknesses.

### **2.2.5 International standard ISO 31000 – risk management process**

*“ISO 31000:2009 provides generic guidelines for the design, implementation and maintenance of risk management processes throughout an organisation. This process to formalizing risk management practices will facilitate broader adoption by companies who require an enterprise risk management standard that accommodates multiple ‘silo-centric’ management systems”* (ISO, 2009, p. 12).

ISO is a reputed worldwide large standard developer, and it's ISO 31000:2009 *Risk management – Principles and guidelines* is usable in any type and size of organisation with any type of activity, providing appropriate guidelines to organisations based on their specific requirement (Leech, 2012). Indeed, the ISO 31000:2009 standard was developed with the aim of enabling managers to address the challenges of managing risks associated with their organisation in today's rapidly changing and complex environment (Choo and Goh, 2014). ISO 31000:2009 leads organisations to identify threats and opportunities, and allocate their resources to effective risk treatment in order to achieve their objectives (Shortreed, 2010).

In the following, Figure 2-4 presents the risk management framework developed by ISO 31000.

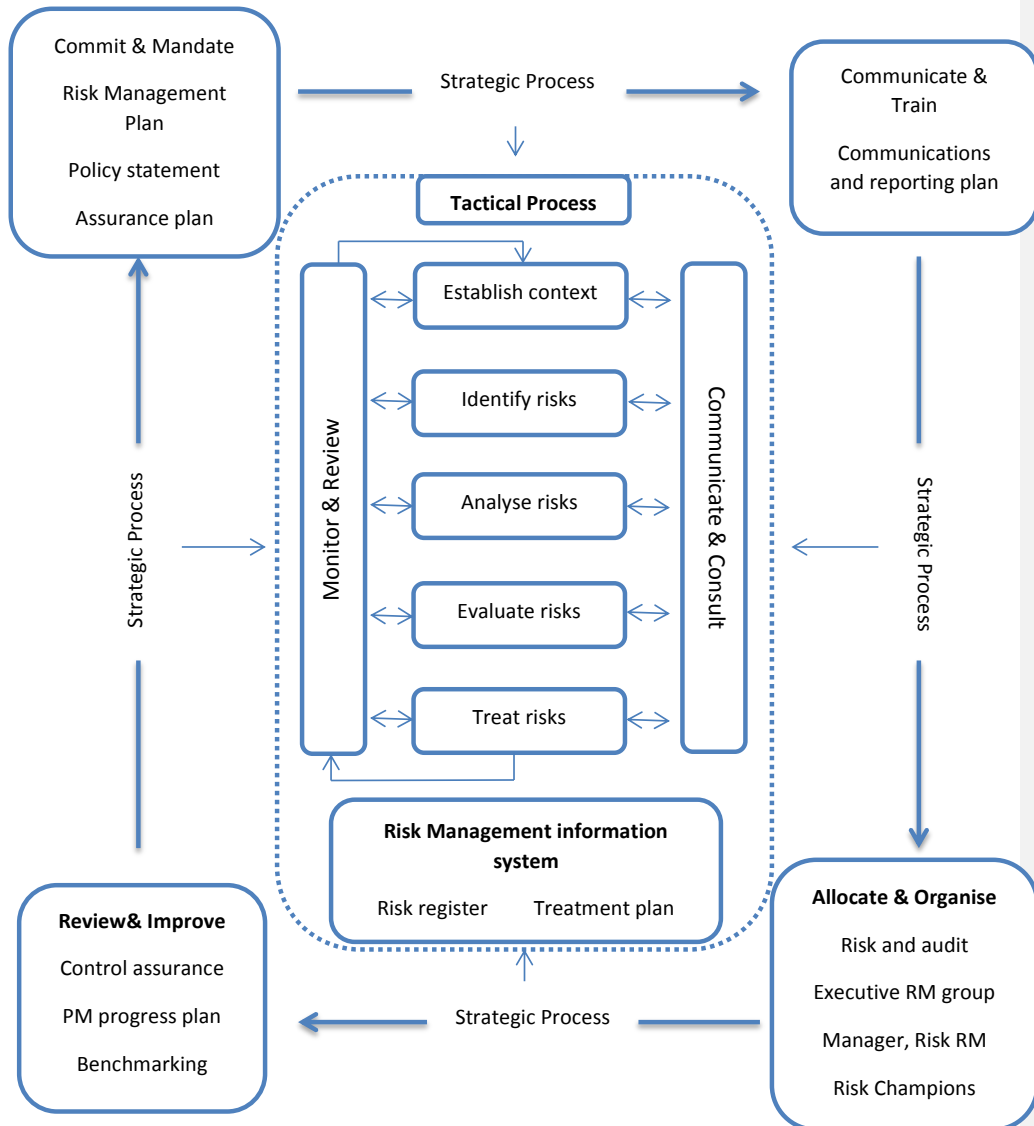


Figure 2-4: ISO 31000; 2009 Risk Management  
 Source: Shortreed (2009, p. 101)



The ISO 31000:2009 Risk Management standard provides a set of risk management tasks in order to support managers' risk-based decision making. However, organisations need to design their ISO process based on their unique requirements before implementation. In the ISO risk management process, "*Establish context*" is related to risk management decisions, "*risk assessment*" contains three factors that identify and evaluate the main risks: "*Identify task*", "*Analyse risks*", and "*Evaluate risks*". Whereas "*treat risk*" defines how to handle the effect of negative and positive risk. "*Monitor and review*" assesses and controls the whole process, whereas "*communicate and consult*" involves shareholders in the process of risk management. Finally, "*Risk management information*" is considered as a key component of the framework and is applied to create value for decisions that are made within the organisation (Shortreed, 2010).

Although ISO 31000:2009 has been implemented in several organisations, it has also been criticised by several researchers (Purdy, 2010; Leitch, 2010; Dali and Lajtha, 2012; Lalonde and Boiral, 2012; Leech 2012; Duoqia and Xiaohong, 2013). The shortcomings discussed by these researchers are summarised in Table 2-3 below.

Table 2-3: Shortcomings of ISO 31000 risk management standard

| ISO 3100 Shortcomings                                                                                                       |
|-----------------------------------------------------------------------------------------------------------------------------|
| 1- Lack of description about establishment of organisational devices to enable the performance of the process               |
| 2- Lack of the explanation of the dynamic between framework and risk management process                                     |
| 3- Lack of description about actualisation of principles in implementation                                                  |
| 4- Not applicable in organisations that do not integrate risk management to their work                                      |
| 5- Not being applicable in organisations that have not planned to invest in human capital                                   |
| 6- Not suitable for organisations with a lack of resources to invest in a risk management system                            |
| 7- Avoids debate about risk tolerance and risk appetite                                                                     |
| 8- Lack of emphasis of the necessity to begin risk assessments with well determined objectives                              |
| 9- Defining a specific ERM framework is challenging for organisations and requires large investment in their money and time |

Source: The researcher

In the following section, another approach of risk management (AS/NZS4360 standard) is reviewed and its shortcomings are discussed.

### **2.2.6 Australia/New Zealand Standard 4360, risk management approach**

While global attention on risk management approaches was increasing, in 1999 a joint committee organised in Australia and New Zealand published AS/NZS4360 as a risk standard. This standard contains seven processes, as follows:

- 1) Establishment of the risk context: this process enables the organisation to represent its status, such as: available budget, needed equipment, strategic goal and objectives (Ward, 1999; Standards New Zealand, 2004).
- 2) Risk identification: investigates what could go wrong at any time of the process. The source of potential risks should be identified before they can be mitigated (Ward, 1999; Standards New Zealand, 2004).
- 3) Risk analysis: this stage analysis the importance of the discovered risks and determines the influence of them on the organisation (Amornsawadwatana *et al.*, 2002).
- 4) Risk evaluation: prioritises the risk events and determines the most appropriate option of risk mitigation (Ahmed *et al.*, 2003a, 2003b).
- 5) Risk treatment: based on the results of the risk evaluation, this stage decides whether to avoid risks, transfer risks, decrease the risks' likelihood and/or impacts, or to keep the risks (Standards New Zealand, 2004).
- 6) Communicate and consult: performed across the shareholders.
- 7) Monitoring and review: checks and controls risk events (Clemen and Reilly, 2001).

This standard is applicable in any kind of organisation, considering both risks' downsides and upsides. AS/NZS4360 (Standards New Zealand 2004) is shown below in Figure 2-5.

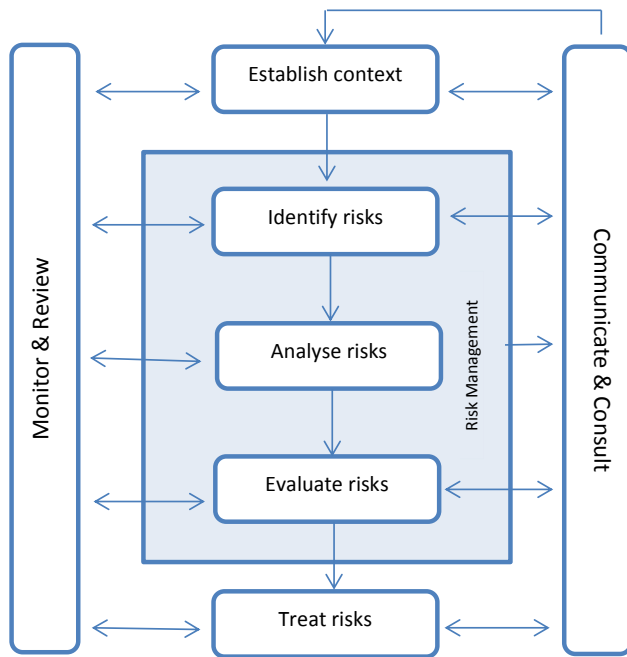


Figure 2-5: AS/NZ 4360:2004 Risk Management Standard  
Source: Standards New Zealand (2004)

Although the AS/NZS4360 standard is considered as a risk management approach to be adopted by organisations, it has some limitations, which are discussed in the next subsection (2.2.6.1).

### 2.2.6.1 Shortcomings of Australia/New Zealand Standard 4360

Regardless of the AS/NZS4360 standard's popularity as a risk management standard, some researchers (Barton *et al.*, 2002; Beasley *et al.*, 2008; Seaton, 2012) argue that there are limitations associated with this standard. It is argued by Barton *et al.* (2002) that the AS/NZS4360 standard does not offer any uniformity, it only provides guidelines in specific organisational areas such as resource allocation, risk identification, and decision making (Barton *et al.*, 2002).

Seaton (2012) discuss that AS/NZS4360 is considered as an ERM tool; however, this is not sufficient to be considered as a strategic framework of risk management. An important shortcoming of this standard is that it relies on identifying, analysing and managing risks individually; those risks that are more complicated and more challenging to categorise could be easily ignored (Seaton, 2012). Indeed, the AS/NZS4360 standard lacks alignment between main organisational factors and the approach that organisational risks are managed (Beasley *et al.*, 2008; Seaton, 2012).

In the following subsection (2.2.7), key risk indicators (KRI) are discussed as another tool of risk management.

### **2.2.7 Key risk indicators (KRI) – risk management tools**

Key risk indicators (KRIs) are considered as an important tool that plays a critical role in managing risks. KRIs facilitate the process of monitoring, reporting, mitigating, and controlling the organisational risks (Killackey, 2009; Kaplan, 2009). KRIs identify how changes are happening within an organisation's risk profile and to what extent these changes are within the organisation's risk tolerance level (Taylor and Davies, 2003). Indeed, KRIs provide needed awareness about potential risky events, and helps managers to develop organisational strategies and move towards the profits of change (Kaplan and Norton, 1992; Frigo, 2002; Taylor and Davies, 2003; Smart and Creelman, 2009).

Adopting effective KRIs helps organisations to define those relevant metrics that provide managers with beneficial information regarding potential risks that might influence the achievement of organisational objectives (Smart and Creelman, 2009). So, developing enterprise-wide KRIs requires a good understanding of organisational objectives (COSO, 2010).

According to Lam (2005), different sources that KRIs could be developed are:

1) rules and regulations, 2) strategies and objectives, 3) losses and incidents, 4) requirements of shareholder, and 5) risk evaluation (Lam, 2005).

Immaneni *et al.* (2004) discuss that top-down and bottom-up are the two most effective structures to implement KRIs. A top-down approach evaluates organisational general

objectives along with their risks, and then creates suitable risk indicators, reflecting these and communicating them downwards. Whereas, a bottom-up method identifies particular processes and risks that are challenging and requires the development of unique KRIs for each business area. However, the outcomes of a bottom-up method are more beneficial and effective for organisations with unique processes (Immaneni *et al.*, 2004). In order to solve the challenge of adopting bottom-up approach, a tool was developed to integrate the outcomes of various indicators and aggregate them in one report (Immaneni *et al.*, 2004).

To clarify the link and connections across organisational strategic objectives, risks, and KRIs, an example is presented in Figure 2-6 below.



Figure 2-6: Interconnecting objectives, strategies, risks and KRIs  
Source: COSO (2010b)

The above figure (2-6) shows that increasing revenue and reducing costs have been set as the aims of an organisation. So, the strategic objectives critical to achieving the aims are defined. The potential risks have been identified and linked to key strategic objectives in order to enable the managers to develop measures that could help a lot in the effective implementation of organisational aims (COSO, 2010b). Indeed, linking key strategies and key risk with KRIs decreases the probability of managers' exposure to less relevant information.

The most common approaches of enterprise risk management along with their advantages and shortcomings are discussed above in Sections 2.2.4, 2.2.5, 2.2.6, and 2.2.7. In the following sections, performance management's definition and components are investigated. Moreover, the most common approaches of performance management along with their shortcomings and strengths are discussed.

### **2.3 Risk management in emerging market risk management and the case study of this research (Iran)**

The case study of this research is automotive industry of Iran. As Iran is considered as an emerging market country, Subsection 2.3 aims to investigate the state of ERM in organisations located in emerging market countries and mostly Iran's automotive industry. In order to have more clear image of this research's case study, Subsections 2.3.1 and 2.3.1.1 review the history of the automotive industry in general and history of Iran's automotive industry. Subsections 2.3.2 then investigates the maturity of ERM in emerging market countries' organisations. In order to follow the ethical principles set by Brunel University for the researches involving human participants, the name of this research's case study organisations remains anonymous and confidential.

#### **2.3.1 Automotive industry**

Developing domestic automotive industry has got beneficial results. The total cash flow of global automotive industry is estimated at 2,790 billion dollar and it engages about 49 million people. This will put automotive industry in position of being the seventh largest economy around the world.

According to several researchers (Dicken, 2007; Barnes and Morris, 2008; Sturgeon *et al.*, 2008; Wad, 2008), the automotive industry was considered as the industry of industries in the early twentieth century, and today is known as one of the most globalised industries around the world. The automotive industry was first dominated by transnational corporations, and characterised as a producer-driven global value chain; however, since the 1970s a wave of activities such as outsourcing and restructuring were implemented (Dicken, 2007; Barnes and Morris, 2008; Sturgeon *et al.*, 2008; Wad, 2008). In order to provide a clear perspective of this research's case study, the next subsection (2.3.1.1) reviews the history of Iran's automotive industry and investigates the state of Iran's main automakers.

### 2.3.1.1 Automotive industry of Iran

This research's case study are two of the main companies of Iran's automotive industry. As the Researcher is Iranian, this facilitates making connection to Iran's industry and organisations. Moreover, the reason for choosing Iran's automotive industry is that this industry is the biggest industry in Iran after oil and gas, and contributing to this industry's knowledge will have valuable consequences for Iran.

The current subsection reviews the history of Iran's automotive industry commencement and its evolution over the years.

Dehqan (2009) considers Iran as the seventh largest auto maker in Asia (Dehqan, 2009). According to Mather *et al.* (2007), Just-Auto (2009), and IKCO (2015), Iran's car production first started in 1962 with the establishment of the Iran National Industrial Development Corporation, and later, in 1979, changed its name to Company A. This company started its manufacture by producing LP buses, for which some components were imported from Germany and assembled in Iran by Company A. The company, in 1966, signed a contract with Rootes, an English company, to produce a car called the Peykan. From 1976 to 1977, the Peykan was produced in various models. In addition, various models of minibuses, buses and ambulances made by Company A. In 1973, the company pursued the localisation of car parts and self-sufficiency as its main aim. Company A also established companies such as: ball bearing, Mashad Reza, and Piston. In 1978, Company A signed a contract with Peugeot to produce French cars. Despite that Company A has experienced some volatilities over the years including the Islamic revolution and Iraq's imposed war, along with difficulties in foreign exchanges and raw material import, it survived and has started to grow once more. Currently, Company A is recognised as the largest auto manufacturer in the Middle East and North Africa, and produces more than half of Iran's cars. Company A owes around 105 subsidiaries and has more than twenty-one thousand employees (Company A's website, 2016).

According to Mather *et al.* (2007), Just-Auto (2009), and Company B's website (2016), Company B is Iran's second largest manufacturer. Company B was established in 1965 and started its production by signing contracts to manufacture Citroen vehicles, and in 1976 started its mutual cooperation with Renault. Company B worked with Citroen and Renault logos for its production for years; however, in 1982, due to product diversity and changes in organisational policy, it built its own independent brand. In 1980, Company B agreed a

contract to produce some of Nissan's models. Company B has expanded the scope of its production and increased the number of its business partners over the years to produce cars and heavy commercial vehicles, and is currently in collaboration with many other foreign automakers such as: KIA, VOLVO, IVECO, FTOTON, and RENAULT TRUCKS (Just-Auto, 2009; Company B's website, 2016). According to Wilson and Hollensen (2010) Company B has more than 40,000 employees and a 120 subsidiaries that 48 percent of those belong to the Iranian government (Bahreman, 2013; Company B's website, 2016).

Mather *et al.* (2007), Wilson and Hollensen (2010), and Company website (2015) argue that though automotive industry accounts for just 4percent of Iran's industrial exports; however, it is Iran's fastest growing industry and Iran has the largest automotive industry of the Middle East (Mather *et al.* 2007; Wilson and Hollensen, 2010, Company website, 2015).

According to Dehqan (2009) and Wilson and Hollensen (2010), Iran's automobile portfolio includes: assembling existing overseas designs, producing licensed versions of existing designs, and producing automobiles that have been designed by Iranian auto manufacturers. Following a strategy of joint venture and partnership has enabled Iran's automotive industry to learn a lot about manufacturing process, and led its auto manufacturers developing their own capabilities and becoming more independent.

According to Hosseinifar (2016), the current yearly production capacity of Iran's automotive industry is approximately 2 million cars (combination of passenger and commercial vehicles). Around 1.5 million people are currently employed (direct and indirect) by this industry which is counted as 12 percent of whole country's workforce. This industry's present rank is between 18 to 20 and it generates 1.2 percent of global production. Iran's automotive industry is considered as important sector of export to the neighbour countries (Hosseinifar, 2016).

Saberi (2017) argues that, Iran automotive industry has been facing many challenges during sanctions enforcement since 2012. However, through recent agreements of sanction termination, this industry has again got a new chance to remain a key driver of Iran's economy. Recently delegations from Italy, France, Germany, and Japan have visited Iran aiming to develop the cooperation with Iran's automakers. This partnership will help in many different ways such as: building new auto production facilities, establishing joint venture in



order to produce modern automobile components, and ultimately to increase national brands' quality (Hosseiniifar, 2016; Saberi, 2017).

### **2.3.2 ERM in emerging markets' automotive industry**

This subsection investigates the current state of ERM in organisations located in emerging market countries. Moreover, the challenges of effective ERM implementation in emerging market countries is discussed.

Gupta (2004) and Motamen-Samadian (2005) discuss that over recent decades, environmental uncertainty has emerged as a threat to organisations' value maximisation and has changed the methods adopted by organisations regarding their risk management. Since 1990, risk management has become a separate discipline around the world, and risk has changed from being viewed from a silo-based perspective to a holistic perspective via ERM (Gupta, 2004; Motamen-Samadian, 2005). Researches by EIU (2001) and Tonello (2009) indicate that managers agree that ERM implementation requires several structural measures to enable the alignment of risk management with strategic planning, information systems and organisational culture (EIU, 2001 and Tonello, 2009).

Several researchers argue that, while global investment is growing continuously in emerging markets, yet many organisations in emerging markets have been unable to manage their risks effectively, due to insufficient knowledge and risk management skills (Perkowski, 2006; Lee and Anderson, 2006; Leggett, 2007, 2008, 2009; Kearney, 2012; Boubaker *et al.*, 2016).

Leggett (2009) argues that some automakers of emerging market countries are experiencing a downturn because of recession and not being able to manage their organisational risks. For instance, India's automakers sales decelerated by 31 percent in 2008 (Leggett, 2009).

Feizpour (2013) discuss that, organisations in emerging market countries lack of appropriate ERM structure. This is due to the silo mind-set of senior management in emerging market organisations believing that organisational risks are confidential and should not be communicated among the different organisational layers because of security issues (Feizpour, 2013).

Perkowski (2006) and Yener *et al.* (2011) discuss the probable risks that affect the progress of emerging markets' automotive industry, as follows:

- a. Uncertainties in government policy regarding the automotive industry and its development in these countries.
- b. Lack of managerial support encouraging organisations towards innovation in order to be competitive.
- c. Increase in competition that keeps the prices down and consequently causes difficulty in profit making (Perkowski, 2006; Yener *et al.*, 2011).

Kearney (2012) and Boubaker *et al.* (2016) discuss that, managing risks in emerging markets is complex and challenging for reasons such as: short history of an emerging market, lack of risk data availability, and ambiguity of the few available data. The majority of tools and frameworks used for managing risks are data intensive, so a lack of sufficient and useful data causes problems for emerging markets to manage their risk effectively. In other words, enterprise-wide risk management of emerging market organisations is complicated and challenging because critical elements of risk management are not in the right place, so organisations in emerging markets should move through a long way to achieve proper implementation of risk management and ERM (Kearney, 2012; Boubaker *et al.*, 2016).

A survey by Henisz and Zelner (2010) examined 435 organisations from 12 developed countries and 501 organisations from emerging market such as China, Brazil, India, Turkey and Russia. The outcomes of the survey indicate that organisations in a developed market are much more worried about the risks associated with their organisations' strategic objectives; however, organisations in emerging market countries mostly measure risks based on their financial impacts and focus on immediate risks such as competitive risk. (Henisz and Zelner, 2010).

Gupta (2011) discusses that the emerging markets' risk management function is not developed yet; risk management is poorly perceived in emerging markets and their organisations follow a passive risk management approach as a suitable ERM structure has not set in this organisations. Gupta's research (2011) about ERM within 74 Indian organisations shows that just 20 out of the 74 organisations have a good understanding of their organisational risks. More interestingly, 6 out of those 20 are professionally adopting an

effective risk management strategy in their organisation (Gupta, 2011). The same story is told in Dubai; Rao (2007) discusses that though organisations in Dubai are applying some factors of risk management a more extensive awareness of ERM is needed in these organisations. However, ERM maturity in Dubai's banking and finance organisations is much more advanced as Dubai's financial sectors have been implementing ERM tools to a greater extent (Rao, 2007).

Based on a research by WanDaud (2008) and Yazid *et al.* (2011), ERM is a new risk management concept in emerging market countries and has not been practiced broadly in such organisations. Though this concept has been the subject of much attention from organisations and industries in emerging markets in recent years, it is believed that more established organisations are more likely to implement ERM. Furthermore, directors' and senior managers' inadequate knowledge and support is considered another critical factor affecting the level of ERM adoption among organisations in emerging market countries (WanDaud, 2008; Yazid *et al.*, 2011).

The challenges of effective ERM implementation in organisations in emerging market countries are discussed by several researchers (Basu, 2003; Perkowski, 2006; Lee and Anderson, 2006; Leggett, 2007, 2008, 2009; Henisz and Zalner, 2010; Yazid *et al.*, 2011; Gupta, 2011; Yener *et al.*, 2011; Kearney, 2012; Boubaker *et al.*, 2016), as summarised below:

- Senior managers' weak understanding and perception of the ERM concept and its benefits for organisations;
- Insufficient risk history existing in emerging markets;
- Lack of appropriate ERM structure and requires resources implementation;
- Lack of intellectual capital and sufficient knowledge and skills regarding risk assessment;
- Lack of communication about risks among organisations' layers;
- Paying greater attention to immediate risks and ignoring other potential risks;

The maturity of ERM and risk management in emerging market countries' organisations are discussed above in Subsection 2.3.2. The findings indicate that, while risk awareness is

growing in emerging market countries, organisations have not yet been able to manage their risks effectively.

ERM implementation has not been embedded in the emerging market countries, which still follow a passive approach to risk management. Board of directors' and senior managers' involvement regarding ERM implementation is weak due to their inadequate understanding of the importance and benefits of effective ERM implementation. Moreover, managers of organisations in emerging market countries believe that risk management is confidential and should not be outsourced or communicated among the different organisational levels, so a lack of risk communication in organisational levels leaves the risks unsolved. Furthermore, ERM approaches are data intensive, while emerging markets lack an appropriate risk history and data availability. Therefore, according to the findings of this chapter, there is a need of sufficient awareness and a strong foundation on effective wide risk management in the organisations of emerging market countries, including those within the automotive industries, in order to enable the implementation of an effective ERM approach.

The most common approaches of enterprise risk management along with their advantages and shortcomings are discussed above in Sections 2.2.4, 2.2.5, 2.2.6, and 2.2.7, moreover Subsection 2.3.2 explored the status of ERM and maturity of its implementation in emerging market countries. In the following sections (2.4) performance management's definition and components are investigated. Moreover, the most common approaches of performance management along with their shortcomings and strengths are discussed.

## **2.4 Performance Management**

Organisations' need of aligning their enterprise wide risk management with existing organisational processes has recently received increased interest (Adamson, 2013). The reason for this interest is ERM's transformation from a type of risk management implemented by specific departments or a particular professional group, to a wide process providing guidance for organisations in achieving their strategic objectives (Althonayan *et al.*, 2013). Aligning ERM with performance management is among the topics that have recently drawn researchers' attentions. Before considering the integration of ERM and performance management, first the definition of performance management along with its common tools and approaches is discussed in current section and its subsections (2.4.1, 2.4.2,

2.4.3, 2.4.4). Then, the link between ERM and performance management is discussed in Section 2.5.

Based on Killackey (2008) and Blasini and Leist (2013), performance management is the collaboration of organisations' individuals in order to achieve the desired goals and objectives.

Performance management is defined by Blasini and Leist (2013) as all activities enabling organisations to ensure that their aim and objectives are addressed effectively (Blasini and Leist, 2013). Performance management helps organisations to ensure that their managers are doing what they have to do in order to achieve the organisation's goals, and employees are aware of their tasks and have the required skills to perform their organisational tasks to an acceptable standard. Performance management is mostly planned by human resources staff and performed by line managers (CIPD, 2009; Van Dooren, 2015).

Latham *et al.* (2007) argue that performance management should improve an organisation's performance and move it towards prosperity and sustainability; Latham *et al.* (2007) discuss that a process of performance management should be designed as follows:

- 1) Defining the desired performance.
- 2) Setting up the goals and defining what an individual or group should start to do, and what they must stop doing or might do in different way.
- 3) Observing the performance of individuals on their tasks.
- 4) Providing feedback and planning to either make changes in the process or to continue the process as it is (Latham *et al.*, 2007).

According to Armstrong (2009), it is easy to define performance management but it is difficult to operate it successfully. Those organisations that flounder in how to manage their performance effectively, have to find the best way of setting goals, assessing their function and planning in such a way to improve their performance over time (Armstrong, 2009). While all organisations face different challenges, their approach in response to those challenges depends on the location and the context within which the organisation is operating. Techniques that have worked in one organisation may not necessarily be

applicable to another organisation (contingency theory) (Armstrong, 2009). Performance management's nature includes an ongoing dialogue between managers and the people who are being managed. This dialogue includes discussions about goals and objectives achievement, analysis of performance, and productive feedback in order to develop the organisational performance plans (Armstrong, 2009; Blasini and Leist, 2013).

Bititci *et al.* (1997) define performance management as a process that creates a control system across all organisational activities and provides feedback for management to make appropriate decisions (Bititci *et al.*, 1997). According to Van Dooren (2015) performance management includes processes and structures as determined by an organisation's management in order to monitor, identify and respond to organisational performance issues. It also controls each individual's actions and steers them to cooperate towards an organisational aim and the achievement of organisational objectives (Van Dooren., 2015).

According to Killackey (2008), CIPD (2009), and Blasini and Leist (2013), performance management is a process that guides people to perform to the best of their abilities. Performance management helps managers to first communicate what actions are required, and then to provide feedback on what is being done and how well the organisation is achieving its goals. Moreover, performance management offers alternative approaches in order to move an organisation towards its objectives and aims (Killackey, 2008; CIPD, 2009; Blasini and Leist, 2013).

It is concluded from the discussions above that, performance management tools and approaches are designed to provide continuous monitoring, reviewing and reporting of the entire process in an organisation to ensure the effective achievement of its organisational goals. In the following, some performance management tools (balanced scorecard (BSC), Six Sigma, kaizen, and key performance indicators (KPI)) along with their advantages and weaknesses are discussed.

#### **2.4.1 Balance Scorecard (BSC) a performance management tool**

According to Salem *et al.* (2012), over recent decades, effective performance management has become a significant requirement for organisations in both public and private sectors.

Hence, organisations seek to identify an effective tool in order to manage their organisational performance (Salem *et al.*, 2012).

The balanced scorecard (BSC) was introduced by Kaplan and Norton (1990) as an approach to performance measurement. Banker *et al.* (2004) discuss that BSC provides managers with a more balanced view of organisational performance by adding strategic non-financial performance measures alongside traditional financial metrics (Banker *et al.*, 2004). Based on Kaplan and Norton (1996), the balanced scorecard (BSC) is a tool of management systems and strategic planning, applied in industry and business to align business activities and organisational strategy in order to improve an organisation's performance (Kaplan and Norton, 1996).

Otley (1999) defines the balanced scorecard as a multi-dimensional tool that is used for measuring and managing the performance of organisations (Otley, 1999).

According to Banker *et al.* (2004), a significant aspect of BSC is articulating link among strategic objectives and performance measures, once this link understood, strategic objectives could be translated in actionable measures helping to improve organisational performance (Banker *et al.*, 2004)

The BSC steers organisations toward the improvement of internal and external communications, and helps organisations to monitor their performance and have timely action when their performance is against the strategic goal and objectives (balanced scorecard, 2014).

According to Kaplan and Norton (1996), the BSC considers four areas of performance, as follows:

- Financial  
This perspective considers how the organisation should appear to its stakeholders in order to gain financial success.
- Customer  
This perspective discusses how an organisation should appear to its customers in order to obtain its vision.
- Internal business

In this perspective, managers discuss the suitable business process for the organisation in order to gain stakeholder and customer satisfaction.

- Learning and growth

In this perspective, managers discuss ways of keeping the ability to change and improve continually in order to achieve the organisation's vision.

Each of the above areas produce related feedback on how well the organisational strategic plans are being implemented, so any required modification and adjustments will be performed through this process (Kaplan and Norton, 1996; Otley, 1999; Epstein and Winsler, 2001).

Salem *et al.* (2012) argue that these four areas could create balance between various significant aspects, such as: balance between desirable outcomes and the resulting performance of them, or making balance among hard objectives and more subjective measures (Salem *et al.*, 2012).

The balanced scorecard tool is indicated in Figure 2-7 below.



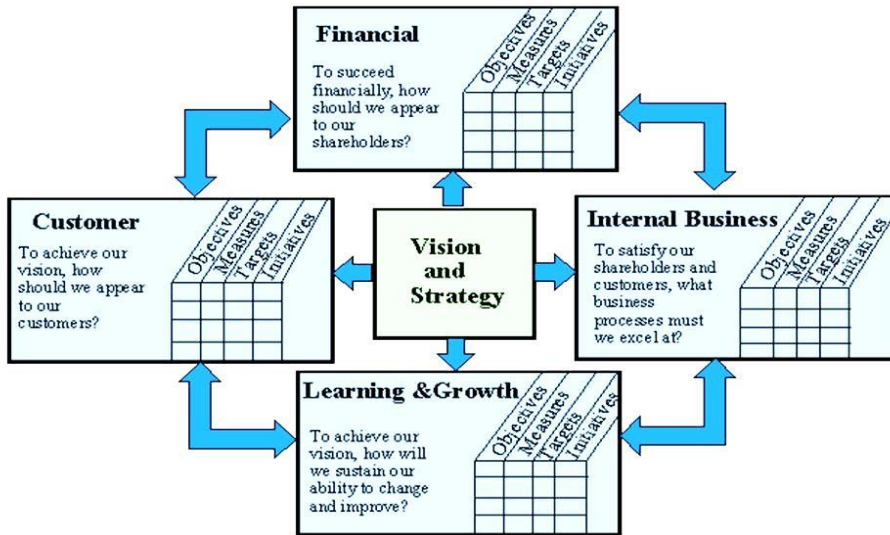


Figure 2-7: Balanced scorecard framework

Source: Kaplan and Norton (1996)

Despite the benefits discussed by several researchers (Kaplan and Norton, 1996; Otley, 1999; Epstein and Winsor, 2001; Banker *et al.*, 2004; Salem *et al.*, 2012; balanced scorecard, 2014) regarding BSC's ability on managing organisational performance, the shortcomings of BSC as identified by some researchers are discussed in following.

#### 2.4.1.1 Shortcomings of BSC as a performance management tool

Although BSC has emerged as a successful performance management tool and has been adopted in many organisations, according to several researchers (Hudson *et al.*, 2002; Thomas, 2003; Norrekelit, 2003; Mohobbot, 2004; Salem *et al.*, 2012) this approach is associated with a number of shortcomings. The criticism against the BSC, which arise mostly from the academic community, are as below:

- Lack of cause and effect relationship

- Lack of consideration on time dimension
- Lack of consideration of external factors and competitors
- Lack of integration between operational levels and top levels
- Ability to measure just a few dimensions
- Lack of attention to role of suppliers and public authorities as shareholders in organisation (Hudson et al., 2002; Thomas, 2003; Norrekelit, 2003; Mohobbot, 2004; Salem *et al.*, 2012).

Several researchers (Kaplan and Norton, 1996; 2004; Calandro Jr and Lane, 2006; Nagumo and Donlon, 2006) argue that risk management has rarely been considered in the BSC context as the BSC has not been designed to manage risks that might harm the performance of strategic execution. It is further discussed that a BSC without effective risk management would not be a good choice to retain sustainability and to enhance long-term profit and stakeholder value in this ever-changing and complex business environment (Kaplan and Norton, 1996; 2004; Nagumo and Donlon, 2006). Another common performance management tool is Six Sigma, which is considered below along with its strengths and limitations.

#### **2.4.2 Six Sigma, a tool of performance management**

Six Sigma was first developed in 1980 by Bill Smith at Motorola, as a set of methodologies in an attempt to improve the manufacturing process and to reduce production defects (Feld and Stone, 2002; De Feo and Barnard, 2005; Alhawari *et al.*, 2008). Six Sigma's horizon was later expanded to many more organisations as a statistical tool to enhance their productivity processes (Pan *et al.*, 2007; Marques *et al.*, 2013; Tariq, 2013; Ayadi *et al.*, 2014).

According to Jing and Li (2004), Jones (2010), and Tariq (2013), Six Sigma encompasses two methodologies as following:

##### **1 - Define–Measure–Analyse–Improve–Control (DMAIC)**

This function narrows the input variables of the business process to few vital variables with the idea that effective control of these few vitals leads to greater control of the whole process.

This function is used when existing processes are performing ineffectively. DMAIC functions by making improvements in an existing process through applying new more efficient metrics (Jing and Li, 2004; Jones, 2010; Tariq, 2013).

## 2 - Define–Measure–Analyse–Design–Verify (DMADV)

This function is based on developing a new product or services for a new process that does not currently exist in the organisation (Jing and Li, 2004; Jones, 2010; Tariq, 2013).

Figure 2-8 below, shows Six Sigma’s DMAIC and DMADV approaches.

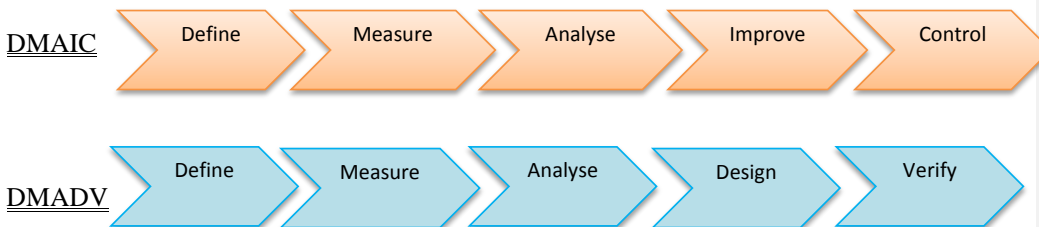


Figure 2-8: DMAIC–DMADV approaches of Six Sigma

Source: Jones (2010)

Although Six Sigma has drawn attention over the years, there are some concerns regarding its weaknesses. The following subsection (2.3.2.1) reviews Six Sigma’s shortcomings, as discussed by several researchers.

### 2.4.2.1 Shortcomings of Six Sigma

Six Sigma became prominent as an approach to quality improvement after its implementation in Motorola. However, some researchers (Karadbhujee *et al.*, 2007; Wurtzel, 2008; Fursle *et al.*, 2012) criticise Six Sigma’s efficiency in a number of ways. Karadbhujee *et al.* (2007) argues that Six Sigma’s full potential has not been recognised by small and medium size organisations as it has mostly been implemented in large enterprises. Indeed, it is believed that Six Sigma fits large organisations (Karadbhujee *et al.*, 2007). Some researchers argue that Six Sigma does not offer any new practice, it just repackages and presents the traditional quality management practices (Goffnett, 2004; Fursle *et al.*, 2012).

Wurtzel (2008) states that the reason for Six Sigma's failure is, first, the lack of a guideline in effective implementation of Six Sigma, and second, insufficient knowledge and understanding of Six Sigma's elements sequence (Wurtzel, 2008). Gupta (2008) argues that the "*Six Sigma improvement program cost more than the improvement they drive because of incorrect application*" (Gupta, 2008, p. 22).

It is discussed by Pyzdek (2003), Mullavey (2005), and Berg (2006), that effective Six Sigma implementation is very costly for organisations as it requires employing and training improvement specialists at different levels of the Six Sigma process. Foster (2007) argues that Six Sigma will not yield any benefits if this approach is not implemented skilfully (Foster, 2007).

In the following subsections, the kaizen tool, as another approach of performance management, is reviewed and its advantages and shortcomings are discussed.

#### **2.4.3 Kaizen: a performance management tool**

This subsection discusses kaizen as a tool of constant improvement leading to organisations' long-term sustainability and competitive advantage.

In the 1980s Japan's economy gained success and Japanese organisations became ideal and myths of success. This success was based on following a concept called kaizen (Karkoszka and Honorowicz, 2009).

Kaizen is a Japanese concept, presented by Masaaki Imai (1986), meaning unending improvement. The word kaizen means continual improvement every day, by everybody and everywhere. Kaizen encourages everyday improvement processes, from top management to line managers and from supervisors to workers, in every department of an organisation, such as offices, production line, sales, customer service and etc. (Anonymous, 1997; Besta and Lenort, 2008).

Gorska and Kosieradzka (2007) describe kaizen as a tool that has made a fundamental change in the economy of Japan over the last 30 years. Kaizen became popular in many countries

after publication of the book by Masaaki Imai “*Kaizen – The Key to Japanese Competitive Success*” and its translation to 14 languages. Now this word, kaizen, is a part of many languages (Gorska and Kosieradzka, 2007).

According to Didis (1990), kaizen emphasises on not being satisfied with what was performed last month or last year, it encourages ongoing effort and continuous improvement across the organisation. Each organisation faces different challenges and problems over time; these problems make opportunities of changes that steer an organisation toward improvement (Didis, 1990). Moreover, Gorska and Kosieradzka (2007) argue that kaizen is a gradual but ongoing process of improvement. Indeed, kaizen starts with gradual and incremental improvements and continues to improve the whole processes. The foundation of this approach is based on the contribution of all employees (Gorska and Kosieradzka, 2007).

Besta and Lenort (2008) consider kaizen as a long-term process, which is not based on any massive investments or any fundamental changes, such as technologies or equipment. Instead, kaizen tries to change people’s thought, and to motivate creative thinking among the organisation’s staff to enable them to consider their tasks and identify the areas that require improvement (Besta and Lenort, 2008). According to Titu *et al.* (2010), kaizen is based on constant incremental improvements by using approaches that do not rely on investment, but on the progressing of the processes and improving employee performance. Implementing kaizen principles leads to continual step-by-step improvement in organisational performance (Titu *et al.*, 2010).

Karkoszka and Honorowicz (2009) explain that the process of kaizen is closed, in a cycle of Plan, Do, Check, and Act (PDCA), which is presented in Figure 2-9.

## Alignment of ERM with Performance Management: Case of Automotive Industry

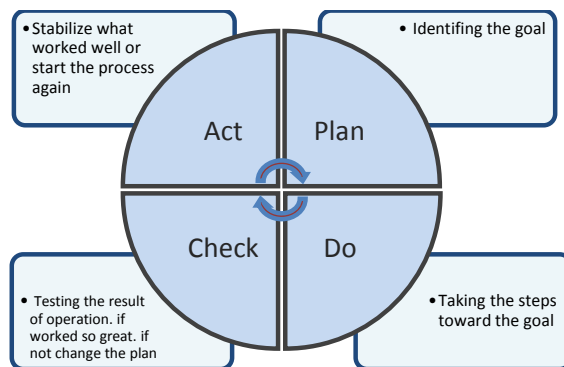


Figure 2-9: Cycling process of kaizen

Source: Karkoszka and Honorowicz (2009)

- PLAN: Determining organisational goal and objectives.
- DO: Implementing the goal and plan.
- CHECK: Investigate the function of previous steps, and identify whether the set goals and plans were achieved or not.
- ACT: Stabilising the process that was successful or setting a new plan for improvement.

In the early 1980s, Osada developed a concept of 5S which used the abbreviation of five words in Japanese starting with S. These words are considered as five critical factors in performance and quality management. These five words translated into English mean organisation, neatness, cleanliness, standardisation and discipline (Osada, 1991). Imai (1997) considers the 5S cycle as the basis and the key component of all improvements. Imai (1997) discusses that 5S is a critical part of kaizen and lack of 5S in the kaizen process results in ineffectiveness, increased cost, resource waste, and failure to achieve delivery terms (Imai, 1997).

The 5S components are shown in Figure 2-10 below.



Figure 2-10: Kaizen 5S

Source: Gorska and Kosieradzka (2007)

➤ **5S concept of kaizen**

- **Straighten:**  
Prepare everything required for effective work and remove all useless things.
- **Sort:**  
Provide all required tools to enable quick utilisation.
- **Shine:**  
Increase safety in the workplace.
- **Standardise:**  
Remind staff of their tasks and duties to keep the workplace in order.
- **Sustain:**  
Conformity of staff with organisation's accepted principles, and training.

Pheng (2001) identifies the similarity among the 5S principles and ISO standard 9001:2000. The 5S concept develops a principle on which the ISO 9001:2000 standard's requirements could be built. Indeed, the integration of 5S and ISO 9001:2000 would lead to total quality management (TQM) (Pheng, 2001).

Based on Imai (2005) and Gorska and Kosieradzka (2007), the implementation of kaizen offers a number of benefits for organisations, as follows:

- Teamwork development and improved cooperation among the organisation;
- Healthy working environment;
- High morale and high level of quality and innovation of employees due to being involved in the organisation's improvement;
- Less inspection needed due to less scope for organisational errors;
- Increased productivity and profit (Imai, 2005; Gorska and Kosieradzka, 2007).

According to Besta and Lenort (2008) and Marian- Garcie (2009), although kaizen implementation offers a number of benefits, there are some limitations associated with this approach, as detailed below:

- Lack of strong support from senior managers;
- As this concept is a long-term process, it needs to be accepted as a culture through the organisation;
- Implementing this principle in practice is very challenging as it changes the current management system;
- It causes some difficulties for organisations that need to apply complete changes in their existing approaches;

In the following subsection, another tool of performance management (KPI) is discussed, along with its benefits and shortcomings.

#### **2.4.4 Key performance indicators (KPIs): a performance management tool**

Key performance indicators (KPIs) provide a performance measurement tool that assesses an organisation's success in achieving its goals and objectives by answering this question: "*is our organisation reaching our desirable level of performance?*" (Killackey 2008, p. 26). KPIs measure the impact of past events on organisational performance (Kaplan and Norton, 1992).



Each organisation's KPIs differ based on that organisation's strategic objectives, so selecting suitable KPIs relies on a good understanding of that organisation's aims (Kaplan, 2009).

Figure 2-11 below, illustrates the process of KPIs

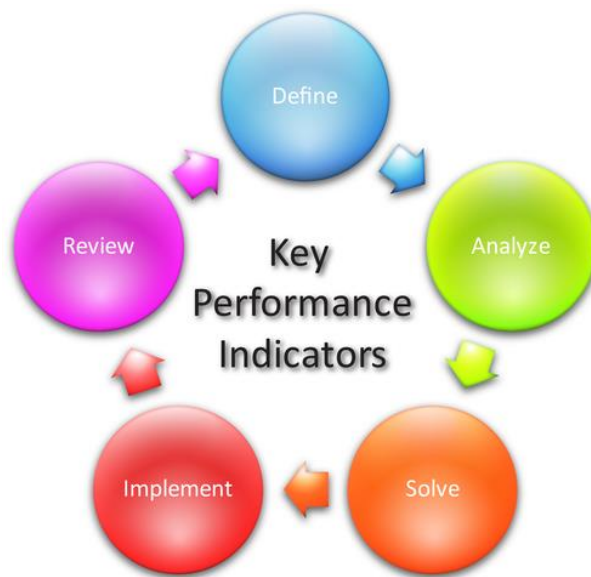


Figure 2-11: Key performance indicators (KPI)  
Source: Kaplan (2009)

Kaplan (2009) discusses that KPIs are a critical part of any organisation that is looking for sustainability; KPIs provide measurement on the performance of aspects that are vital in an organisation's prosperity (Kaplan, 2009). According to Smart and Creelman (2009) implementing and managing KPIs is time consuming. So, it is important that management choose the appropriate KPIs that are specifically relevant to their organisation's needs (Smart and Creelman, 2009). To ensure that appropriate KPIs are adopted in an organisation, firstly, there is a need for constant monitoring and measurement. And secondly, there is a need for a good understanding of what should be done to solve the current problems (Smart and Creelman, 2009). An appropriate KPI assigned to an organisation's performance will move the business towards profit making (Killackey, 2008).

Two previous sections (2.2 and 2.4) and their subsections discussed ERM and performance management definitions along with their most common frameworks and approaches. The following section (2.5) explores the link between ERM and performance management and their alignment as considered by previous researchers.

## **2.5 ERM and performance management alignment**

As discussed in Chapter 1, Section 1.3, this research explores the alignment between ERM and performance management. In respect of this, after considering the existing approaches of ERM and performance management, in the following the existing researches about the alignment and interaction of ERM and performance management are investigated.

Fox and Epstein (2010) argue that ERM supports organisations to manage their resources in a way to guard against those risks that threaten the sustainability and success of the organisation. Indeed, the ability of an organisation to sustain its value creation depends on the strength of its preparation to manage those risks that jeopardise the organisation's achievement of its goals and objectives. Mikes (2005) discusses that by adopting effective risk management, organisations can achieve their goals and ultimately create value for their shareholders. Pegach and Warr (2011) state that organisations adopt ERM for direct economic benefit rather than just complying with regulatory pressure. Hoyt and Liebenberg (2011) describe a positive relationship between implementing ERM and gaining value for the organisation and discuss that identifying and managing risks will enhance an organisation's performance and increase value creation (Hoyt and Liebenberg, 2011).

Quon *et al.* (2012) assess the integration between ERM and organisation performance in 156 non-financial organisations during 2007 and 2008 (this period has been chosen because of the 2008 financial crisis and the economic recession). Quon *et al.* (2012) undertook a comprehensive investigation on organisational performance by assessing operational, accounting and financial market performance. The outcomes showed that the financial crisis had no immediate impact on organisations' profitability in 2007-08, but affected the sales by delay in 2008-09. Therefore, after the financial crisis in 2008, organisations had fundamental shifts in accounting, financial, and operational performance. The results illustrate that the financial crisis affected the financial market performance (Quon *et al.*, 2012).

According to Gordon *et al.* (2009) and Kanhai and Ganesh (2014), the relationship between an organisation's ERM and performance depends on the right match between the organisation's ERM and some key specific organisational factors. These factors have been also studied by several researchers (Liebenberg and Hoyt, 2003; Kleffner *et al.*, 2003; COSO, 2004; Beasley *et al.*, 2005; Doyle *et al.*, 2007; Gordon *et al.*, 2009; Hoyt and Liebenberg, 2009; Kanhai and Ganesh, 2014; Ping and Muthuveloo, 2015), as outlined below:

a. Uncertainty in internal and external environment

An increase in environment uncertainty makes difficulties for organisations to identify and mitigate the risks associated with unpredictable events. Thus, organisations' ability in responding and managing their risks depends on their awareness and preparedness for environmental risks. ERM attempts to recognise and manage uncertain events that affect organisation's performance (Gordon *et al.*, 2009). Thus, this factor is one of those variables that impact the relationship between ERM and performance (Doyle *et al.*, 2007; Gordon *et al.*, 2009).

b. Competition with substitute product and services

This factor is a big concern to all organisations that have competitors producing the same product or services in the market. It is believed that the level of competition that organisations face affects their need for ERM. In fact, organisations with more competitors in the market need to invest more in ERM system to support sustainability and profit making (Beasley *et al.*, 2005; Gordon *et al.*, 2009).

c. Organisation complexity

Greater complexity in organisations decreases the integration of information and causes difficulties in managing the whole organisation (Hoyt and Liebenberg, 2009). Organisations with greater complexity are more likely to face weaknesses in their internal controls (a key part of ERM process). So, organisations with a more complex structure are in need of more effective ERM to manage their issues and move towards sustain performance (Ping and Muthuveloo, 2015). Therefore, the relationship between ERM and performance management is dependent on the match between organisational complexity and the ERM process (Hoyt and Liebenberg, 2009; Ping and Muthuveloo, 2015).

d. Organisation size

Larger sized organisations have a greater need of ERM (Gordon *et al.*, 2009). Indeed, bigger organisations face greater and a wider range of risks. So, it is more challenging for bigger organisations to achieve effective enterprise-wide risk management. For organisations whose aim is to increase performance and profitability, implementing an effective ERM could enable them to move towards their aims with greater confidence (Gordon *et al.*, 2009; Kanhai and Ganesh, 2014; Ping and Muthuveloo, 2015).

e. Monitoring by senior management

The active participation of an organisation's senior managers influences the improvement of ERM adoption (COSO, 2004). The effective implementation of ERM is significantly influenced by strong support and monitoring from the organisation's boards and senior management (Beasley *et al.*, 2005). It is argued by Gordon *et al.* (2009) and Ping and Muthuveloo (2015) that the relationship between ERM and performance management depends on the match among the organisation's senior managers' support and encouragement of an effective ERM implementation (Gordon *et al.*, 2009; Ping and Muthuveloo, 2015).

Pegach and Warr (2010) examine the influence of ERM implementation on organisational performance, by posing the three questions below:

1. *“Do firms experience a change in earnings volatility around ERM adoption?”* (Pegach and Warr, 2010, p. 4).

This question investigates whether organisations could be protected from volatility and disasters by implementing ERM. COSO (2004) discuss that ERM adoption enables organisations to decrease the effect of unexpected events on their objectives (COSO, 2004).

2. *“Do firms adopting ERM improve financial performance relative to past performance and after controlling for industry performance?”* (Pegach and Warr, 2010, p. 4).

This question explores whether ERM has ability of organisational value creation. Pegach and Warr (2007) argue that ERM creates value for stakeholders through identifying and addressing the organisational risks (Pegach and Warr, 2007).

3. *“Do firms' financial characteristics, such as leverage, growth and asset opacity change after ERM implementation?”* (Pegach and Warr, 2010, p. 4).

This question investigates the changes that adopting ERM may have on critical risk interdependencies. A beneficial outcome of ERM implementation provides managers with wider insight about their organisation, so managers could better assess their capital needs and make wiser decisions to improve their capital allocation (Pagach and Warr, 2010).

Nickmanesh *et al.* (2013) discuss that risk management creates organisational value and economic growth through reducing the capital costs and decreasing activities that are related to commercial uncertainty (Nickmanesh *et al.*, 2013).

Hindson and Cazenave (2009) argue that organisations' senior managers should support the changes that move those organisations towards sustainability, competitive advantage, and profit making. ERM is considered as a fundamental change in organisations' risk management that needs to be applied in order to create value for those organisations' shareholders and increase their performance. Hindson and Cazenave (2009) introduce two questions that should be considered in aligning ERM with performance management.

1. How do organisations align the ERM into their performance management?
2. How can the organisation achieve this aim in practice? (Hindson and Cazenave, 2009).

These two questions can be addressed through performing the structures described below.

- Risk objective setting

After setting the organisational objectives, the risks that may jeopardise or prevent the achievement of planned objectives must be identified and managed. Organisations should ensure that risk management is linked with strategic planning in practice. ERM as a strategic process supports business decision making, and performance management transfers those strategic plans into personal objectives (Nickmanesh *et al.*, 2013). Following this, the organisation's employees will participate and function to achieve organisation's objectives at the highest level. Line managers will provide required resources for their employees to discover and manage the risks associated with the organisation's objectives. This method will help organisations to set specific, measurable, achievable, realistic and timed objectives (SMART) (Hindson and Cazenave, 2009).

- Aligning organisational risk with objectives, and aligning organisational objectives with performance

Organisations should align their ERM with their strategic objectives. They should identify the risks that threaten the organisational objectives, and then attempt to avoid or mitigate them. Organisations should also align their performance management with their organisational objectives by identifying and providing the resources required to attain the goals and objectives in practice (Hindson and Cazenave, 2009; COSO, 2016). In addition, this process should be accomplished as a part of their permanent job and not as part of an annual planning cycle (Mcshane *et al.*, 2011).

- Implementation in practice:

The main challenge for boards and senior managers is how to run their organisations sustainably. In doing so, uncertainties associated with the organisation's aims and objectives need to be considered, decisions should be made on how to benefit from opportunities and how to avoid severe events. What has to be done, who has to do it, when it has to be done, and by using which resources all needs to be planned (Hindson and Cazenave, 2009; COSO, 2016). According to Gordon *et al.* (2009), gaining the required skills for an organisation's individuals to be capable of performing their tasks requires a lengthy process of learning and improvement (Gordon *et al.*, 2009).

Singh and Kadaba (2013) argue that ERM and performance cannot be separated. If ERM is not managed and considered efficiently it will harm the organisation's performance. Mcshane *et al.* (2011) and Gatzert and Martin (2015) discuss that aligning business risks into an organisation's performance management is critical for organisational success. Those organisations that combine their decision-making process with business performance management and enterprise risk management have a more complete picture of their past, present, and future performance (Mcshane *et al.*, 2011; Gatzert and Martin, 2015). Nowadays organisations are recognising the necessity of enterprise-wide risk management in maximizing their future organisational performance (Singh and Kadaba, 2013).

Ping and Muthuveloo (2015) argue that managing risk is integral to performance management. Organisations must embrace effective risk assessments in their strategic aims and objective planning, otherwise they would not have a clear environment analysis, which

could impact their performance and prevent organisations from making accurate predictions of their future performance (Ping and Muthuveloo, 2015).

Kanhai and Ganesh (2014) argue that an increase in organisational performance and creating value for shareholders is only possible when performance management and ERM are aligned. Regulatory compliance pressures organisations to adopt ERM, but it is very important for senior managers to realise that the main benefit of ERM and performance management alignment is to enable the organisation to manage its business performance efficiently (Kanhai and Ganesh, 2014).

The following table (2-4) summarises the link identified between ERM and performance management in the literature.

Table 2-4: Link between ERM and performance management

|                              |                                                                                                                                                                                                                                                                                   |
|------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| COSO (2004)                  | ERM adoption enables organisations to decrease the effect of unexpected events on their objectives                                                                                                                                                                                |
| Mikes (2005)                 | Effective ERM adoption leads organisations towards goal achievement and value creation for shareholders                                                                                                                                                                           |
| Pegach and Warr (2007)       | ERM creates value for stakeholders through identifying and addressing the organisational risks                                                                                                                                                                                    |
| Beasley <i>et al.</i> (2008) | Risk management's goal is to maximize shareholder value                                                                                                                                                                                                                           |
| Hindson and Cazenave (2009)  | ERM is considered as a fundamental change in an organisation's risk management approach that needs to be supported by senior managers in order to provide sustainability, competitive advantage, and profit making                                                                |
| Hindson and Cazenava (2009)  | ERM makes fundamental changes in an organisation and leads it toward success and performance improvement                                                                                                                                                                          |
| Gordon <i>et al.</i> (2009)  | Link between alignment of ERM and performance management depends on the right match between the organisation's ERM system and key factors such as environmental uncertainty, industry competition, organisational complexity, organisation size, monitoring by board of directors |

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|                                                         |                                                                                                                                                                                                                                     |
|---------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Fox and Epstein (2010)                                  | An organisation's ability to sustain value creation depends on its preparedness to face and manage organisational risks                                                                                                             |
| Pegach and Warr (2010)                                  | The main target of ERM is to decrease the likelihood of financial disaster and to move organisations toward profit making                                                                                                           |
| Pagach and Warr (2011)                                  | Organisations gain economic benefits through adopting ERM                                                                                                                                                                           |
| Hoyt and Liebenberg (2011), COSO (2016)                 | ERM and performance management have a positive relation. implementing ERM helps organisations to gain value and increase performance                                                                                                |
| Mcshane <i>et al.</i> (2011), Gatzert and Martin (2015) | Having an organisation's risk management process aligned with its performance management would offer a complete and clear picture about the organisation's past, present and future                                                 |
| Quon <i>et al.</i> (2012)                               | Financial crisis and market volatility have an immediate effect on market performance, but a gradual effect on accounting and operational performance                                                                               |
| Nickmanesh <i>et al.</i> (2013)                         | Managing organisational risks effectively helps to reduce the commercial uncertainties and leads to economic growth                                                                                                                 |
| Singh and Kadaba (2013)                                 | Not being able to manage organisational risks effectively would harm organisational performance                                                                                                                                     |
| Kanhai and Ganesh (2014)                                | Large organisations are more exposed to a wider risk array and it is critical for them to implement an effective enterprise-wide view of risk, enabling them to follow their aims and objective achievement with greater confidence |
| Ping and Muthuveloo (2015)                              | Organisations with a complex structure are in need of more effective ERM to manage their issues and move towards better organisational performance                                                                                  |

Source: The Researcher



## 2.6 Conclusion

As discussed at the beginning of this chapter, in order to gain a better understanding of ERM, performance management and their alignment, Chapter 2 focuses on the existing literature on ERM and performance management practices. The common tools and approaches of ERM and performance management along with their key strengths and main shortcomings are also considered in this chapter. Moreover, the current chapter investigates the insights of previous researchers with respect to aligning ERM with performance management, and identifies the factors critical to this alignment.

A wide range of contributions to the literature from an ERM and performance management perspective are discussed in this chapter. The findings of the literature review conclude that organisations' attention on adopting an effective ERM is increasing. Nowadays, organisations seek to adopt efficient ERM approaches in order to manage their risks more effectively. Moreover, factors such as shareholder value creation, long term sustainability, and competitive advantage are recognised as the most important issues for today's organisations, which can be achieved through an effective ERM and its alignment with organisational performance management. However, the majority of the literature reviewed in Section 2.5 about ERM and performance management integration and their mutual effect are descriptive in nature. They mostly discuss the potential benefits of aligning ERM with performance management, rather than guiding how this can be achieved in practice. Therefore, the Researcher feels that there is a need for a contribution of a prescriptive nature, providing a practical guideline regarding how to align ERM with performance management effectively. In doing so, a comprehensive evaluation is performed in Chapter 3 in order to evaluate the existing ERM and performance management framework and approaches. This enables the Researcher to identify the gap of the literature in aligning ERM and performance management and to address the second aim of this research which is "To develop a framework for the effective alignment of ERM and performance management, supported by practical guidance and recommendations for academics and practitioners, aiming at enhancing organisational performance management".

In the following, Chapter 3 aims to identify the limitations and shortcoming of previous studies on ERM and performance management. Chapter 3 evaluates the existing approaches of ERM and performance management (discussed in Chapter 2) in order to identify the gap of the research and consequently develop an effective framework to address this gap.

## Chapter 3: Literature evaluation and framework development

### 3.1 Introduction

This chapter aims to evaluate and identify the main shortcomings of previous ERM and performance management practices as discussed in literature review (Chapter 2). In addition, this chapter identifies the literature gap, which is crucial for the development of the theoretical framework of aligning ERM with performance management (Figure 3-1).

### 3.2 Literature gap identification

In the current section, the Researcher identifies the existing literature gap from the review conducted in Chapter 2. Among existing structures of literature classification, the Researcher found the Four Quadrant Matrix, developed by Althonayan (2003), as the most suitable approach to categorise the existing literature. Based on the Four Quadrant Matrix, the literature is categorised in four quadrants of:

- “a. Visionary and Descriptive,*
- b. Visionary and Prescriptive,*
- c. Implementational and Descriptive, and*
- d. Implementational and Prescriptive” (Althonayan, 2003).*

The visionary part of research investigates the vision of ERM and performance management approaches, while the implementation component provides practical recommendations on ERM and performance management processes. In addition, both type of visionary and implementation research could result in either descriptive or prescriptive outcomes.

The Four Quadrant Matrix helps the Researcher to make a clear classification of the research literature through placing each contribution in its relevant quadrant (Table 3-1).

Table 3-1: Four Quadrant Matrix for Literature Evaluation

|                  |              | Research Philosophy                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                       |
|------------------|--------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                  |              | Visionary                                                                                                                                                                                                                                                                                                                        | Implementational                                                                                                                                                      |
| Research Outline | Descriptive  | <p style="text-align: center;">A</p> <ul style="list-style-type: none"> <li>Describes ERM and PM definition and their critical organisational factors</li> </ul>                                                                                                                                                                 | <p style="text-align: center;">C</p> <ul style="list-style-type: none"> <li>Describes the influence of ERM implementation on organisations' performance</li> </ul>    |
|                  | Prescriptive | <p style="text-align: center;">B</p> <ul style="list-style-type: none"> <li>Investigates the limitation of ERM and PM practices</li> <li>Discuss the link between ERM and PM</li> <li>Prescribes the critical organizational factors for ERM and PM alignment</li> <li>Prescribes the benefit of ERM and PM alignment</li> </ul> | <p style="text-align: center;">D</p> <ul style="list-style-type: none"> <li>Prescribes ERM and PM alignment approaches and provides implementation process</li> </ul> |

Source: Adopted from Althonayan (2003)

As shown in Table 3-1, each quadrant evaluates the significant factors of existing risk management and performance management approaches. The existing literature in the research area are placed in the relevant quadrant based on their contribution to the knowledge. This enables the Researcher to clarify the gap in the literature. The current research can then focus on the quadrant that has received the least support from previous studies.

ERM literature appeared in the early 2000s, when an effective risk management strategy became an important focus point for organisations' board of directors and senior managers (Dickinson, 2005; Power, 2009; Tysiac, 2014; Sadgrove, 2016). However, most of the ERM literature seems to be mainly theoretical in nature, describing the risk management and ERM approaches instead of discussing how these approaches can be effectively implemented in a

business environment (Kleffner *et al.*, 2003; Chapman, 2011; Paape and Spekle, 2012). For instance: as discussed in Chapter 2, COSO ERM (2004) is considered as the most common framework of ERM. However, the positive link between implementing this framework and increased ERM efficiency is still questioned (Paape and Spekle, 2012). An in-depth investigation of the literature confirms that the majority of previous studies fall into Quadrants A and B as illustrated in Table 3-2. In addition, Quadrant C includes a number of researches attempting to explore the relation between ERM and performance management through empirical studies examining the influence of ERM on organisational performance. Cokins (2010) and Wisuttee Wong and Rompho (2015) are the only researchers identified here who consider the implementation of ERM and performance management alignment (Quadrant D). Indeed, most of the ERM and performance management contributions are placed in a visionary and descriptive context. Nevertheless, it seems that recently, there is an increased tendency in researchers to move from theoretical to practical ERM and performance practices. Table 3-2 following, categorises researchers in the appropriate quadrant, based on their research's nature.

Table 3-2: Existing Literature Evaluation

|                  |             | Research Philosophy                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                 |
|------------------|-------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                  |             | Visionary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Implementation                                                                                                                                                                                                  |
| Research Outline | Descriptive | A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | C                                                                                                                                                                                                               |
|                  |             | Mills (1998)<br>Lam (2000)<br>IRM (2002)<br>Meulbroek (2002)<br>Basley (2004)<br>COSO (2004)<br>Mikes (2005)<br>Beasley et al. (2005)<br>Heal (2005)<br>Nocco and Stulz (2006)<br>Hammond et al. (2007)<br>Moeller (2007)<br>Power (2007)<br>Alhawari et al. (2008)<br>Killackey (2008)<br>Kaplan (2009)<br>Karkoszka and Honorowicz (2009)<br>CIPD (2009)<br>Smart and Creelman (2009)<br>ISO (2009)<br>Gordon et al. (2009)<br>Quinn (2009)<br>Smart and Creelman (2009)<br>Kloman (2010)<br>COSO (2010)<br>Beasley and Frigo (2010)<br>Shortreed (2010)<br>Fox and Epstein (2010)<br>McShane et al. (2011)<br>Hoyt and Liebenberg (2011)<br>Deloach (2011)<br>Trehan (2011)<br>Leech (2012)<br>Salem et al. (2012)<br>Ulrey (2012)<br>McNally (2013)<br>Tariq (2013)<br>Blasini and Leist (2013)<br>Ayadi et al. (2014)<br>Olson and Wu (2015) | Beasley et al. (2005)<br>Pegach and Warr (2007)<br>Gordon et al. (2009)<br>Hindson and Cazenave (2009)<br>Pegach and Warr (2010)<br>Kanhai and Ganesh (2014)<br>Lukianchuk (2015)<br>Ping and Muthuveloo (2015) |

|              |                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |                                                  |
|--------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--------------------------------------------------|
|              | B                                                                                                                                                                                                                                                                                                                                                                                                                                                   |  | D                                                |
| Prescriptive | Samadkhan (2005)<br>Wurtzel (2008)<br>Armstrong (2009)<br>Fox and Epstein (2010)<br>Chitakornkijasil (2010)<br>Fox and Epstein (2010)<br>Deloach (2011)<br>Pegach and Warr (2011)<br>Marks (2011)<br>Paape and Spekle (2012)<br>Leech (2012)<br>Bonisch (2012)<br>Leech (2012)<br>Fursle et al. (2012)<br>Seaton (2012)<br>Quon et al. (2012)<br>Duojia and Xiaohong (2013)<br>Blasini and Leist (2013)<br>Nickmanesh et al. (2013)<br>Padro (2015) |  | Cokins (2010)<br>Wisuttee Wong and Rompho (2015) |

Source: The Researcher

**Quadrant A: Visionary–Descriptive**

Those researchers whose researches focus on theoretical aspects of ERM and performance management are placed in Quadrant A, visionary–descriptive.

Quinn (2009) argues that uncertainties and economic crisis during recent decades caused financial losses for organisations and led them to pay more attention to their organisational risks, and to look for an effective approach of risk management. Burnes (2008) discusses the shortcomings of traditional risk management and its effect on organisations’ performance, sustainability, and stakeholders’ value. In fact, the differences between RM and ERM have been discussed by many researchers (such as: Lam, 2003; Dickinson, 2005; Nocco and Stulz, 2006; Beasley and Frigo, 2010; Mcshane *et al.*, 2011; Ayadi *et al.*, 2014), as detailed in the literature review in Chapter 2, Subsection 2.2.2.

Hammond *et al.* (2007) discuss the benefits of ERM implementation, arguing that risks normally are viewed as threats, but through the implementation of an effective approach of risk assessment, organisations would be able to approach many of the risks associated with their organisations as opportunities rather threats. Indeed, ERM enables organisations to

consider the upside of risks, which include the potential benefits and opportunities that an organisation could gain from a risky event (Althonayan *et al.*, 2011).

Fox and Epstein (2010) argue that ERM supports organisations to categorise and classify their resources in a way that opposes those risks that are threatening their successes and sustainability. However, as the above studies are mostly theoretical descriptive and do not provide clear guidelines on how to gain the discussed result, their view is considered descriptive.

The literature review (Chapter 2), discussed different frameworks and approaches of ERM as discussed by several researchers. In addition, the most common frameworks of ERM along with their advantages were discussed in detail (Chapter 2, Subsections 2.2.4, 2.2.5, 2.2.6, 2.2.7). The COSO (1992; 2004; 2013) framework was discussed as the most common ERM framework (Chapter 2, Subsection 2.2.4). Branson (2010) and McNally (2013) argue the COSO's ability to protect organisations from environmental threats and financial loss, and to increase shareholder values.

Furthermore, ISO 31000:2009 was discussed as a standard of risk management in Chapter 2, Subsection 2.2.5. Shortreed (2010) and Leech (2012) argue that ISO 31000:2009 provides effective risk management guidelines for organisations based on their requirements. Choo and Goh (2014) discuss that this standard enables organisations to address the challenges of their risk management.

Moreover, the AS/NZS4360 approach was reviewed in Chapter 2, Subsection 2.2.6. Its components, including how to define an organisation's current state, identification of the organisational risks, the effect of the identified risks on the organisation's goal achievement, and which risks are a priority to be mitigated, were discussed (Ward, 1999; Amornsawadwatana *et al.*, 2002; Barton *et al.*, 2002; Ahmed *et al.*, 2003a, 2003b).

In addition, the KRI definition was discussed along with its benefits in Chapter 2, Subsection 2.2.7. Killackey (2009) and Kaplan (2009) argue that KRIs facilitate the monitoring, reporting and mitigating of organisational risks. Taylor and Davies (2003) discuss that KPIs manage through responding to the questions "What are the potential risky events of the organisation? And are these within organisation's risk tolerance?".



As discussed in summary above, the researches that discussed ERM and performance management approaches broadly in Chapter 2, mostly emphasise on the importance and benefits of these approaches. For instance, most of the ERM approaches argue that, in order to overcome the weaknesses of traditional risk management, organisations need to implement an effective risk management approach. Therefore, the conceptual nature of these researches are placed in Quadrant A, visionary–descriptive.

### **Quadrant B: Visionary–Perspective**

This quadrant includes a number of researches in the literature of a visionary and perspective nature. The studies that debate ERM challenges and the significance of ERM integration with other organisational factors are categorised in this quadrant. Those researches discussing the challenges associated with organisations' performance management also are placed in this quadrant.

Several researchers (such as: Smadkhan, 2005; Purdy, 2010; Leitch, 2010; Purdy cited in Marks, 2011; Bonisch, 2012; Paape and Spekle, 2012; Leech, 2012; Seaton, 2012; Duojia and Xiaohong, 2013; Padro, 2015) discuss the failure of ERM approaches and the reasons for such failure. Leech (2012) argues that risk communication and objective setting are not considered in a COSO ERM framework. Samadkhan (2005) discusses that COSO does not cover the real area of risk, and that it is a time consuming and costly process. On the other hand, Purdy cited in Marks (2011) mentions a lack of implementational guidance as well as an absence of attention paid to the external environment as one of the COSO framework's shortcoming. Bonisch (2012) argues that COSO focuses on decreasing the disasters and losses (downside risks) and ignores the upside risks. Purdy (2010) and Duojia and Xiaohong (2013) consider the limitations of the ISO 31000:2009 risk management standard, arguing that there is lack of explaining the dynamic between this approach and the process of risk management in ISO 31000:2009, also there is lack of implementing this standard in practice (Duojia and Xiaohong, 2013). Seaton (2012) discusses the lack of alignment between key organisational components and the way that organisational risks are managed as another shortcoming of this standard.

Several researchers (such as: Hudson *et al.*, 2002; Thomas, 2003; Norrekelit, 2003; Mohobbot, 2004; Berg, 2006; Gorska and Kosieradzka, 2007; Karadbhujje *et al.*, 2007; Gupta, 2008; Smart and Creelman, 2009; Salem *et al.*, 2012; Fursle *et al.*, 2012) discuss the shortcomings of performance management tools. Mohobbot (2004) considers the lack of time dimension existence in BSC, while overlooking external environment consideration is discussed as another limitation of BSC (Thomas, 2003). Furthermore, Gorska and Kosieradzka (2007) state that the implementation of kaizen has been confronted by a lack of senior management support, as board of directors and top managers believe that kaizen is a long-term process and requires integration in an organisation's culture. Similarly, it is argued by Smart and Creelman (2009) that implementing kaizen in practice is very challenging as it changes the existing management system of the organisation.

Karadbhujje *et al.* (2007) argue that Six Sigma is a suitable tool for large organisations' performance management, and its full potential is not realised in small and medium size organisations. On the other hand, it is argued by Fursle *et al.* (2012) that Six Sigma is the same as old-style quality management processes but in a new image. Fursle *et al.* (2012) further argue that there is a lack of effective guidance for this tool's implementation. The studies performed by the above researchers fall into Quadrant B, visionary–prescriptive.

Regarding the relationship between ERM and performance management, several researchers (Lam, 2003; Mikes, 2005; Fox and Epstein, 2010; Mcshane *et al.*, 2011; Hoyt and Liebenberg, 2011; Althonayan *et al.*, 2011; Singh and Kadaba, 2013; Nickmanesh *et al.*, 2013) discuss the positive link and benefits of ERM implementation on organisations' performance management.

Mikes (2005) states that implementing an effective ERM enables organisations to gain their strategic goals and create value for their stakeholders. Similarly, Fox and Epstein (2010) argue that by implementing ERM, organisations could categorise their resources against those risks that jeopardise their aims and objectives, this ensures organisations that their strategic objectives are being met.

Frigo (2008) argues the importance of aligning strategic planning with ERM in order to create competitive advantage and increase organisational performance. Linking ERM and strategic planning is critical in having an effective ERM.

Althonayan *et al.* (2011) discuss the necessity of aligning ERM and business strategy, arguing that both ERM and business strategy attempt to decrease the risk of erosion in organisations' resources and assets. So, aligning ERM and business strategy would be beneficial and result in an increase in organisational performance, decreased earnings volatility, and creation of shareholder confidence (Althonayan *et al.*, 2011).

Nickmanesh *et al.* (2013) state that ERM creates organisational value and economic growth by reducing the capital costs and decreasing activities related to commercial uncertainty. However, a lack of guidance in how to implement this connection places all these researches in Quadrant B, visionary–descriptive.

### **Quadrant C: Descriptive–Implementational**

There are some researches (Gordon *et al.*, 2009; Pegach and Warr, 2007, 2010; Quon *et al.*, 2012; Gates *et al.*, 2012; Ping and Muthuveloo, 2015; Lukianchuk, 2015) that are categorised as descriptive–implementational, which are placed in Quadrant C.

Gordon *et al.* (2009) discuss the link between ERM and performance management through examining the ERM activities of 112 American companies, and the findings of their study confirmed that implementing ERM improves organisations' performance. Gordon *et al.* (2009) further argue that the ERM and performance relationship is based on a suitable match between ERM and these five variables: 1) external and internal uncertainties; 2) industry competition; 3) organisation size; 4) business complexity; and 5) monitoring by boards. Similarly, Ping and Muthuveloo (2015) attain similar results in their examination of the impact of ERM implementation on the performance of Malaysian Public Listed Companies. The findings of Ping and Muthuveloo's (2015) research, confirm that ERM implementation has a significant influence on organisations' performance, arguing that factors such as board of directors' monitoring, size of organisation, and organisation complexity, influence the relationship between ERM and organisational performance.

Pegach and Warr (2010) study the effect of ERM implementation on organisations' long-term performance through examining 106 organisations that have adopted ERM. Pegach and Warr (2010) argue that only a few of their subject organisations had experienced a decrease in earnings volatility through the ERM implementation. Indeed, their research resulted in limited evidence of ERM's influence on organisations' performance. Pegach and Warr

(2010) further discuss that their results might be due to the variety of their cases or the weakness of their test to realise the changes. Moreover, another reason could be the extended time needed for organisations to reap a benefit from ERM implementation. Similarly, Lukianchuk (2015) experiences the same result in the examination of ERM's impact on small and medium size organisations' performance. The findings of this research, which took place in 208 organisations based in the UK and Northern Ireland, did not confirm such a positive relation between risk management and less volatile earnings. Indeed, there was little evidence found to support this relationship. Lukianchuk (2015) suggests that more analysis is needed to capture the possible link between them (Lukianchuk, 2015).

Quon *et al.* (2012) examine the link between ERM and performance management in 156 non-financial organisations, arguing that ERM's influence on organisations' performance has not received sufficient attention. Quon *et al.* (2012) further discuss that the financial crisis during 2007 and 2008 had an immediate effect on organisations' financial market performance, while the effect on operational and accounting performance was delayed to 2009. However, those organisations that had implemented ERM were able to retain value creation and deal with the financial crisis more effectively.

Gates *et al.* (2012) find a positive link between ERM and performance through examining 150 US companies. Gates *et al.* (2012) discuss that, based on the findings of their research, the practical value of ERM implementation is realised in both improved management and increased performance. Gates *et al.* (2012) further argue that ERM implementation results in better management consensus, good decision making, decreased earnings volatility, and enhanced organisational profitability.

The above studies describe the results of the several researches' investigations regarding ERM's influence on organisational performance. As these studies do not guide on how ERM can be incorporated into organisations' performance management in the business environment, therefore they can be classified in Quadrant C, implementational– descriptive.

#### **Quadrant D: Prescriptive–Implementational**

The studies categorised in this quadrant are very scarce and presented by the research of Cokins (2010) and Wisuttee Wong and Rompho (2015), who discuss that performance

management have to be incorporated by an overarching concept, which is ERM. Cokins (2010) develops a model of enterprise risk management and performance management. Cokins's (2010) model defines the four following steps of: risk management; strategy and value management; investment evaluation; and performance management, showing how strategy management achieves the ultimate goal of an organisation through performing risk management plus performance management. However, this research has mostly considered the integration of ERM with business strategy. Another major limitation of this model is its scant guidelines on its effective implementation in practice and at the enterprise level.

Wisuttee Wong and Rompho (2015) explore the relation between effective balanced scorecard and COSO ERM in a sample of 93 companies in Thailand. The findings of this examination confirm a positive link between the BSC and COSO framework, arguing that both BSC and ERM could be implemented simultaneously, and success or failure in one of them would affect the success or failure of the other one. However, this study mostly considers BSC from a business strategy point of view, and there is no appropriate guidance on how to align the BCS tool and ERM approach.

The Researcher discusses that the paucity of existing researches placed in Quadrant D, prescriptive–implementational, confirms that the studies on the ERM and performance management relationship are under-researched but require further investigation in order to make a contribution to the literature. The gap of the literature identified in this chapter, is summarised in Table 3-3.

Table 3-3: Summary of literature gap

|                      | Researcher and year                | Identified gap                                                                    |
|----------------------|------------------------------------|-----------------------------------------------------------------------------------|
| TRM evolution to ERM | Power (1999; 2004);                | -Silo risk management mindset;                                                    |
|                      | Lam (2000; 2003; 2010);            | -ERM immaturity;                                                                  |
|                      | Beasley et al. (2005; 2009; 2010); | -Poor understanding of ERM and how it is defined;                                 |
|                      | Mikes (2005; 2007);                | -Weak knowledge on how ERM is combined in organisational structure;               |
|                      | Moody (2009; 2012);                | -Managers' confidence and tendency to use the existing risk management approaches |
|                      | Leech (2012);                      |                                                                                   |
|                      | RIMS (2013); Sadgrove (2016)       |                                                                                   |

Alignment of ERM with Performance Management: Case of Automotive Industry

|                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ERM challenges | <p>Kleffner (2003);<br/>                 Banham (2004);<br/>                 Liebenberg and Hoyt (2003; 2009;2011);<br/>                 Martin and Power (2007);<br/>                 Lam (2007;2010);<br/>                 Stulz (2009); Kaplan (2009); Moody (2009);<br/>                 Fox and Epstein (2010);<br/>                 COSO (2010a);<br/>                 Pegach and Warr (2011);<br/>                 RIMS (2011);<br/>                 Paape and Speklé (2012);<br/>                 Leech (2012);<br/>                 Nickmanesh et al. (2013);<br/>                 Mikes and Kaplan (2013); Padro (2015)</p> | <p>-ERM guidance is based on global standard;<br/>                 -Lack of tendency to change what is still working;<br/>                 -Lack of understanding of the benefits and values of ERM;<br/>                 -Lack of appropriate guidance in ERM implementation;<br/>                 -Lack of sufficient skills and expertise to solve the ERM issues;<br/>                 -Lack of sufficient understanding on how to integrate ERM into organisations existing processes;<br/>                 -Lack of risk communication among whole organisation;<br/>                 -Insufficient risk data quality;<br/>                 -Lack of regular external and internal oversight;<br/>                 -Neglecting the internal and external environments' changes;<br/>                 -Lack of ability of risk data aggregation for effective risk reporting;<br/>                 -Insufficient risk resources</p> |
|----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Alignment of ERM with Performance Management: Case of Automotive Industry

|                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                         |
|---------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ERM benefits        | <p>Basley (2004);<br/>                 Heal (2005);<br/>                 Mikes (2005);<br/>                 Nocco and Stulz (2006);<br/>                 Chapman (2007);<br/>                 Mikes (2007);<br/>                 Frigo (2008);<br/>                 Gates (2009);<br/>                 Beasley (2010);<br/>                 RIMS (2011);<br/>                 Leech (2012);<br/>                 Mikes and Kaplan (2013); Lam (2014); Olson (2015)</p> | <p>-Lack of understanding of the long-term benefits of ERM;<br/><br/>                 -Lack of understating the full potential of ERM;<br/><br/>                 -Lack of clear measurement of ERM's value;<br/><br/>                 -Lack of considering the upside risks</p>                                                                                         |
| ERM and PM relation | <p>Mikes (2005);<br/>                 Gordon <i>et al.</i> (2009);<br/>                 Pagach and Warr (2011);<br/>                 Quon <i>et al.</i> (2012);<br/>                 Kanhai and Ganesh (2014); Grace et al. (2015)</p>                                                                                                                                                                                                                                 | <p>-Inadequate understanding on significance of ERM and PM alignment with regard to organisations' sustainability;<br/><br/>                 -Insufficient understanding on how ERM and PM alignment links into better decision-making and increased performance;<br/><br/>                 -Neglecting the continuous changes in external and internal environment</p> |



|                                                             |                                                                                                                                                          |                                                                                                                                                                                                                                                                                                            |
|-------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ERM&PM alignment approaches                                 | Cokins (2010);<br>Wisutteeuwong and Rompho (2015);                                                                                                       | -Lack of identifying the factors critical to ERM and PM alignment;<br><br>-Lack of a dynamic and effective ERM and PM alignment framework;<br><br>-Lack of appropriate guidance in how to implement ERM and PM alignment in practice                                                                       |
| Boards and senior managers' support of ERM and PM alignment | Beasley, Pagach and Warr (2008a);<br>Walker (2009);<br>Power (2009; 2011);<br>Beasley et al. (2010);<br>Pagach and Warr (2011);<br>Beasley et al. (2012) | -Inadequate support and involvement of boards and senior managers;<br><br>-Lack of a regular communication between the boards and C-Suite regarding ERM and PM;<br><br>-Lack of adequate risk skills in organisations' boardrooms;<br><br>-Lack of clear responsibility on risk oversight in organisations |

Source: The researcher

Table 3-3, above, summarises the contributions and limitation of previous researches identified through this chapter by applying the Four Quadrant Matrix (Table 3-1). The findings of the literature review (Chapters 2 and 3) and the gap of knowledge identified from the evaluation of current ERM and performance management approaches (Chapter 4) are considered as the foundations of developing a theoretical framework aligning ERM with performance management.

The following section (3.3) discusses the need for the framework aligning ERM with performance management. In addition, the derivation and the theory used for developing the proposed framework are discussed in subsections (3.3.1 and 3.3.2). Moreover, Subsection 3.3.3 presents the developed aligning framework (Figure 3-1) along with step by step implementation guidance.

### 3.3 The need for a framework aligning ERM and performance management

As discussed in the literature review (Chapter 2, Section 2.2), awareness on silo-based risk management's shortcomings has increased over the last two decades (Mikes, 2009; Leech, 2012; Paape and Spekle, 2012). Organisations' senior managers agree on the necessity of ERM implementation as an integral part of organisational effective risk management (Ping and Muthuveloo, 2015). However, there is a challenge for organisations' management on how to implement ERM in practice in order to gain the desirable outcomes on their effective risk management (Arena *et al.*, 2011; Brustbauer, 2016).

After the Global Financial Crisis (in 2007 and 2008), organisations focused on developing an effective risk management through planning to shift their silo-based risk management approach to ERM (Pagach and Warr, 2011). Some organisations' board of directors conduct yearly meeting to review and discuss their ERM, while other organisations are utilise a regular reporting schedule to remain informed about their ERM status (Hampton, 2009; Pagach and Warr, 2011).

Boards are recognising ERM's benefits on organisational sustainability and competitive advantage (Elahi, 2010; Palm, 2012). The necessity of ERM emerges especially when retaining market reputation is vital for organisations' survival (Elahi, 2010; Palm, 2012). Implementation of ERM is not a quick or straightforward process. Indeed, before adopting ERM in an organisation, management have to first define what they aim to achieve from ERM adoption, based on their organisational strategic objectives (Gates 2006; Cokins, 2010; Ashby, 2011).

Senior managers might be able to drive the risk initiatives in their organisation through the adoption of various ERM approaches. However, to gain competitive advantage and maintain a sustainable business, organisations should align their ERM with performance management (Beasley *et al.*, 2005; Elahi, 2010; Leech, 2012). An inability to align ERM with organisational performance could lead to failure in organisational objective achievement, and failure to reach the full potential of ERM (Paladino and Francis 2008; Cokins, 2010; Wisutteepong and Rompho, 2015). Furthermore, over-focusing on just the process of risk management and neglecting its outcomes will harm its overall value creation (Mikes and Kaplan, 2012).

The literature gap identified and discussed in this chapter confirms that organisations realise the significant role of aligning ERM with performance management in their value creation and long-term sustainability. However, they lack an effective approach and guidance to enable them in the alignment of ERM with their performance management. Therefore, the Researcher proposes the development of a framework in order to address the existing issues through providing practical guidance on how to align ERM and performance management in practice with the purpose of achieving a sustainable business with competitive advantage and enhanced performance. The derivation of the proposed aligning framework is discussed in the next section.

### **3.3.1 Derivation of the proposed framework**

The current subsection discusses the derivation of the proposed framework aligning ERM with performance management. The Researcher proposes the aligning framework to address the identified literature gaps by using the four-quadrant matrix (Table 3-1) that provided a meticulous literature classification and gap identification which summarised in Table 3-3. Literature evaluation reveals that board of directors and senior managers struggle in how to implement ERM effectively in their organisation and keep their organisation's long-term sustainability (Power, 2009; Jaffer, 2010; Wisutteewong and Rompho, 2015). Findings of the literature review (Chapter 2) shows that the organisations which have adopted ERM, are only able to meet some areas of ERM's requirement, and they fail to gain the full potential of ERM. So, the framework aligning ERM and performance attempts to address the gaps of the literature by making guidance and recommendation enabling organisations to align their ERM and performance management and moving towards enhanced performance.

The literature review (Chapter 2) confirms that several researchers (Gordon *et al.*, 2009; Pegach and Warr, 2007:2010; Quon *et al.*, 2012; Gates *et al.*, 2012; Ping and Muthuveloo, 2015; Lukianchuk, 2015) agree on advantages of ERM and performance management alignment. However, through literature evaluation (Chapter 3) becomes evident that there is a lack of an effective framework aligning ERM and performance management along with an implementational guidance for its effective implementation in practice. Therefore, the framework of aligning ERM and performance management is developed in this chapter considering those critical organisational factors that have been neglected in previous studies.

Through evaluation of the literature, critical factors effecting organisations' success and sustainability were identified, and the key shortcomings of ERM and performance management practices were also recognised. The most critical gaps in the literature that discussed in this chapter are summarised as below:

- Lack of integrating ERM with organisational strategic objectives;
- Lack of strategic alignment of ERM with external and internal environment;
- Lack of understanding the key benefits of ERM and its effective integration with other organisational functions;
- Lack of dynamic framework along with a clear guidance enabling effective alignment of ERM and performance management practice;
- Lack of adequate support from senior managers;
- Lack of risk communication among organisations' layers;
- Insufficient data quality and risk resources;
- Lack of risk data aggregation for effective risk reporting and management;

In reference to above shortcomings, the alignment framework is developed by the Researcher demonstrating the organisational factors that are critical in effective alignment of ERM and performance management.

The following subsection (3.3.2) discusses the theory that applied for development of the proposed framework.

### **3.3.2 Theory used for the proposed framework**

During this research, different theories such as (Organisational theory, System theory, Chaos theory and Contingency theory) were reviewed. However, the aligning framework developed in this research is within the scope of contingency theory.

Contingency theory falls between two extreme opposite theories which are: scientific management theory and situation specific theory (Fisher, 1998). The first one claims the existence of an optimal management control design that is appropriate to all organisations (scientific management theory); second one conversely posits that they are unique factors that influencing organisations' control system (situation specific theory). So, based on situation specific theory, applying general guidelines and structures to all organisations is impossible. Contingency theory in this between agrees the need to applying management control designs into organisations' contexts, however, it also agrees with generalising control designs to major classes of organisations' characteristics (Fisher, 1998; Donaldson; 2001). Contingency theory posits that, there is not a single best way appropriate to lead an organisation and design its management control system. In this regard, Otley (1992) and Drazin and Van de Ven (1985) argue that there is no universal best way to be used equally to all organisations in all situations. In fact, the best decision for each organisation depends on its assessment of internal and external environment (Otley, 1992; Drazin and Van de Ven, 1985). Woods (2009) and Kaplan and Mikes (2014) discuss that, an optimal control system is contingent to the organisations internal (such as: strategy) and external (such as: environmental uncertainty) situation (Woods, 2009; Kaplan and Mikes, 2014). So, the proposed aligning framework has been developed based on this view that an organisation's ERM and performance management design is depending to that organisation's strategic planning (Stage 2 of the framework ) and environmental analysis ( Stage 3 of the framework) as presented in Figure 3-1. Chenhall (2006) argues that, contingency theory considers organisational contexts' effect on selection of the suitable management system (Chenhall, 2006). Based on this definition, the SWOT and PESTEL analysis have been adopted into the proposed framework which enables organisations' managers to determine their internal strengths and weaknesses, and external opportunities and threats affecting their management control system (Kaplan and Mikes, 2014).

Several researches on contingency theory field emerged between 1960s to 1970s. Studies in this field were performed in diverse disciplines of management. Several researches (Woodward,1965; Lawrence and Lorsch, 1967; Perrow, 1967; Argote, 1982; Ahuja and Carley, 1999) in this field initially considered the influences of technology and environmental uncertainties on organisation's management control system. Moreover, strategy was another factor that was studied by contingency theory pioneers (such as: Chandler, 1962; Miles and Snow, 1978; Burton *et al.*, 2003). Factors such as: organisational size and structure were also

considered as contingency factors by researchers (such as :Child, 1973; Hoskisson *et al.*, 1990; Powell, 1992). Over the time, researches on contingency theory grown from investigating single dimensions to examining multiple dimensions. The relevant contingency factors are not limited to those mentioned above. The factors named above are only examples and are not exhaustive.

The current review of contingency theory is related to development of the framework aligning ERM with performance management, as does not comprehensively cover the contingency theory in management control structure.

According to Branson and Hancock (2010) and Kaplan and Mikes (2014), due to abundance approaches and standards of ERM such as ( COSO, ISO 31000, AS/NZS4360) researchers might consider ERM as a mature discipline. However risk management principles are still emerging and have not been yet fully proven. Therefore, implementing standards and approaches of ERM that seem to be applicable in all settings and usable to managing all type of risks ( for instance: as claimed by ISO 31000) could be a major risk itself (Beasley *et al.*, 2010; Kaplan and Mikes, 2014).

A study by Kaplan and Mikes (2014), investigated risk management of three organisations that were supported by boards and senior managers. The outcomes showed that each organisation had different discipline and approach of its ERM function. Kaplan and Mikes (2014) argue that it is not predictable that which ERM structure out of those three will be the most successful one. All three organisations' ERM structure might be right or even the best for them; and other disciplines might be appropriate for other organisation contexts (Kaplan and Mikes, 2014). Therefore, following the adoption of contingency theory to the proposed framework (Figure 3-1), the Researcher avoids recommending a specific ERM discipline to be applied in all organisations with different situations. Instead, this research encourages the users of the developed aligning framework to search for internal and external environment and select the most suitable ERM discipline based on their specific circumstances.

The next section presents the proposed Framework Aligning ERM with Performance Management (Figure 3-1) and provides step by step guidelines for its practical implementation.

### 3.3.3 The proposed aligning framework and guidance for practical implementation

This subsection introduces the components of the proposed framework (Figure 3-1) and their role in aligning ERM with performance management. The practical guideline in respect of this alignment is also discussed through this subsection.

The Researcher discuss that the proposed framework will create opportunity for organisations to identify the risks effecting and jeopardizing their performance in achieving their goal and objectives. The proposed framework (Figure 3-1) comprises five strategic organisational components that are aligned with each other.

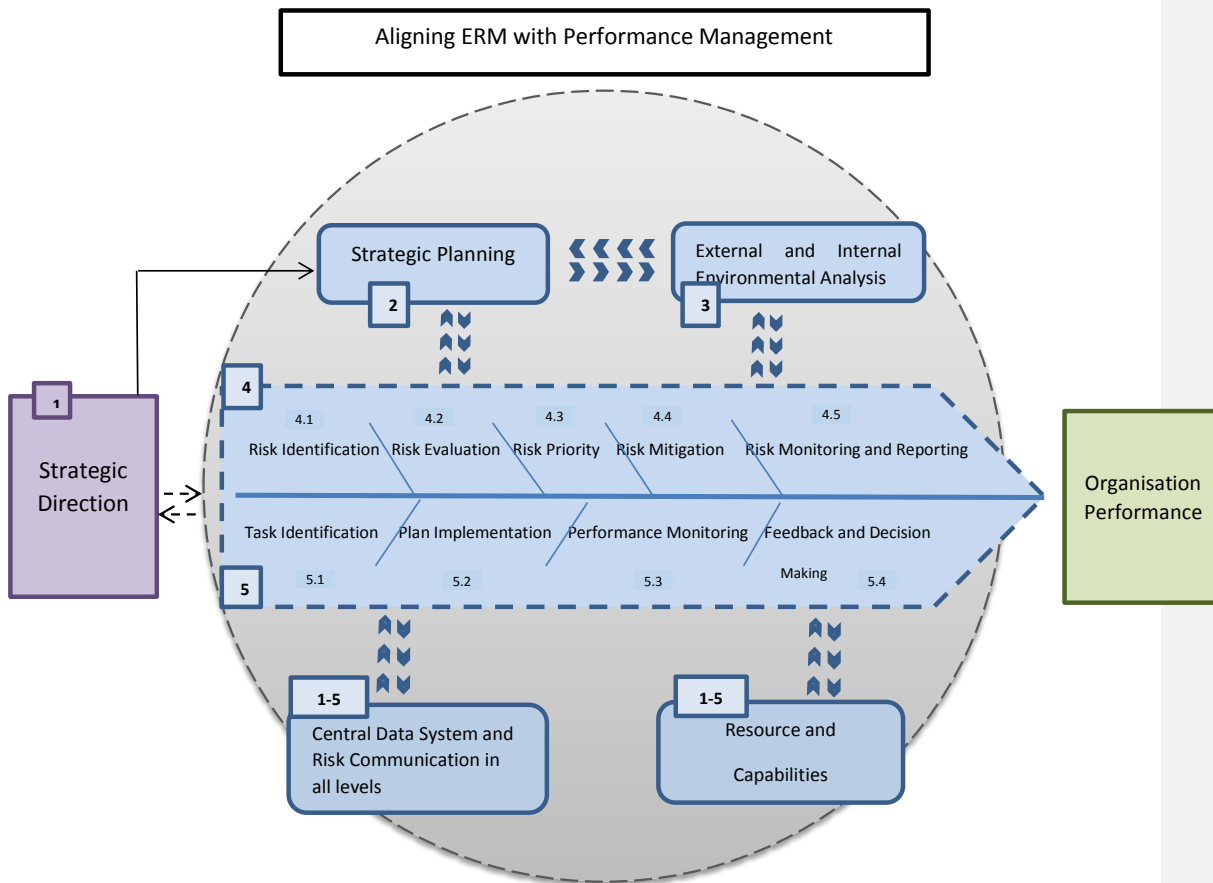


Figure 3-1: Aligning ERM with performance management

Source: The Researcher

The aligning framework (Figure 3-1) offers ERM implementation based on organisational strategic planning, which is determined through the organisation's strategic direction. Indeed, the initial stage is to determine the organisation's strategic direction (Stage 1). Then through the second stage (Stage 2), the organisation's aims and strategic objectives are set based on organisation's strategic direction. Through this stage (2), managers can decide where to invest and which opportunities to pursue (Beasley, 2007; Frigo, 2010). The third stage comprises external and internal analysis (Stage 3). External and internal environment analysis provides knowledge to the management about events occurring inside and around the organisation along with their probable effect on the business performance (integration of the framework with contingency theory) (Lam, 2003).

The fourth stage is the ERM implementation (Stage 4) which includes 5 steps. The first step is risk identification (Step 4.1). This step (4.1) identifies the organisation's risks based on: 1) the organisation's aims and objectives (Stage 2); and 2) the external and internal factors identified through Stage 3, by applying SWOT and PESTEL tools (Stage 3). After risks identification, the next step is risks assessment (Step 4.2); An organisation's risk managers should determine their organisation's risk appetite and tolerance in this step (Govindarajan, 2011). According to Anderson (2008) and Allan and Cantle (2013), risk appetite and risk tolerance should be defined based on the maturity of organisational risk management, they should be developed widely and be understood among all levels in organisation. There are various techniques for risk tolerance and appetite assessment. Appendix H includes a summary of risk assessment tools and presents a risk assessment matrix as one of these tools. Recognising the risks which are under control and those that are beyond control, along with the likelihood of their occurrence and probable negative impact on the organisation's performance, are critical for the successful measurement and effective management of those risks (Meyer *et al.*, 2011). Once the organisational risks are identified and assessed, decisions are made through the next two steps (4.3 and 4.4) on how to control and respond to these risks.

Through the last step of the ERM process (Step 4.5), the key risks are monitored and communicated across the organisation. The ERM process (Stage 4) is continuously repeated across all levels of organisation to realise any upcoming changes, and to reassess the risks that have not been managed in the previous period. Management uses the outcomes of the ERM process to improve organisational risk-based decision making. By making risk-based



decisions, the alignment framework continues to its fifth stage, which is performance management (Stage 5) including 4 steps (5.1, 5.2, 5.3, and 5.4).

The process of performance management starts with planning (Step 5.1) including the setting of organisational goals and tasks by senior managers to be accomplished by employees (Lebas, 1995; Latham *et al.*, 2007). After the strategic plans are defined, the second step of performance management; the plan execution (Step 5.2), will begin to address the tasks defined in previous step (5.1) (Blasini and Leis, 2013). While efforts are continuously applied to achieve the objectives defined in the first step, it is critical for management to monitor how goals and strategic objectives are implemented in (Step 5.3) to ensure that the organisational performance process is in the planned path (Killackey, 2008). Step 5.3 enables management to recognise what is going well and what is not. The final step of this performance management process is feedback and decision making (Step 5.4), which uses the collected information from the previous step (5.3) to conclude and decide whether there is a need for changes in some areas or if the process can proceed as it is performing (Latham *et al.*, 2007). The performance management process is a continuous process and all steps are constantly repeated through the organisation.

In addition, the continuous contribution of two strategic components: 1) Central data system and risk communication at all organisational levels, and 2) Resources and capabilities (Stages 1–5), are critical in order to achieve a successful ERM implementation and an effective alignment between ERM and the performance management process. However, these two factors are not considered as individual stages of implementation. They are incorporated among the whole organisational structure and during the entire process of ERM and performance management alignment (from Stage 1 to 5).

In order to identify the risks associated with an organisation's aims and objectives, there is a need for continual risk communication at all organisational levels. Also, the establishment of a central data system recording and retaining the organisation's existing risks would provide a richer risk data history, helping management to identify previous risks that might reoccur (Fox and Epstein, 2010). Therefore, an organisation's central data system (Stages 1–5) should be connected to the whole process at all times, especially to external and internal environment analysis (Stage 2) and risk identification (Step 3.1), in order to keep the system updated with upcoming events that might have an impact on organisation. This would enable

managers to recognise and manage risks and opportunities more effectively (Deloach, 2011; Ulrey and Sargent, 2013). Moreover, applying any approach in an organisation's current processes need that organisation's specific resources and capabilities (Fox and Epstein, 2010). Therefore, aligning ERM with performance management also requires the organisation's resources and capabilities (including capital and budget, knowledge and skills) to feed this process continuously, helping the organisation to perform more effectively.

### 3.4 Conclusion

It became evident through the literature, that ERM has become a critical part of organisations over the last two decades. However, senior managers have yet to find a more effective approach for ERM implementation with clear guidelines as to its practical implementation. Moreover, embedding ERM into the current structure of an organisation in order to achieve the full benefit of ERM (such as: value creation for shareholders, competitive advantage, and long term sustainability) remains a challenge for senior managers.

Therefore, organisations first need a clear understanding of the ERM concept and its implementation. Senior management should align their ERM with the organisational objectives in order to ensure the long-term sustainability of their business performance. Researchers argue that, though ERM has evolved significantly over recent years, most organisations' risk maturity level is still low. Failing to address the particular challenges of ERM would leave the process as an unfulfilled plan.

This Research has identified the key gaps of the literature on ERM as: a lack of strategic ERM alignment with the external and internal environment and strategic objectives, lack of dynamic and effective framework and a clear guidance enabling ERM and performance management alignment in practice, a lack of risk communication, sufficient data quality, and risk resources.

Most of the literature contributions are on visionary bases and focus mainly on ERM implementation, its potential benefits, and its alignment with performance management descriptively. The significance of ERM alignment with performance management is discussed in the literature on descriptive bases and rarely in a prescriptive context. These

findings confirm that ERM alignment with organisational performance management requires continuous development. Therefore, the Researcher proposes to address the shortcomings, and to fill the gap identified in this research's literature, through developing a framework aligning ERM and performance management. The aim of developing the aligning framework is to enhance organisational performance and gain long-term sustainability for the organisation and competitive advantage for the shareholders.

The proposed framework aligns ERM with performance management through the contribution of key organisational factors critical for this alignment. The validity and reliability of the alignment framework will then be validated by empirical research analysis in Chapters 5 and 6.

The following chapter (Chapter 4), discusses the methodology chosen for this research.

## Chapter 4: Research Methodology

### 4.1 Introduction

The previous chapter identified the literature gap and proposed a framework aimed at aligning ERM with performance management. The current chapter discusses how this research is conducted. Discussion starts by providing an overview of research approaches and continues by choosing the most suitable research methodology, which guides the validation of the proposed framework, before responding to the research questions.

The determination of an appropriate methodology is challenging and critical in research studies. Collis and Hussey (2009) argue that a methodology is an “*overall approach to the entire process of the research study*” (Collis and Hussey, 2009, p.83). Indeed, the focus of a research methodology is on exploring the research problem (Remenyi *et al.*, 2003); therefore, it is important to identify the most appropriate methodology in order to ensure the achievement of the research objectives as well as creating credibility for the research. It is essential to have stability among research questions and research approaches in both a methodological and theoretical manner, as the research philosophy, approach, choice, strategy and techniques are innate elements of the methodology (Churchill and Sanders, 2007; Gray, 2013).

The current chapter discusses the methodology and specifies the methodology chosen for the purpose of this research, based on the research questions and objectives determined in Chapter 1. The terminology of the “research process onion” (Saunders *et al.*, 2009) is adopted in this research, as illustrated in Figure 5-1.

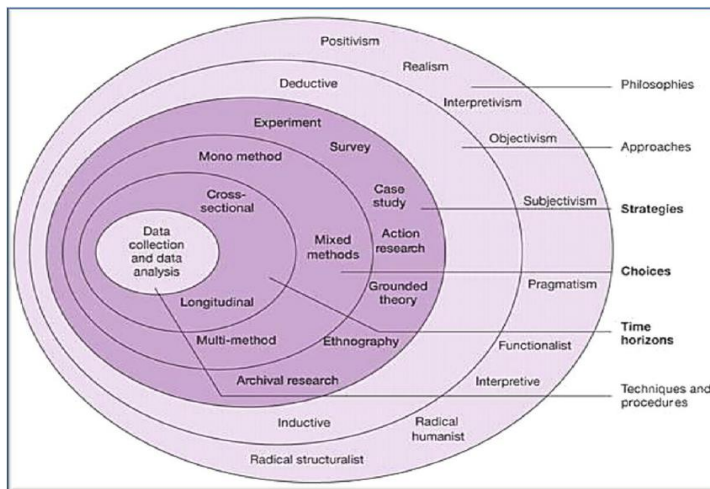


Figure 4-1: The research process “onion”

Source: Saunders *et al.* (2009)

This chapter comprises two parts. The first discusses the research philosophy and research approach, and the second explains the design, appropriate strategies and techniques of the research. The key research philosophies are discussed in Section 5.2, while, Section 5.3 considers the nature of deductive and inductive approaches. Research strategies are discussed in Section 5.4, research design is presented in Section 5.5, while Sections 5.6 and 5.7 discuss data collection and data analysis methods. The Researcher investigates and evaluates qualitative and quantitative research approaches and brings a justification for choosing the mixed method approach of data collection. The quality of this research is described in Section 5.8, considering validity and reliability matters of the research. Section 5.9 discusses ethical consideration of the research and finally, the chapter is summarised in Section 5.10.

## 4.2 Research philosophy

Research philosophy presents the ways that researchers view the world. According to Guba and Lincoln (1994), there are three aspects of research paradigms: *methodology*, *epistemology* and *ontology* (1994, p. 105). This section discusses research philosophies briefly and argues the rationale for the selection of the philosophy used for this research.

Based on Blaikie (1993) ontology is “*the science or study of being*” explaining “*the form and nature of reality*”. Hatch and Cunliffe (2006) requested of their research participants that they explain their views of reality; the results concluded that individuals have different definitions of reality (subjective or objective) depending on their experiences (Hatch and Cunliffe, 2006).

Marsh and Furlong (2002) and Easterby-Smith *et al.* (2008) define Epistemology as “*the theory of knowledge*” that investigates “*what we can know about the world and how we can know it*”. Epistemology concerns the specification of what knowledge is and determining its sources and limitations (Eriksson and Kovalainen, 2008). Epistemology is “*how and what it is possible to know*” (Chia, 2002).

In discussion about research philosophy, it is very significant to know two paradigms that underlying social science researches. These two paradigms differ in ontology & epistemology: positivism & phenomenology (Easterby-Smith *et al.*, 1999; Eriksson and Kovalainen, 2008). Positivists argue that reality is outlined from an objective point of view and moves to a deductive approach (Levin, 1988). For positivists, reality comes from values of reason and validity is collected by direct observation that mostly uses quantitative methods (Cohen and Crabtree, 2006; Saunders *et al.*, 2007; Easterby-Smith *et al.*, 2008). Conversely, phenomenology relates to the study of individuals’ experiences, leading to an inductive approach. These two research paradigms (positivism and phenomenology) comprise “eight research philosophies, seven research strategies, three research choices, two research time horizons, and several different research methods of data collection and analysis” (Hatch and Cunliffe 2006; Saunders *et al.*, 2007; Collis and Hussey, 2013), which are reviewed in the following sections.

The research philosophies of realism, interpretivism, pragmatism, objectivism, functionalism, subjectivism, and radical humanism are supported by the two paradigms mentioned above. The seven main research strategies are: case studies, surveys, action research, experiments, ethnography, grounded theory and archival research. The three research choices of method are: mono-methods, mixed methods and multi-methods. In addition, the chosen philosophy,

strategy and research choice of a research will fall into either longitudinal or cross-sectional time horizons. Data collection consists of collecting data through various approaches (such as: qualitative and quantitative methods interviews, focus groups and observation, questionnaires and content analysis) depending on if the type of the research is ontological or epistemological (Gummesson, 2003; Wilkinson and Birmingham, 2003).

Gummesson (2003) discusses that all research is interpretive, whereas other researchers (such as: Otway and Thomas, 1982; Bradbury, 1989) argue that researchers deal with a risk perception problem when considering objective against subjective viewpoints.

Interpretivists believe that researches are understood through subjective interpretation. Indeed, interpretivists discuss that people understand situations by their individual experience (Eriksson and Kovalainen, 2008). So, interpretivists build their view of reality based on their interpretations of a subject of the world (Denzin and Lincoln, 2003).

Having considered the subject of this research (ERM and performance management), the Researcher has identified interpretivism as the most appropriate research philosophy for this research field (Iran automotive industry). This research does not intend to test a pre-existing theory or create a new theory; this research uses the philosophy of interpretivism to first, explore the ERM approaches and their alignment with performance management in the automotive industry, and second, to develop an effective framework aligning ERM with performance management along with practical guidelines and recommendations for use by automotive industries and academics.

### **4.3 Research approach**

This section discusses two key research approaches (deductive and inductive methods) to determine the most suitable foundation for this research. Denzin and Lincoln (2003) and Cresswell (2007) argue that illustrating the research approach is an important strategy that enhances the validity of social science researches. Therefore, this section is allocated to describing deductive and inductive approaches broadly.

### 4.3.1 Deductive and inductive approach

Research approaches can be classified as either inductive or deductive. A deductive approach involves scientific reasoning. It develops from general to specific observations and forms conclusions based on specific obtained outcomes (Trochim, 2000; Creswell, 2013). In contrast, inductive reasoning begins with a specific observation and ends in a general theory. The discovery of gravity by Newton while observing an apple falling to earth is a well-known example of a deductive approach. Newton deduced that this event must have happened because of a force. Therefore, a specific deduction can be made based on a specific outcome. Considering the same example from an inductive reasoning point of view, the observation of an apple falling down during the harvest and some other conditions would lead Newton to consider them as the reasons for this.

As is shown in Figure 5-2, the deductive approach starts with a general question or theory regarding a topic of interest to a researcher that has to be examined. This theory moves to a hypothesis that must be testable and allow the measurement of variables in order to either approve or reject the hypothesis and subsequently confirm the truth or falsity of the theory (Trochim, 2000; Gill and Johnson, 2002).

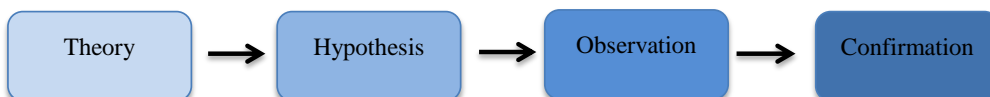


Figure 4-2: Deductive approach

Source: Burney (2008)

Although deductive research is considered a classic approach, it has some shortcomings. The hypothesis testing process is perceived as scientific, but the theory can be questioned and considered as being subjective, and this subjectivity might have an important impact on the outcomes of the hypothesis. It is argued by Blaikie (1993) that the subjectivity of a deductive reasoning could change the reasoning to inductive.



As is shown in Figure 5-3, inductive research begins with a specific observation and results in a general theory (Bryman and Bell, 2003). This process observes and identifies patterns that suggest a tentative hypothesis and need more exploration to formulate a general theory (Blaikie, 1993; Bryman and Bell, 2003).

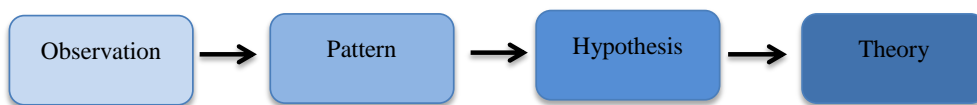


Figure 4-3: Inductive approach

Source: Burney (2008)

Concerns about an inductive approach refer to the risk of forming incorrect conclusions from the false analysis and evaluation of the correlations existing among observations. However, an increase in the number of observations may decrease the likelihood of such incorrect conclusions.

#### 4.3.2 Combination of deductive and inductive approach

Though deductive and inductive approaches seem to be inherently conflict, each of them performs a different important perspective of the research. However, it is useful to apply them both in some different stages of a research (Trochim, 2000; Bryman and Bell, 2015). Figure 4-4 displays the interaction between deductive and inductive reasoning.

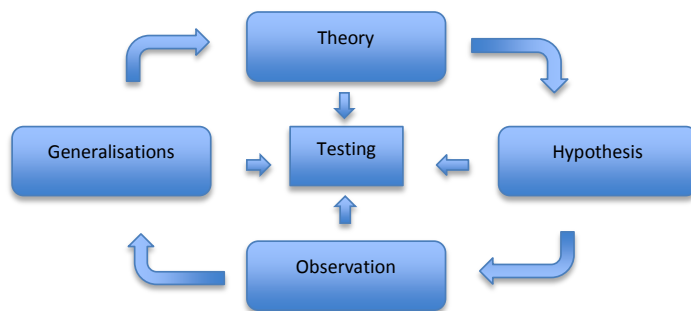


Figure 4-4: Deductive and inductive reasoning combination

Source: Wallace (1993), cited in Blaikie (1993)

The opinion that a theory is developed inductively, recommends that research could use both inductive and deductive reasoning at any point. Before finalising a theory, some further inductive activities might be required to improve the existing assumptions of the theory. Wallace, cited in Blaikie (1993), allocates the factor of “testing” in his model illustrated above (Figure 4-4), allowing the integration of new emerging matters into the original theory.

Following the assumption that the combination of deductive and inductive research approaches can be effective, the Researcher adopts such a mixed approach, albeit with a stronger tendency to an inductive approach for this research. The Researcher realised the inductive background of this research through reviewing the risk management in many other research studies. Considering the research from a deductive point of view, the framework is deduced from literature and theories reviewed in Chapters 2, 3, and 4. Therefore, the Researcher believes that this research should comprise a deductive part in order to have moderating control on the inductive approach obtained by observations (Bryman and Bell, 2015).

This research aims to produce a good quality academic work and practical contribution to the extant knowledge. Hence, the Researcher has designed the research questions (Chapter 1) in such a way that answering them will result in attainable applications and will create value for practical implementation.

#### 4.4 Research strategies

Another component of a research methodology is the research strategy, which guides researchers in how to conduct a research (Easterby-Smith *et al.*, 2008). The most common strategies applicable in business and management researches are: experiment, case study, action research, and survey (Yin, 2003; Collis and Hussey, 2009; Creswell, 2013). This section considers research strategies and expresses the reason for selecting a case study strategy for this research.

Several researchers offer different definitions of research strategy. Saunders *et al.* (2009) argue that the research strategy is a plan that a researcher makes in how the research questions will be answered. Bryman (2008) defines it as “*a general orientation to the conduct of research*” (Bryman, 2008, p. 698). It is argued by Blaikie (1993) that the research strategy creates a connection between the researchers and their data collection and analysis methods. Denzin and Lincoln (2012) discuss that different types of research strategies are applied to all researches in order to answer the questions and accomplish the research objectives.

The research strategy of case study is currently widely used in collecting a series of data regarding particular data (Saunders *et al.*, 2009). It is argued by Robson (1993) that case study is a methodology that includes the exploration of a specific contemporary phenomenon through various sources of evidence. Collis and Hussey (2009) define it as a research strategy that investigates a single topic to gain an in-depth knowledge about the phenomenon.

One of the significant advantages of case study is its flexibility, as the boundaries of the research topic are decided by the researcher (Miles and Huberman, 1994). Yin (1994) emphasises on the strength of case study by arguing that a case study can adopt multiple methods of data collection (Yin, 1994). The Researcher agrees with Stenhouse (1985) who discusses that the main way to access multiple realities is via interview. The Researcher also follows the recommendation of Yin (2003), focusing on three main reasons for case study adoption as follows: 1: types of research that questions starting with such as: “how” and

“why”, 2: the degree of control that the researcher can achieve over real behavioural aspects of the study, and 3: a high level of focus on the research issues. As discussed by Robson (1993) and Yin (2003), the Researcher conducted the case study in a natural condition without manipulating the research participants’ behaviour or any components in either qualitative or quantitative data collection. The Researcher initially discussed ERM evolution and the factors that effected its changes over recent decades in Chapter 2, along with an observation of ERM’s relationship with performance management in Chapters 2 and 3, before empirically exploring the key organisational elements that might influence ERM’s alignment with performance management.

Some aspects of case study have been criticised by a small number of researchers. Denscombe (2008) argues that case study’s flexibility could cause a lack of accuracy in data collection and data analysis. Yin (1994) discusses that case studies have been criticised for producing a huge amount of data. Despite the disadvantages mentioned above about cases studies, the Researcher argues that the advantages of case study are greater than its criticisms, and the approach should not be underestimated or neglected.

One of the important factors that steered the Researcher to select a case study approach for this research was its flexibility in adopting multiple data collection and analysis methods. This allowed the collection of a rich mix of data that provided comprehensive and in-depth ERM and performance management knowledge for this research (Gerring 2007; Fellows and Liu, 2008). Indeed, it is argued by the Researcher that case study is the most suitable strategy for heterogeneous fields such as ERM and performance management. According to Yin (2003) and Fellows and Liu (2008), four tests ensure a case study’s quality: “1- construct validity, 2- internal validity, 3- external validity and 4- reliability”. These tests are discussed more in detail in Sections 4.8.1 and 4.8.2.

#### 4.5 Research design

The current section argues the research design of this study, which is constructed from mixed methods. Yin (2009) and Creswell and Plano Clark (2010) describe the research design as a “road map” connecting the research questions to the empirical data and finally to the research outcomes and conclusions. Researchers decide on their study’s philosophy, approach, methodological choice, data analysis, and recording of results, with the purpose of matching the obtained empirical evidence with the research questions (Yin, 2009; Myer, 2009; Creswell and Plano Clark, 2010). In doing so, the Researcher has designed this research in three stages (Figure 4-5) as follows:

1) research definition, 2) qualitative (2.A) and quantitative (2.B) data collection and analysis, and 3) research outcomes.

As illustrated in Figure 4-5, this study begins with the identification of the research problem, followed by a comprehensive ERM literature review and literature evaluation with the goal of discovering the literature gap. Finding the gap of the literature provides a foundation for developing a consolidated and effective framework aligning ERM with performance management. As shown in the research design (Figure 4-5), the first stage of this research is accomplished by selecting the most appropriate research methodology. The second stage then determines a suitable research design for mixed data collection and analysis methods. The last stage interprets the collected data (quantitative and qualitative) and validates them in the context of aligning the ERM and performance management framework that was developed in Chapter 3 and produces the ultimate research outcomes.

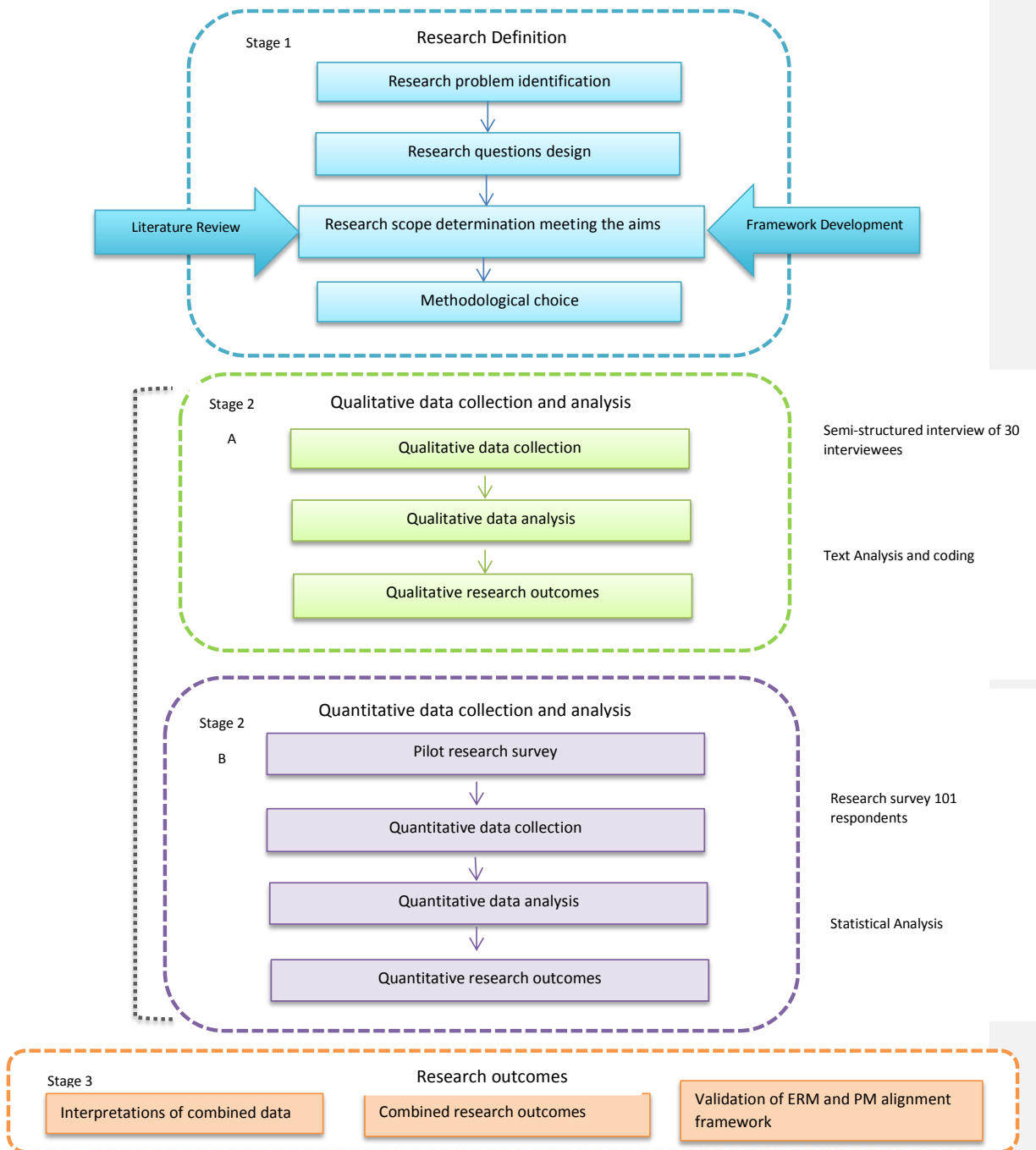


Figure 4-5: This research design

Source: Adopted from Driscoll *et al.* (2007)

The Researcher adopts both quantitative and qualitative data collection for this study, with the qualitative method having priority.

According to Creswell (2007), the adoption of a mixed method of data collection provides comprehensive and in-depth understanding of the research problem. According to Creswell (2007), the different ways of gathering mixed data are as follows: A. converging (different types of data), B. connecting (one type of data builds the other), C. embedding (one sort of data supports the other one). These techniques are displayed in Figure 4-6 below.

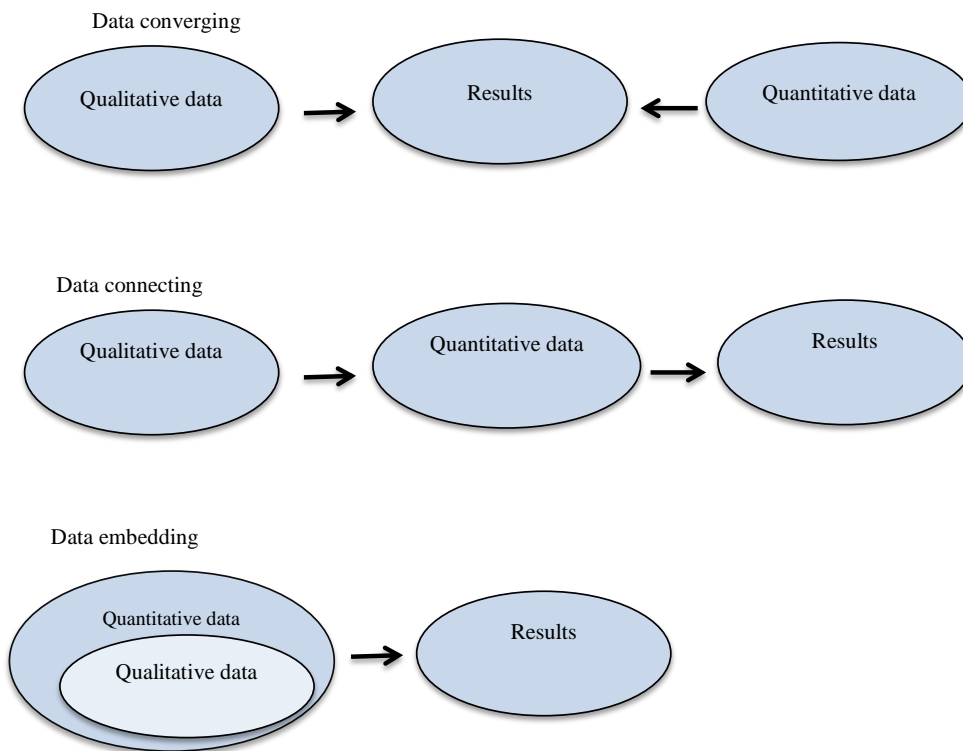


Figure 4-6: Methods of combining qualitative and quantitative data

Source: Creswell (2007)

Based on Creswell (2007) and Driscoll *et al.* (2007), in addition to collecting and analysing qualitative and quantitative data, mixing them in such a way as to form a clear image of the problem is another important issue for consideration (Creswell 2007; Driscoll *et al.*, 2007). Based on the nature and purpose of this research, the Researcher argues that the combination of both qualitative and quantitative data is the most suitable method for this research.

In mixed method researches, the role of quantitative or qualitative data collection could be either equal or one data collection method can prevail over the other one (Sandelowski, 2000; Creswell, 2012). Sandelowski (2000) explains various designs of data collection approaches, using a mixture of factors such as weighting, timing, and mixing data collection, as raised by other researchers (Miles and Huberman, 1994; Tashakkorri and Teddlie, 1998; Morgan, 1998). Creswell and Plano Clark (2007) discuss that specific research designs match with certain criteria, as shown in Table 4-1.

Table 4-1: Primary research design

| Type of Design | Variants                                                       | Time setting                                          | Weighting            | Mixture                                                                 | Notation                   |
|----------------|----------------------------------------------------------------|-------------------------------------------------------|----------------------|-------------------------------------------------------------------------|----------------------------|
| Triangulation  | Converging Data transformation<br>Validating quantitative data | Concurrent: quantitative and qualitative at same time | Usually equal        | Merge the data during the interpretation or analysis                    | QUAN+QUAL                  |
| Embedded       | Embedded experimental<br>Embedded correlational                | Concurrent or sequential                              | Unequal              | Embed one type of data within a larger design using other types of data | QUAN (qual) or QUAL (quan) |
| Explanatory    | Follow-up explanations<br>Participant selection                | Consecutive: Quantitative followed by qualitative     | Usually quantitative | Connect the data between the two phases                                 | QUAN-> qual                |
| Exploratory    | Instrument development<br>Taxonomy development                 | Sequential: Qualitative followed by quantitative      | Usually qualitative  | Connect the data between the two phases                                 | QUAL-> quan                |

Source: Creswell and Plano Clark (2007)



As earlier mentioned in this chapter, this research's data collection design reflects an exploratory design (the last row of Table 4-1), which represents the privilege of qualitative research over the quantitative: QUAL → quan (interviews→survey).

Following Creswell and Plano Clark (2007), the Researcher initially assessed individuals' descriptions of the research topic through the interviews (qualitative data collection). Then, a quantitative research survey was developed and distributed to a vaster population (quantitative data collection) by the Researcher. As illustrated in Figure 4-5, first the qualitative data were analysed (Stage 2.A, Figure 4-5), before the analysis of quantitative data was undertaken in Stage 2.B (Figure 4-5) to support the qualitative data findings through more in-depth investigation of participants' opinions. Indeed, the purpose of this sequential design was to illuminate the qualitative results by use of a quantitative strand (Rossman and Wilson, 1985; Creswell *et al.*, 2003).

#### **4.5.1 Research process**

This section includes two subsections (4.5.1.1, Desk research and 4.5.1.2, Field research), each addressing a theoretical basis of developing an effective framework of ERM and performance management alignment.

##### **4.5.1.1 Desk research**

Desk research was organised to generate a baseline for developing a framework aligning ERM with performance management through a comprehensive and in-depth literature review (Chapter 2), and exploration of the literature gap (Chapter 3). Through evaluating the existing literature of ERM and performance management, including academic and industry journals and books, the Researcher gained an understanding of ERM and performance management practices, their strengths and weaknesses across the automotive industries.

The Researcher categorised the literature reviewed in Chapter 3 using the four-quadrant framework developed by Althonayan (2003). The four-quadrant framework helped the

Researcher to categorise the research philosophy in implementation or visionary bases, and to classify the research findings as descriptive or prescriptive (Section 3.2, Table 3-1).

The four-quadrant framework helped the Researcher to identify those areas of ERM and performance management research that require further improvement. The Researcher classified the majority of literature on visionary-descriptive and visionary-prescriptive bases, with a few instances of implementational-descriptive, however very few works were classified as implementational-prescriptive. So, the conclusion of the literature evaluation revealed a lack of effective alignment between ERM and performance management, which confirmed the need for developing an effective framework aligning ERM and performance management. Therefore, the desk research's main objectives were as follows:

- Identification of key industrial and academic literature about ERM and performance management
- Determination of the gap in the literature
- Establishment of a theoretical basis for ERM and performance management alignment in order to address the gap of the literature.
- To improve expertise and knowledge on the research field and topic.

The purpose of the field research (discussed below) is developing, analysing, and validating the proposed framework aligning ERM and performance management. This contributes to the knowledge through addressing the gap of the literature and providing automotive industry and academia with recommendations and practical guidelines.

#### **4.5.1.2 Field research**

The selection of the appropriate methodology is important for the Researcher to facilitate the focus on the key contribution of this research which is developing a framework of aligning ERM and performance management. As discussed earlier, the Researcher found the adoption

of mixed methods of data collection as the most suitable method for this research's purpose. Different sources of this research's data are as follows:

A. Sources of primary data:

- A.1. Qualitative research: including semi structured interviews with Iran's automotive industry senior managers and ERM professionals.
- A.2. Quantitative research: including distribution of survey questionnaires to participants in Iran's automotive industries.

B. Sources of secondary data:

- B.1. Literature review (industry and academic)
- B.2. Reviewing existing case studies and surveys (industry and academic) regarding ERM and performance management.

Field research is performed in this research with the purpose of:

- Exploring the level of ERM maturity and its alignment with organisational performance management to discover the areas that need more improvement;
- Identifying the organisational factors important for ERM sustainability;
- Identifying the benefits of ERM and performance management alignment;
- Determining ERM and performance management challenges and proposing an appropriate approach to overcoming those challenges and shortcomings;
- Gathering empirical evidence in order to validate the theoretical framework of ERM and performance management alignment;
- Providing industry professionals and academia with recommendations and practical guidelines of the framework implementation.

#### **4.5.2 Composition of research sample**

The current section considers the most common sampling techniques used for mixed method research. Usually qualitative research relies on purposive and non-random samples, while quantitative research is associated with a random sample comprising a large number of

participants (Bazeley, 2003; Bryman, 2012). The Researcher as part of this study has reviewed several sampling methods of data collection, which are discussed in this section.

Creswell (2012) argues that the purpose of a qualitative research is to choose the specific group of participants in order to increase the understanding of the research's problem, whereas the purpose of a quantitative research is to analyse large populations from a random sampling. Patton (1990) discusses that purposive sampling is associated with the participation of people who have direct and useful experience about the research's topic and are able to share their experience. The Researcher's rationale about the selected sample is to gain comprehensive descriptions of phenomena through people who have useful relevant experience (Patton, 1990; Jackson and Verberg, 2007).

Sampling techniques are categorised as probability and non-probability. Each member of probability sampling has a non-zero chance to be selected. Some of the popular probability methods are stratified sampling, systematic sampling and random sampling. All members of random sampling have an equal probability of being selected.

However, the non-probability method concerns selecting specific participants from the population without using a random method. Some of the common non-probability approaches are quota sampling, convenience sampling, snowball sampling and judgement sampling (Cochran, 2007). Non-probability sampling is the most appropriate and suitable approach for qualitative data collection, while randomisation could be irrelative and expensive for this type of research. However, random events are applicable and suitable for quantitative data collection (Bryman, 2012).

For the quantitative part of this research's mixed method, the findings of a sample group are generalised and resembled to the whole population (Cochran, 2007).

This section considers three non-probability approaches related to qualitative researches which are: A. convenience sampling, B. theoretical sampling, and C. judgement sampling

Convenience sampling includes the most available and easily reached participants but can result in low quality data as the participants might not have worthwhile experience about the research topic. Theoretical sampling is a theory driven technique and is not appropriate for this research. Judgement sampling is the most suitable approach, as the selected participants are those who have relevant experiences and could most probably respond to the research questions. In addition, existing participants might introduce other members of a relevant profession and with the relevant experience for the research topic, this is called snowball sampling (Patton, 2002).

The Researcher benefited from utilising the snowball technique followed by judgement sampling as the most appropriate techniques for this research's qualitative data collection part.

The first step of the data collection started with semi-structured interviews of 30 ERM professionals in the automotive industry of Iran (who had the required standards for this research). Judgement sampling was mostly used for the purpose of this research. During this process, some other ERM practitioners were recommended by those who were being interviewed. Due to time restrictions, the interview sampling was limited to candidates who had direct involvement in their organisations' ERM. In other words, this research's qualitative data collection part was accomplished with a non-probability method judgement sampling technique.

The second stage of data collection was achieved by distributing a paper quantitative survey to a huge sample of participants in the automotive industry whose professions had the required standard of this research. For the purpose of this research's quantitative data collection, probability random sampling was applied to a population of industry professionals with levels of experience in risk management and adequate ERM knowledge, who could provide worthy information for this research.

### 4.5.3 Research sample size

The sample size of mixed methods research depends on whether the priority chosen is qualitative or quantitative (Adler and Adler, 2011). In qualitative data collection, the interview sample size depends on the epistemological and methodological view of the researcher. In this regard, Baker and Edwards (2012) argue that a sample of twelve to sixty with average of thirty would be adequate. Ragin and Becker (1992) argue that a sample of twenty for master students and fifty for PhD students would be sufficient. Therefore, choosing the right number of interviewees in order to gain an acceptable result is a challenging matter for researchers (Baker and Edwards, 2012).

The Researcher also considered the data saturation matter discussed by Glaser and Strauss (1997, cited in Mason 2010) that the number of interviewees can be judged to sufficient when continuing to collect new data does not add any further information to the research. Hence, following the suggestion of Glaser and Strauss (1997, cited in Mason 2010), the Researcher found the quality and the value of collected data more critical than merely the quantity of data. Moreover, issues such as available ERM professionals in the allocated time for data collection also influence the sample size of qualitative data collection. Having considered the above researchers' argument about appropriate sample size of interview participants, the Researcher first considered a sample of twenty to forty likely to be adequate for answering the research questions effectively. In practice, a sample of 30 participants was found to be ideal for attaining the valid conclusion and addressing the research questions effectively (Small, 2009; Adler and Adler, 2011).

Regarding the quantitative part of this research, the ideal sample size of questionnaire respondents was considered  $n > 100$  by the Researcher. As the quantitative part was designed to supplement the interview findings collected in the qualitative part, a sample of 101 survey participants was determined adequate to provide reliable quantitative analysis (Lieberman, 1991; Marshall, 1996).

### 4.6 Mixed data collection methods

The current section discusses the methods of mixed data collection used for the purpose of this research (Figure 4-5). A mixed data collection method includes the collection and

analysis of a minimum of one qualitative dataset (collecting words) and a minimum of one quantitative dataset (collecting numbers) (Caracelli and Greene, 2003). The current section presents the assumptions behind these two approaches along with their main benefits and weaknesses (Denzin and Lincoln, 1994; Creswell, 2007).

Mixed data collection methods have the subject of increasing interest during recent decades and researchers are keen to adopt mixed data collection methods in order to develop their research with a wider scope and increase their insights of the topic (Sandelowski, 2000; Tashakkori and Teddlie, 2003; Johnson and Onwuegbuzie, 2004).

According to Creswell (2007; 2012), the adoption of a mixed data collection method could help researchers to gain a better understanding of their research problems than adopting merely a qualitative or quantitative method. A mixed data collection method improves researchers' data analysis power and consequently increases the value of their research's findings. Similarly, it is discussed by Denscombe (2008) that a mixed method of data collection creates greater diversification and growth in the research's field. The Researcher discusses that the advantages and strengths associated with mixed data collection techniques could avoid the limitations of adopting only qualitative or quantitative methods (Tashakkori and Teddlie, 2010).

Denscombe (2008) argues that the full potential advantage of mixed methods is achieved when quantitative and qualitative methods are overlapped while distinguishing aspects of research phenomenon. The Researcher agrees with Sandelowski (2000) that qualitative research states the research's participants voice while quantitative research, at the same time and through quantification of respondents' answers, attempts to minimise the bias associated with individual interpretations of the research subject (Sandelowski, 2000).

Adopting a mixed method of data collection provides a suitable medium for exploratory research and performs more effectively in comparison to just qualitative research when exploring a very heterogeneous subject, such as organisations' risk management approaches

(Creswell, 2007; Tashakkori and Teddlie, 2010). Mixed data collection methods help researchers to gather wide-ranging empirical evidence that supports obtaining the research’s aims. Moreover, the research problems are addressed more practically in mixed methods as the research participants try to overcome the problems through a combination of inductive and deductive thinking. The following section (4.6.1) investigates the main characteristics of both research methods and supports the selection of mixed approaches by the Researcher.

#### 4.6.1 Differences in qualitative and quantitative research

Sometimes researchers decide to use a mono method of data collection, so, in order to choose the right data collection method for a research it is important to learn and comprehend the differences in qualitative and quantitative approaches (Bryman and Bell, 2015). Both qualitative and quantitative methods are standard research methods but are different in their approach to conducting the research (Anderson, 2006). Table 4-2 below, characterises qualitative and quantitative methods.

Table 4-2: Key characteristics of quantitative and qualitative research

| Qualitative Research                                    | Quantitative Research                                   |
|---------------------------------------------------------|---------------------------------------------------------|
| Subjective                                              | Objective                                               |
| Answers questions:<br>What? Why?                        | Answers questions:<br>How many? Strength of association |
| Literature review occurs during the research’s progress | Literature review occurs early in the research          |
|                                                         | Focuses on one reality                                  |
| No specific sample size; seeks informal rich sample     | Sample size: $n > 100$                                  |
| Non-statistical data                                    | Statistical data                                        |



|                                                                                              |                                                                        |
|----------------------------------------------------------------------------------------------|------------------------------------------------------------------------|
| Findings are interpretive                                                                    | Findings are measurable                                                |
| Group discussion or individual interviews through unstructured or semi structured approaches | Online survey through structured approaches                            |
| Reasoning is dialectic and inductive                                                         | Reasoning is logistic and deductive                                    |
| Researcher is part of the research process                                                   | Researcher is separate to the research process                         |
| Describes meaning, discovery while using communication and observation.                      | Establishes relationships and causation, and uses specific instruments |

Source: Adapted from Anderson (2006)

As discussed in Section 4-5, this research adopts mixed data collection. Qualitative data was obtained through semi-structured interviews and quantitative data was gathered by survey questionnaire. The survey population was organised based on the research criteria discussed in current chapter.

According to Creswell (1998), qualitative research is a *“process of understanding based on distinct methodological traditions of inquiry that explore a social or human problem. The researcher builds a complex, holistic picture, analyses words, reports detailed views of informants, and conducts the study in a natural setting”*(Creswell, 1998, p.39). Qualitative research seeks to form a holistic narrative and description of a situation to help a researcher to understand a phenomenon (Marshall and Rossman, 2006; Yin, 2013).

However, quantitative research is based on the idea that the research’s subject is quantifiable and measurable and can be presented and analysed statistically and in numerical values. It includes numerous methods such as surveys, simulation, statistical analysis and econometrics, and laboratory experiments (Trochim, 2000; Myers, 2009).

As discussed earlier in this chapter, qualitative and quantitative methods are used to discover a social reality. Table 4-3 below displays strengths and weaknesses of each method.

Table 4-3: Advantages and disadvantages of quantitative and qualitative research

|               | Quantitative research                                                                                                                                                                                                                                                                                                                                                                                                                                                | Qualitative research                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Advantages    | <ul style="list-style-type: none"> <li><input type="checkbox"/> Accurately measure research variables</li> <li><input type="checkbox"/> Structured and standard method</li> <li><input type="checkbox"/> Statistical data analysis methods</li> <li><input type="checkbox"/> Possibility of generalisation</li> <li><input type="checkbox"/> Objective</li> <li><input type="checkbox"/> Measurable</li> </ul>                                                       | <ul style="list-style-type: none"> <li><input type="checkbox"/> Increases description/theory method development</li> <li><input type="checkbox"/> Describes theories and experience</li> <li><input type="checkbox"/> Aids good understanding &amp; better insight</li> <li><input type="checkbox"/> Holistic and humanistic</li> <li><input type="checkbox"/> Flexible</li> <li><input type="checkbox"/> Value placed on participants' views</li> <li><input type="checkbox"/> Interpretive</li> <li><input type="checkbox"/> Exploration of subjective dimensions</li> </ul> |
| Disadvantages | <ul style="list-style-type: none"> <li><input type="checkbox"/> Fixed and inflexible method</li> <li><input type="checkbox"/> Characters are deterministic</li> <li><input type="checkbox"/> Ignorance of some significant factors</li> <li><input type="checkbox"/> Assumption of an 'objective' truth</li> <li><input type="checkbox"/> Inadequate and incomplete understandings</li> <li><input type="checkbox"/> Not usable in immeasurable phenomena</li> </ul> | <ul style="list-style-type: none"> <li><input type="checkbox"/> No hard data, no accurate measuring</li> <li><input type="checkbox"/> Subjective, 'non-scientific'</li> <li><input type="checkbox"/> Risk of bias due to researcher involvement</li> <li><input type="checkbox"/> Normally small sample size</li> <li><input type="checkbox"/> Generalisation limited to similar contexts and conditions</li> </ul>                                                                                                                                                            |

Source: Althonayan (2003)

One of the advantages mentioned in the above table for a quantitative method is the ease with which respondents can provide their responses, for example by ticking boxes without having to answer long and descriptive questions, which reduces the time spent for data collection (Leddy and Ormond, 2001). This type of data collection also enables researchers to target different and dispersed geographic populations and obtain high value results. Finally, the collected results are measured and analysed statistically and are generalisable to a wider population. But some factors, such as inflexibility, rigidity in questionnaires' structure, and

impossibility of adding emerging themes into the research, are considered as disadvantages of quantitative methods (Trochim, 2002). In order to overcome the disadvantages of the quantitative method as mentioned in Table 4-3, the Researcher first designed a pilot survey and then considered and integrated the findings into a final version of the survey questionnaire.

Myers (2013) and Yin (2013) argue that flexibility is one of the important advantages of the qualitative method, which through open-ended “why” or “how” questions provides an opportunity for the interviewees to answering the questions in their own way. Open-ended questions help researchers to obtain useful and unexpected answers from the participants and strengthen their research’s result (Myers, 2013; Yin, 2013).

The main features of both qualitative and quantitative techniques argued by Leddy and Ormond (2001) are summarised in Table 4-4 below, along with guidance regarding selecting the most suitable technique based on the research’s aim.

Table 4-4: Suitability of quantitative and qualitative research approaches

| Choose this approach                               | Qualitative approach                                     | Quantitative approach                              |
|----------------------------------------------------|----------------------------------------------------------|----------------------------------------------------|
| If you believe that:                               | There are multiple realities; focus is complex and broad | There is an objective reality that can be measured |
| If your audience is:                               | Familiar/supportive of qualitative researches            | Familiar/supportive of quantitative studies        |
| If your research question is:                      | Exploratory/interpretive                                 | Confirmatory/predictive                            |
| If the available literature is:                    | Comparatively long                                       | Comparatively short                                |
| If the focus of your research is:                  | Narrow and deep                                          | Broad                                              |
| If you are able and/or desire to work with people: | Highly                                                   | Low or Medium                                      |
| If your desire for structure is:                   | Low                                                      | High                                               |
| If your skills are related to areas of:            | Inductive reasoning                                      | Deductive reasoning                                |

| Choose this approach                       | Qualitative approach                             | Quantitative approach            |
|--------------------------------------------|--------------------------------------------------|----------------------------------|
| If you have strong skills in the areas of: | Literary, narrative writing; attention to detail | Technical and scientific writing |

Source: Leddy and Ormond (2001)

Having considered the features of both qualitative and quantitative data collection methods, the Researcher selected a qualitative method to identify the key areas of ERM and performance management, and adopted a quantitative method in order to find supporting information to validate the outcomes of the qualitative part of the research (Trochim, 2000; Robson, 2002). In addition, as it was critical for this research to collect rich and deep information regarding the research topic, the Researcher used a mixed method of data collection to identify the current state of ERM and performance management in Iran's automotive industry, allowing the development of the framework aligning ERM with performance management.

#### 4.6.2 Qualitative data collection (interviews)

This section considers different types of interviews used for qualitative research. According to Wengraf (2001), the key issue that requires careful consideration with regard to the interview process is a clear understanding of what is said by the interviewees. Therefore, researchers should focus on identifying the story behind each interviewee's experiences (Kvale, 1996; Wengraf, 2001).

This section considers three typical types of interview, which are: fully structured, semi-structured and unstructured (Trochim, 2000).

1- Structured interviews are considered as a non-flexible form of interview, including a strict schedule outlined by the researcher. An important advantage of this type of interview is the ease of repetition, which leads to data reliability and consistency as the researcher follows a fixed interview design with direct control of the questions. A disadvantage of a fixed

interview design is its lack of opportunity to consider any emerging topics mentioned by participants that might be beneficial for the research result (Wengraf, 2001; Robson, 2002; Collis and Hussey, 2013).

2- Semi-structured interviews follow a prearranged agenda designed by the researcher; the researcher tries to keep the questions within the research topic's scope, with the flexibility of discussing emerging topics raised by participants (Robson, 2002). This provides an opportunity for the researcher to control the flow of the discussion and to be alert of other facets that are related to the research topic but were not considered before the interview (Trochim, 2000; Collis and Hussey, 2013).

3- Unstructured interviews conduct a type of free discussion about the subject of interest. This form of interview does not have prearranged questions and is subject to participant direction (Robson, 2002). Importantly, in this type of interview, the reliability of the collected data is based on the expertise and profession of the interviewees (King *et al.*, 1994; Trochim, 2000).

In recent years, telephone interview has become popular as it decreases the time spent on interviews, but this kind of interview has an important drawback, which is lack of face-to-face human interaction. Regarding the current research, as the researcher had arranged for most of the interviews before traveling to Iran, it was no need for telephone interviews. Indeed, all this research's interviews were conducted face to face.

As interviewing is a time-consuming process, it needs to be well structured and well performed. As this research adopted interviews as a primary data collection and analysis technique, the Researcher followed the seven stages of interview technique raised by Kvale (1996), which are shown below in Figure 4-7.



Figure 4-7: 7 stages of interview investigation

Source: Kvale (1996)

This seven-stage interview process enables researchers to carry out a reliable analysis performed in a structured way (Yin, 2003).

The first stage (thematizing) includes the development of the research aims, objectives and questions, and then determining how the research is to be formulated. The second stage (designing) is discussed in Subsection 4.6.2.1. The third stage (interviewing) attempts to gather empirical data of adequate quality to respond to the research questions (Kvale, 1996). The transcribing stage transfers the obtained data to the necessary categories for further interpretation. Then the transcribed data is analysed (Chapters 5 and 6). Chapter 7 of this thesis presents the data validation and Chapter 8 includes reporting the research outcomes and recommendations.

#### 4.6.2.1 Research interview design

The current section discusses the process of the development of the interview questions based on key ERM and performance areas discovered in the literature review:

- Failures of risk management;
- Evolution of risk management to enterprise risk management;
- Benefits and challenges of ERM;

#### Alignment of ERM with Performance Management: Case of Automotive Industry

- ERM alignment with organisations' performance management;
- Value creation, competitive advantage, and enhanced performance of aligning ERM and performance management;

The interviews comprised sixteen open-ended questions divided into three sections: 1) descriptive profile; 2) ERM; and 3) alignment of ERM with performance management (Appendix A).

As interpreting the interviewees' responses is critical in the interview data collection method, interviewees were asked to clarify their answers as much as they could in order to reduce the risk of any misinterpretation. Moreover, based on flexibility of semi-structured interviews, participants' understanding of the research subject is another significant matter for consideration.

The Researcher followed Bryman's (2012) recommendations for formulating interview questions, displayed below in Figure 4-8.

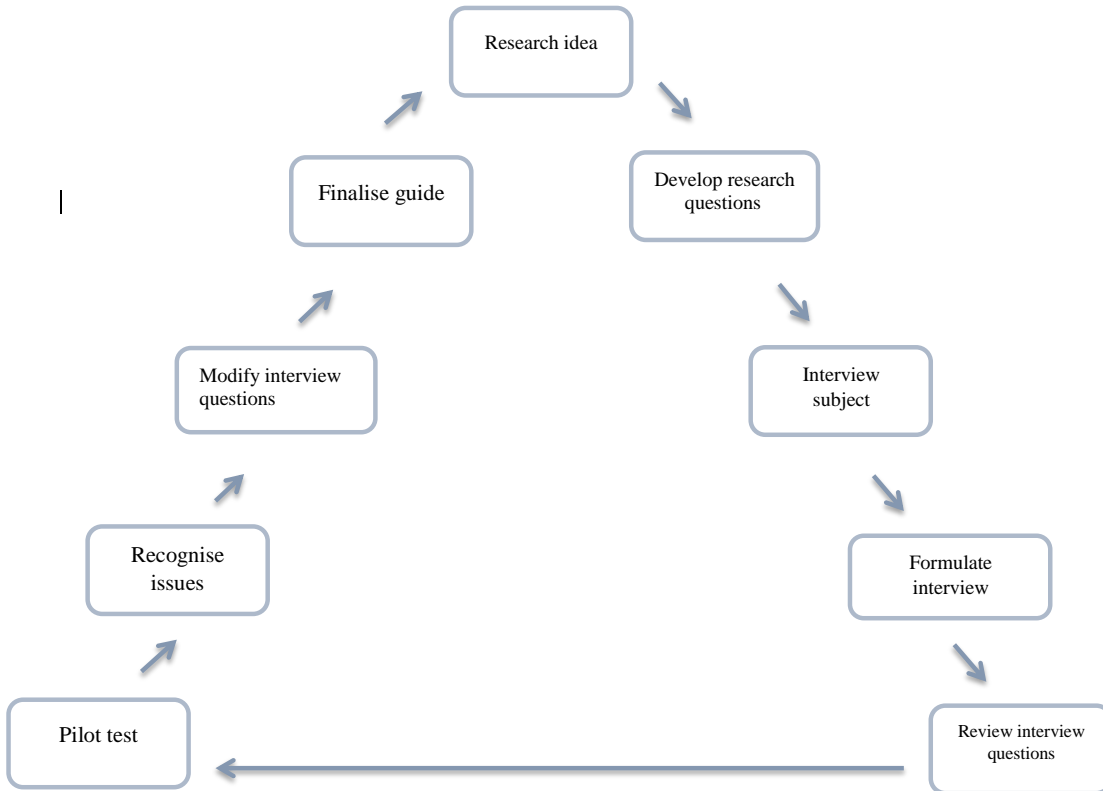


Figure 4-8: Process of interview questions formulation

Source: Bryman (2012)

To allow adequate time to become familiar with the research and interview area, fifteen days prior to the interview, all interviewees were provided with guidance as to the structure, schedule and topics of interview. Interviewees were also asked to discuss and clarify ambiguous questions (if any) with the Researcher before starting the interview. The average length allocated for each interview was around thirty to fifty minutes.

The interview commenced with questions about the descriptive profile of the interviewees to ensure that interviewees had satisfactory knowledge and expertise in the ERM area and were able to provide useful data. Based on the sampling method adopted for this research



(judgement and snowball sampling), critical information about interviewees' organisational position, the area of their focus, and level of seniority had already been considered.

The second part of the interview continued with questions about ERM in the participant organisations, with the purpose of 1: exploring the latest changes in ERM approaches; 2: discovering the current level of ERM development; and 3: identifying the critical factors, vital for effective ERM implementation in automotive industries.

The third stage comprised questions regarding the relationship between and effects of ERM and performance management, and their alignment, with the purpose of extracting the necessary empirical data to validate the theoretical framework of aligning ERM and performance management (Chapter 3, Figure 3-1).

The interview questions discussed the critical organisational factors needed to establish an effective framework of ERM and performance alignment. After finishing the data collection and analysis, all ideas and suggestions raised by participants during the data collection were considered and integrated into the validated framework (discussed in Chapter 7).

#### **4.6.2.2 Selecting interview participants**

This research adopted two non-random approaches of selecting interviewees. Initially, a sample of nineteen participants was identified by the Researcher within her network in automotive industries, who had been professionals in the ERM area for a number of years and who were familiar with the topic of this research. The remaining interviewees were chosen through snowball sampling, as discussed in this chapter (Section 4.5.2). ERM professional members of the automotive industry, recommended other colleagues who were also familiar with this research topic and had years of experience in this area. Adopting these methods of sample selection resulted in selecting and interviewing thirty-six participants. However, the Researcher found the quality of some interviews unsatisfactory. For instance, some answers were incomplete and unclear, and so they were not applicable to the research analysis. Also, some of the interviewees attempted to change the direction of the questions by raising

irrelevant matters to avoid answering these questions. Therefore, the Researcher discarded the data collected from the unclear interviews, which resulted in having thirty interviews of satisfactory quality.

#### 4.6.3 Quantitative data collection (survey)

The current section discusses this research’s quantitative data collection process, including the selection of the appropriate research design and the pilot survey conducted by the Researcher.

Table 4-5 below displays how different sections of survey are linked to the research questions (presented in Chapter 1).

Table 4-5: Design of the research survey

| Survey Section                                   | Research Question                                                                                                                                                                                                                                                               |
|--------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Section A/<br>Descriptive Profile of respondents | This section addressed the descriptive profile of participants, such as: the number of years of their ERM experience, their organisational positions and their seniority level,                                                                                                 |
| Section B/<br>Enterprise Risk Management (ERM)   | This section was designed in order to investigate current state of ERM in this research’s case study organisations enabling the Researcher to develop the alignment framework based on Iran automotive industry’s needs.                                                        |
| Section C/<br>Traditional Risk management (RM)   | This section was added to the questionnaire after a pilot survey in order to target participants who were professional in- risk management                                                                                                                                      |
| Section D/<br>ERM & PM alignment                 | This section was designed to investigate the current level of ERM and PM alignment in Iranian automaker organisation, and to explore the factors which are critical in this alignment. Also, the challenges and benefits of ERM and PM alignment are addressed in this section. |

Source: The Researcher

In order to catch any important emerging issues that were not included in the main research questionnaire, the Researcher designed and performed a pilot survey before running the main survey. The pilot survey resulted in some changes and amendments before distributing the main questionnaire to the survey respondents. The final questionnaire comprised twenty-six questions divided into four sections (Appendix C). Section A, contained three questions discussing the survey participants' descriptive profiles. Section B, included eleven questions measuring respondents' levels of ERM knowledge as well as ERM maturity in Iran's automotive industry. Section C comprised five questions designed specifically for the respondents who were expert in risk management but had either no or poor knowledge in ERM. And lastly, Section D included seven questions collecting empirical data with the aim of validating the theoretical framework aligning ERM with performance management. This section focused on organisational factors critical to ERM and performance management alignment, it also considered the existing challenges of this alignment. Moreover, the potential benefits of aligning ERM with performance management were considered through this section. The survey questions were all close-ended, and the time considered suitable for questionnaire completion was 10 to 20 minutes.

The pilot survey sample was conducted with industry and academic professionals and the main survey questionnaire adopted valuable views expressed by the pilot participants. These participants also proposed a few questions that had not been considered in the pilot survey. Table 4-6 shows a summary of the pilot survey's feedback, which culminated in a revision of the original survey.

Table 4-6: Pilot survey's feedback

| Organisation | Position                                                       | Feedback and Recommendation                                                                                                                                      |
|--------------|----------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| University   | Senior lecturer and faculty member                             | Shorten the questionnaire to the main points in order to direct the survey participants to a clear understanding and answering exactly what you are looking for. |
| University   | Senior lecturer and head of business school                    |                                                                                                                                                                  |
| Industry     | CRO in automotive industry and consultant in banks             | Design the survey questionnaire in a way that respondents could answer it within a maximum time of 20 minutes                                                    |
| University   | Senior lecturer and chairman of trading company                |                                                                                                                                                                  |
| Industry     | Board member -of automotive industry                           | Allocate a section specifically for risk management experts who do not have ERM knowledge in order to let them share their valuable risk management experience   |
| Industry     | Senior manager in automotive industry and a consultant company |                                                                                                                                                                  |

Source: The Researcher

One of the important pieces of feedback the Researcher received from the pilot survey was to add a section specifically for risk management experts who had less knowledge about the ERM concept but who could share their valuable views and experience regarding risk management. The Researcher designed Section C (discussed in Section 4.6.3) for risk management experts, exploring 1) their definition of risk and its management; 2) their approaches of risk management; 3) the changes and actions taken by their organisation to overcome the global financial crisis; and 4) their reasons for not implementing ERM. This section's findings are discussed in Chapter 6, Section 6.2.3.

## 4.7 Research data analysis

The methods used for this research's qualitative and quantitative data analysis are discussed in the following subsections.

### 4.7.1 Qualitative data analysis

According to Lamnek (1995) and Yin (2013), the data analysis approaches adopted for a research are usually selected based on the research conditions and the expected outcomes (Lamnek, 1995; Yin, 2013). From the many available methods of qualitative data analysis (Yin, 2013), the Researcher found the four-stage qualitative data analysis established by Kvale (1996) most appropriate for this research. The four stages are: 1) forming a structure for transcriptions; 2) classifying common categories and issues; 3) combining main categories and issues; and 4) continuing the research findings.

The use of coding give a meaningful structure to the data (Strauss, 1987; Lee, 1999). For instance, those concepts that are raised by several interviewees are categorised by appropriate codes. According to Lee (1999), there are three different coding strategies that determine the data analysis process, which are: a. Open, b. Axial and c. Selective. In some circumstances, and if it does not have an impact on the clarity and unbiasedness of the data collection process, these strategies can be mixed (Lee, 1999; Creswell, 2007). The Researcher adopted this technique in order to ease the development of coding categories both pre-interview and post-interview. So, while emerging issues and concepts during the interviews were examined, new categories were also allowed to be included. This prevents the dependency of a datum to one code (selective and axial coding) and allows a more complete explanation of facts by using a wider group of codes (Creswell, 2007; Collis and Hussey, 2013). Consequently, the data can reflect the emerging themes relevant to the research area.

Therefore, the data collected through interviews were coded by the Researcher in order to facilitate its understanding (Tashakkori and Teddlie, 1998; Rossman and Rallis, 1998). Any important issues that emerged during the analysis process were categorised as particular variables and were used among the qualitative and quantitative parts of the research. The Researcher organised all factor codes of this research based on their relevance to ERM and performance management.

The most important issue in interpreting quantitised data is a clear understanding of the coding's meaning before converting the data. When quantitisation takes place its meaning becomes fixed and single dimensional. The Researcher adopted dichotomous codes (0/1) into Excel software for both interview and survey data, representing a concept's presence or absence. As based on Strauss and Corbin (1998), there is no specific amount for collected data to be coded to validate the conclusion, the Researcher focused on the research participants and the quality of their provided data, in order to create well-structured arguments supporting the aims of the research.

Most of the measures applied in this research for the data obtained from qualitative coding are ordinal and nominal. Based on the qualitative nature of the research and the interview sample's size, a simple descriptive reporting was implemented in Excel and shown as frequencies. In the strategy adopted in this research, the number of times that a variable occurs is counted. This enables the identification of those codes that happen frequently and hence are considered as specific themes (Bazeley, 2004). The quantitised data can then be compared with the quantitative data. The interviews in this research were performed in Parsi (Iranian language) and later on were translated into English by the Researcher.

In addition to taking notes, the Researcher obtained permission from the interviewees for audio recording. The Researcher also wrote further details explaining any non-tangible observations relevant to the research after each interview (Bryman, 2012). In order to attain high research quality, each interview (recordings and notes) was transcribed for analysis. Data transcription helped to reduce the effect of the Researcher's misconception and biases on the data analysis. A sample transcript is available in Appendix A.

#### 4.7.2 Quantitative data analysis

As discussed previously in this chapter, the Researcher adopted quantitative data collection in order to validate the qualitative data. Among the differing approaches of quantitative data analysis, researchers look for a simple method they are familiar with (Trochim, 2000; Robson, 2002). As the Researcher is familiar with Microsoft Excel and its usage in data analysis, she decided to use Excel for quantitative data analysis rather than adopting other existing analytical methods such as SPSS software that could make the process complex (Rice, 1995; Robson, 2002).

The Researcher first entered the quantitative data into Excel, then applied both univariate quantitative analysis (a simple method of analysing statistical data through the description of single variable), and bivariate quantitative analyses (a more advanced method of statistical analysis, measuring the relationship of two variables at the same time). The quantitative data analysis of this research included inputting and coding the data into Excel software, frequency distribution and cross tabulation, and correlation analysis.

The correlation technique is the most common approach in quantitative data analysis, representing the relationship among two variables and the level of two variables' dependence on each other. The correlation between two variables is measured by a correlation coefficient ( $r$ ) with a value scope from  $[-1.0$  to  $+1.0]$ . So, a fully positive relationship exists between two variables if  $r = +1.0$ , while, a fully negative relation exists if  $r = -1.0$ . However,  $r = 0$ , shows the absence of a relationship between two variables. Therefore, a correlation coefficient also shows the direction of the variables' relationship. The correlation of the main factor codes measured in this research is available in Appendix F.

The Researcher adopted the chi-squared ( $\chi^2$ ) test developed by Pearson, which is based on the theory of a random sample of an adequately large size with normal distribution, to determine if there is a correlation between two variables. In fact, multivariate quantitative

analysis is not in the scope of this research, but could be a potential opportunity for further studies in this field, as discussed in Chapter 8.

The Researcher checked all received completed surveys and removed any invalid and useless forms. As discussed in Section 4.7, coding applied in analysis of this research's quantitative data, needed allocating character or numerical codes to all answers of each question. The process of the quantitative data analysis of this research is discussed in Chapter 6 in detail and presented in Appendix D, E, and F.

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#### 4.8 Quality of the research

This section considers the standards required for this research's reliability and validity. It is argued by Johnson and Onwuegbuzie (2006) and Johnson *et al.* (2007) that although quantitative research's validity is significant and has long been considered by researchers, qualitative research's validity is more controversial and critical for researchers. Hence, assessing the validity of mixed method research's outcomes is more complex, since such research contains a combination of the strengths and weaknesses of both quantitative and qualitative research (Johnson and Onwuegbuzie, 2006; Johnson *et al.*, 2007).

It is discussed by Guba and Lincoln (1981) and Seale (1999) that both qualitative and quantitative researches need to have "truth value", "applicability", "consistency" and "neutrality"; however, the essence of a quantitative knowledge paradigm differs from the knowledge in a qualitative paradigm (Guba and Lincoln, 1981; Seale, 1999). A research's data quality can be assessed through "internal validity", "external validity", "construct validity" and "reliability" (Morse *et al.*, 2002). It is discussed by Yin (1994) and Creswell (2003) that a qualitative research's strength is evaluated by internal validity, whereas a quantitative research is measured by reliability (Yin, 1994; Creswell, 2003).

Reviewing the literature enables researchers to obtain valuable evidence regarding the evaluation of previous researches of the same nature. Internal validity is suitable for qualitative researches where the results cannot be generalised to a larger population. An issue



with internal validity occurs when a researcher cannot find a persuasive case for the observed manners that have not been considered and discussed in the literature (Gill and Johnson, 1991; Morse, 1999).

External validity is more challenging and is associated with the primary data collection (for instance: it must be proved that the attributes found in a research are valid in further studies). External validity mostly addresses quantitative studies, relating and generalising the outcomes of the research to a wider population. Lastly, reliability addresses the repeatability and constancy of a research, confirming that the result of running a test will each time be almost the same. Reliability and validity are discussed in detail in the following sections (4.8.1 and 4.8.2).

#### **4.8.1 Reliability**

Reliability relates to the ability of applying a research in the real world (Creswell, 2003; Rawbone, 2015). Reliability indeed measures to what extent a process will create similar results regardless of the number of times that it is examined randomly in a population (Creswell, 2003; Rawbone, 2015). It is argued by Gill and Johnson (1991) that the ability of a researcher to repeat a former research with the same parameters resulting in consistent findings comprises reliability (Gill and Johnson, 1991).

According to Bryman (2008), the three key factors of research reliability are: “sufficiency”, “compelling evidence” and “rigour of data collection and analysis”. This research has achieved all three mentioned aspects through applying a mixed method of data collection. Researchers’ ability of recording observations constantly is one of the important aspects of a reliable research method.

Neuman (2003) and Davies and Hughes (2014) argues that a research sample size (number of participants) could influence the reliability of the findings and their applicability. As the qualitative data analysis’ reliability is not numerically measurable, it is better to be known as “trustworthiness”, which means extending the research until you could rely on the obtained results (Seale, 1999; Neuman, 2003; Davies and Hughes, 2014). Another important factor is

the repeatability of the data collection. All participants of a research must be chosen based on the same parameters and should respond to the same line of questions. Adopting mixed methods has supported the current research's findings' consistency. A high level of accuracy has been applied to the transcription and analysis of the interview data.

Sandelowski (1986) and Creswell (2007) discuss that in order to achieve reliability and validity for a research, the researcher should consider the following key factors: 1) spending enough time to be familiar with the research environment and to gain a clear understanding of the research data sources, 2) continuous observation of any emerging matters to enhance alertness for any unexpected issues, 3) ample empirical evidence is needed to support the research.

#### **4.8.2 Validity**

Trochim (2000) discusses that the validity of a research is an "*approximation of truth of a given proposition or conclusion*" (2000, p. 12). Creswell (2007) argues that research data collection and analysis should attempt to reduce any potential bias and increase reliability. Creswell (2007) discusses some strategies adopted by several researchers to ensure a research's validity. Creswell (2007) emphasises that applying at least two of these strategies is necessary for any research. These strategies are presented in Table 4-7, along with current research's collaboration to each. Moreover, all interview and survey questions designed for this research's data collection have been connected to the aims and objectives of this research, displayed in Table 4-5. A mixed method of data collection and analysis were adopted in this research in order to enhance the validity of the research's results.

Table 4-7: Strategies of research validation

| Validation Strategies                   | Applied in the current research                                                                                                                                                                                                                           |
|-----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Collaboration to the research           | Academic professionals with industry experience, reviewed and oversaw the research process                                                                                                                                                                |
| Trustworthy data                        | This research's quantitative (survey) findings supported the data collected through the qualitative (interviews) method                                                                                                                                   |
| Appropriate sample size                 | The sample size of this research was organised in a way to reach reliable and satisfactory results. The participants selected for the research had adequate knowledge and were in an appropriate position to provide critical and worthwhile information. |
| Randomisation                           | Quantitative survey respondents were chosen randomly in order to avoid any bias in the research                                                                                                                                                           |
| Successive data collection and analysis | Performing data collection and data analysis concurrently generated a mutual interaction among them                                                                                                                                                       |

Source: Adopted from Creswell (2007)

Considering that non-random and small size sampling could lead to the collection of less reliable findings, the Researcher chose random sampling with an appropriate size (in quantitative data collection) for this research in order to avoid any impact of these aspects on the research validity.

According to Saunders *et al.* (2007) and Rawbone (2015), the validation of qualitative data collected through interviews is not very challenging as not only is a researcher able to extend the data collection until it reaches the required information but the researcher could also elicit the intent of each interviewee behind their discussion. The Researcher discusses that a great level of validity is established to the current research based on the existence of flexible

interaction among the interviewer and participants. Furthermore, providing interviewees with guidance explaining the schedule and topic of the research, as discussed in Section 4.6.2.1, added greater clarity for the purpose of data collection. Finally, the validity and strength of the studies regarding risk and performance management, as considered in Chapters 2 and 3, indicates that relying on data obtained from secondary sources can also generate important and valuable outcomes (Saunders *et al.*, 2007; Rawbone, 2015).

#### **4.9 Ethical considerations**

Ethical issues and anonymity are significant concepts in researches with human subjects. This section considers ethical issues (such as: data security and confidentiality, and informants' anonymity) associated with participation in empirical researches.

Researchers are responsible to ensure that participants' rights with regard to privacy are respected (Lewis, 2003). Research participants should be well-informed of the data collection purpose, and be advised that they can terminate their participation at any point and for any reason (Payne and Payne, 2004; Saunders *et al.*, 2012).

Regarding the current research, the Researcher accurately followed the procedures of empirical research approved by Brunel Business School Ethics Committee. Participation to this research was voluntary. Before starting the data collection, an information form was provided to the participants, explaining the purpose of the data collection and ensuring them that their responses would be kept confidential and not revealed for any other purpose than this research. Informants were also informed that they had right to cease their involvement at any time or to any question that might make them feel uncomfortable. Therefore, this research collected the required empirical data by respecting ethical issues related to participants.

#### **4.10 Summary**

The current chapter discussed the methodology adopted for this research. Interpretivism is considered as the most appropriate philosophy for the qualitative nature of this research. Moreover, a combination of deductive and inductive reasoning was implemented as the

research approach into this research. Also, the time horizon of this research is cross-sectional as data collection was completed at a specific point in time.

Having considered the extant methods of data collection and analysis, a mixed data collection method was found as the most appropriate technique by the Researcher for the purpose of this research. The dynamism and versatility of mixed methods increases the data analysis' power and allows the extension of research scope (Trochim, 2000; Whittemore *et al.*, 2001). The Researcher designed this research's data collection and analysis based on both qualitative (interviews) and quantitative (survey questionnaire)\_methods, presenting and discussing words and numbers. Also secondary data sources, as argued in this research's literature review, supported the primary data obtained through empirical data collection.

This chapter also discussed the analysis process of this research's primary data, which enables the achievement of the research's aims and objectives and validates the framework of ERM and performance management alignment. In addition, this chapter discussed the ethical consideration of this research. Lastly, this chapter discussed research reliability and validity and their importance in supporting the research value. Indeed, a high quality of research enables the creation of valuable academic piece of work, adding a new contribution to the risk management area.

The following chapters (5 and 6) discuss the qualitative and quantitative data collection and the analysis of the empirical findings of this research.

## **Chapter 5: Qualitative data collection and analysis**

### **5.1 Introduction**

The previous chapter presented existing research approaches and justified the selected research methodology for this research. Current chapter aims to present and analyse the empirical findings collected from this research's case studies through semi-structured interviews. The qualitative analysis intent is to classify particular patterns, themes, relevant categories, and to identify new ideas helping in better understanding of the phenomenon (Creswell, 2007; Trochim, 2009).

This chapter intends to analyse the qualitative data gathered through interviews and use empirical evidence for validation of the theoretical framework Aligning ERM and Performance Management developed in Chapter 3, Figure 3-1.

The second part of data collection and analysis (questionnaire) is then presented in Chapter 6. Finally the empirical findings of this research are concluded through discussing the consequences and outcomes of both qualitative and quantitative research phase in Chapter 7.

### **5.2 Qualitative Data Analysis**

This section performs in-depth investigation of interview questions, interprets the findings, and finally presents the results as the respond to the research questions presented in Chapter 1, Section 1.5. Interview questions have been categorised in three sections (Table 5-1) based on the aspects of their focus.

Table 5-1 below presents the critical factor codes assigned by the Researcher to be used for qualitative data analysis.

Table 5-1: Qualitative questions' codes

| No                                                  | Interview questions                                                                                                                                                                                                                                                                                                                                                                                                | Codes                                                                                      |
|-----------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|
| Section A: Participants' Profile                    |                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                            |
| 1                                                   | For how many years have you been involved in ERM?                                                                                                                                                                                                                                                                                                                                                                  | ERMEXP-1                                                                                   |
| 2                                                   | Which level of seniority applies to you?                                                                                                                                                                                                                                                                                                                                                                           | ERMSEN                                                                                     |
| 3                                                   | In which organisational area do you work?                                                                                                                                                                                                                                                                                                                                                                          | ERMARA                                                                                     |
| Section B: Enterprise Risk Management               |                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                            |
| 1                                                   | Could silo risk management be transferred to ERM effectively? How?                                                                                                                                                                                                                                                                                                                                                 | TRMERM                                                                                     |
| 2                                                   | How did Iran automotive industry change its risk management approach after GFC? What more improvement their risk management approach requires?                                                                                                                                                                                                                                                                     | ERMSTS-1                                                                                   |
| 3                                                   | Has your organisation implemented ERM?<br>What is the level of your ERM maturity?                                                                                                                                                                                                                                                                                                                                  | ERMIMP<br>ERMSTS-2                                                                         |
| 4                                                   | What is the reason of ERM immaturity in your organisation?                                                                                                                                                                                                                                                                                                                                                         | ERMIMMAT                                                                                   |
| 5                                                   | Does your organisation apply any common universal framework of ERM?                                                                                                                                                                                                                                                                                                                                                | ERMFRMW                                                                                    |
| 6                                                   | How challenging are each factor in effective ERM implementation?<br><br><ul style="list-style-type: none"> <li>- Senior managers' weak understanding of ERM concepts and its benefits</li> <li>- Insufficient risk history existing in your organisation</li> <li>- Reluctance and resistant towards changes</li> <li>- Lack of risk communications</li> <li>- Lack of stable risk management structure</li> </ul> | ERMCHLNG<br><br>ERMSTMNG<br><br>ERMRSKHSTRY<br><br>ERMSTAFF<br><br>ERMCOMM<br><br>ERMSTRUC |
| Section C Developing ERM and PM alignment framework |                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                            |
| 1                                                   | In your opinion, how important is aligning ERM with PM?                                                                                                                                                                                                                                                                                                                                                            | ERMALPM                                                                                    |
| 2                                                   | What benefits could ERM alignment with PM have for                                                                                                                                                                                                                                                                                                                                                                 | ERMPMBEN -1                                                                                |

|   |                                                                                                                                        |                            |
|---|----------------------------------------------------------------------------------------------------------------------------------------|----------------------------|
|   | organisations?                                                                                                                         |                            |
| 3 | What is the status of ERM and PM alignment in your organisation? Do you have your ERM and performance management aligned? If yes, how? | ERMALPMSTS                 |
| 4 | How important is senior managers' support in effective alignment of ERM with organisational PM?                                        | ERMPMSNMNG                 |
| 5 | How important is the role of strategic planning in effective alignment of ERM and PM?                                                  | ERMPMSTPLN                 |
| 6 | How significant is the role of risk communication as well as internal and external analysis in effective ERM and PM alignment?         | ERMPMRSKCOM<br>ERMPMINTEXT |
| 7 | How important resource and capabilities are in effective alignment of ERM and PM?                                                      | ERMPMR&C                   |

Source: The Researcher

Table 5-1 presents interview questions and a list of all factor codes applied in Chapter 5. All above codes developed by the Researcher and are used in frequency tables of Chapters 5 with the aim of analysing the data collected from interviewees. Before starting the data analysis, it is necessary to explain that research ethical issues discussed in (Chapter 4, Section 4.9), exculpate the Researcher from disclosing the research participants' names. Therefore, the Researcher has numbered the interviewees from 1 to 30 and will refer to each interviewee's mentioning his/hers number.

### 5.2.1 Section A: Participants' descriptive profile

The descriptive profile of interviewees is presented in this subsection. Each question of Section A (available in Table 5-1), is discussed along with their variable in following. In the first question, interviewees were asked about the number of years' experience that they had in ERM area. Frequency distribution of variable [ERMEXP-1] presented in Figure 5-1 showing that 80% of interviewees have been working for more than 10 years in ERM area, while 20% had 5 to 10 years' experience in ERM. These results ensured the Researcher that the selected sample had adequate ERM experience and their knowledge could add value to this research.



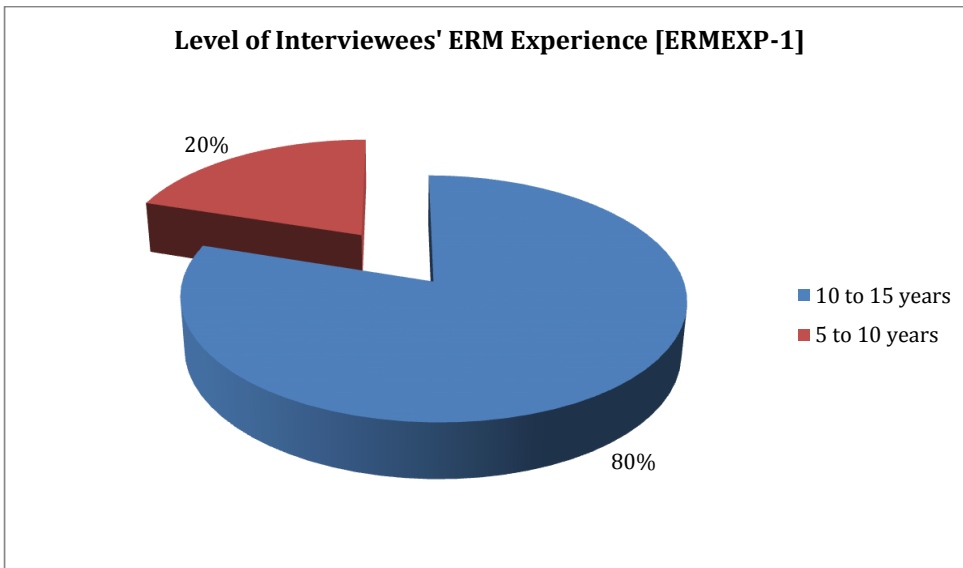


Figure 5-1: Frequency distribution of variable ERMEXP-1

Figure 5-2 presents the frequency distribution of [ERMSEN] addressing the seniority level of interview participants. The results show that 60% of interviewees were senior managers, 33% were in the C-suite group such as:(CEO,CRO), and the remaining (7%) were middle managers (Appendix B, Table B-2). This is while the outcomes of this question in survey sample are significantly different (Appendix D, Table D-3). Result of questionnaire illustrates that 24% of survey respondents were senior managers, 36% C-suites, 28% middle managers and the rest in operational management levels (Appendix D, Table D-3). The reason of this difference is the different sampling method chosen for each method of data collection argued in-depth in Chapter 4.

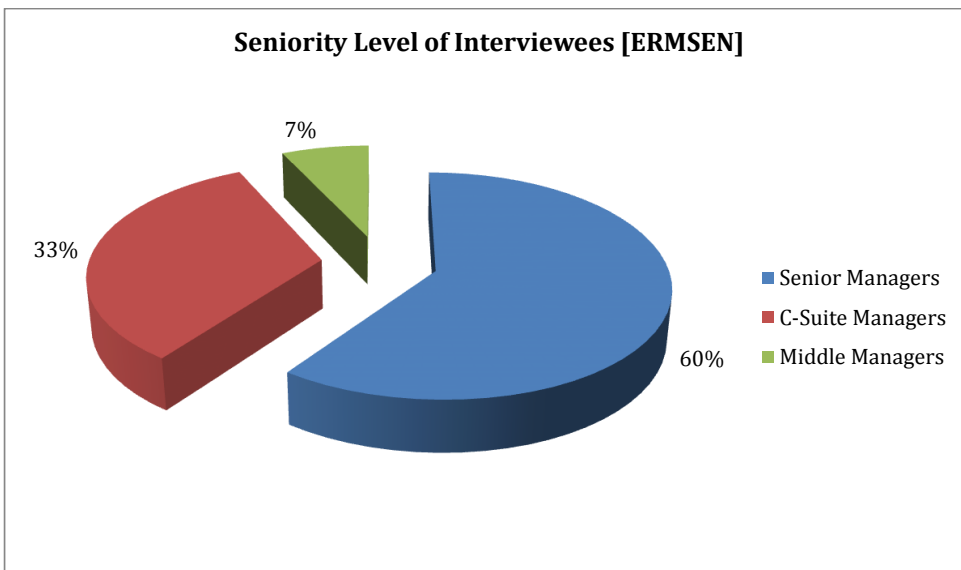


Figure 5-2: Frequency distribution of variable ERMSSEN

When interviewees were asked about organisational area they were working in [ERMARA], 86% responded that they were working directly in different levels related to ERM (Appendix B, Table B-3).

As discussed in Chapter 4 (Subsection 4.6.2.1), based on sampling techniques used for this research's qualitative data collection (Judgment, and snowball sampling) all above questions of (Section A) had already been collected before starting the main data collection. This helped the Researcher to ensure the adequacy of participants' knowledge in providing valuable ERM experience significant to this research.

### 5.2.2 Section B: ERM

This subsection analysis the outcomes of the questions asked in Section B of interview, considering evolution of risk management and ERM maturity in under investigated organisations. Question B (1) discussed the transition from traditional risk management (RM) to enterprise risk management (ERM) [TRMERM]. Questions B (2) investigated evolution of risk management approaches in Iran's automotive industry after global financial crisis [ERMSTS-1]. Question B (3) referred to ERM implementation [ERMIMP] in the under investigation organisations and also addressed their ERM maturity [ERMSTS-2]. Question B

(4) explored the reasons of ERM immaturity in Iranian automaker organisations [ERMIMMAT]. Then, Question B (5) discussed ERM frameworks applied by those under investigated organisations [ERMFRMW]. And Question B (6) elicited the challenges of effective ERM implementation in automotive industry [ERMCHLNG]. Therefore, current section aimed to identify the current status of ERM in Iran automotive industries, and to discover the critical organisational factors affecting their ERM implementation.

### Question B (1)

In this question interviewees were asked to express their opinion about differences of traditional risk management and enterprise risk management, and whether an effective transition from RM to ERM would be possible and if yes, how. Figure 5-3, illustrates the interviewees respond to the second part of this question.

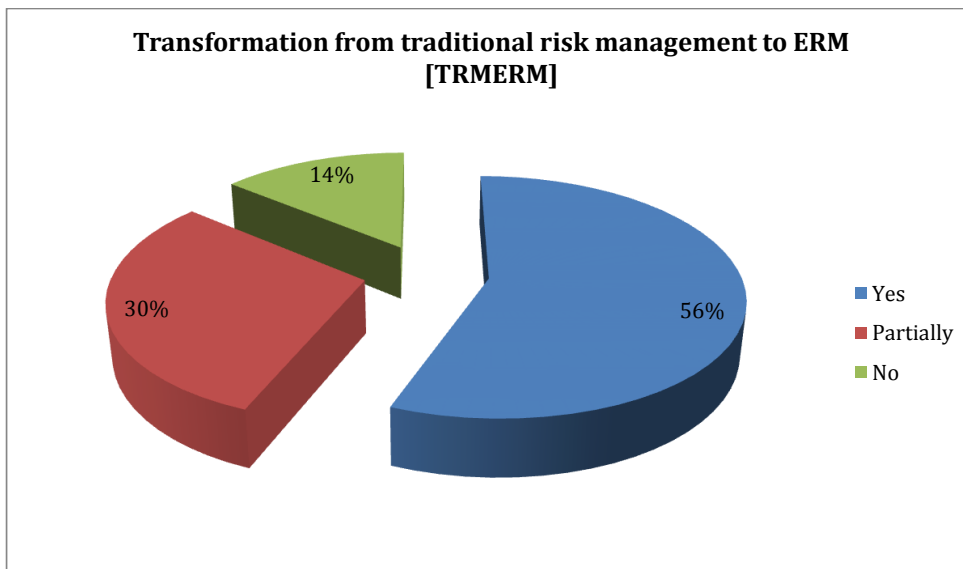


Figure 5-3: Frequency distribution of variable TRMERM

More than half (56%) of interviewees replied that, an effective transition from silo risk management to ERM is achievable. 30% discussed that risk silos could be integrated somehow but cannot be fully eliminate. Just 14% mentioned that this transition wouldn't be

possible (Figure 5-3). So, the majority of participants argued that moving from silo risk management to ERM is possible (Appendix B, Table B-4.1).

During the last couple of decades and due to increased risks complexity, organisations have been seeking an appropriate approach of effective risk management (Frigo, 2011). Risk management concept has fundamentally changed and has moved from compliance- driven approach to a value- driven approach (Lam, 2003; Dickinson, 2005). However, as discussed in the literature, ERM still needs more development in organisations. There is a need of more focus and better understanding of ERM concept and its benefits (Power, 2009).

Figure 5-4 displays responses of participants on how an effective ERM transition is possible [TRMERM]. Senior managers' involvement and support were mentioned as important by (73%) of the interviewees. More than 60% cited that an effective movement towards ERM would be possible if there is a: 1) clear ERM structure and guidance (70%), 2) appropriate ERM knowledge and culture (67%), and 3) development of ERM committee that mainly focuses on organisational risk management issues (60%).

Moreover, 53% stated that appropriate resources and capabilities are needed to make this transition achievable. Importance of ERM alignment in to core management functions also was cited by 40% of respondents (Appendix B, Table B-4.2). Bugalla *et al.* (2010) argue the importance of establishing risk committee and hiring a Chief Risk Officer as a strong support of ERM implementation.

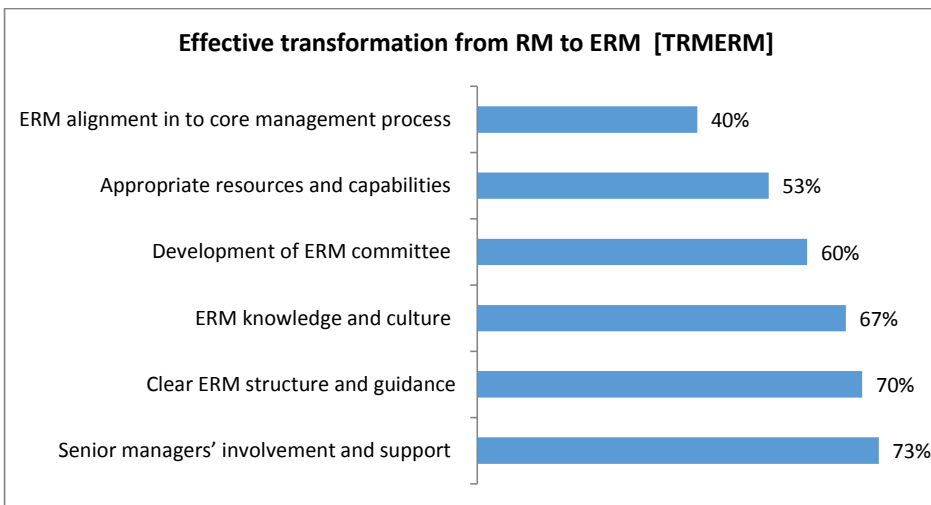


Figure 5-4: Effective transfer from traditional risk management to ERM

The interviewees point of view represented in Figure 5-4 are aligned with various researchers' vision on ERM evolution. Risk management has been moving towards a more effective approach in respond to “break down the silos”, and to increase business performance (Chapman, 2006; Tysiac 2012; Fox 2012).

The interview participants, who agreed with the possibility of silo risk transition to ERM, expressed that breaking down the silos is one of the main challenges of ERM. There is a need that an organisation's all layers work together and communicate the organisational issues in order to gain a holistic view of risk management. The interviewees further stated that, ERM needs to integrate into organisation's core strategic objectives. Gaining sufficient knowledge and well understanding of ERM concept, and establishing an ERM committee that focuses specifically on risk management issues are also important factors in transitioning to ERM. A stable ERM structure and guidance along with support of senior managers, and allocating appropriate resources and capabilities also were emphasised by the interviewees as very significant elements. Similarly, many researchers in literature review and literature evaluation (Chapter 2 and 3) agreed on importance of factors mentioned in (Figure 5-4).

In the current research, interviewee 6 discussed that a clear structure and framework of ERM should be stable in organisation. A strong support and active involvement of organisations' senior managers is also needed to enable and accelerate the process of ERM implementation:

[...] the most important thing is senior managers' involvement, supports and follows up on ERM adoption and implementation, as they are the most important members making the critical organisational plans [...]. Every organisation should have a process and structured guidance focusing on organisation risk identification, evaluation, mitigation, and risk management. There are many universal frameworks along with guidance available for organisations' use [...].

In this regard, Banham (2004) discusses that risk structure is one of the key difference between traditional risk management and ERM.

Several interviewees argued regarding enterprise risk culture and risk communication. Interviewee 11 argued that there is a need of ERM communication and awareness among organisations' layers. Organisations need to gain sufficient knowledge about ERM benefits:

[...] the problem is that different sections of organisations tend to keep silos in order to rationalise their existence. Some organisation' seniors believe that for security reasons, different sections' risks should be kept confidential and solved privately. This mentality prevents cooperation and effective risk information sharing.

As discussed in the literature, risk communication is a critical factor to develop an organisational "intelligent risk management" (Power, 2004; Ulrey and Sargent, 2013). However, silo risk management structure still exists due to lack of organisational risk culture. People still prefer not to share all risk information.

Furthermore, several interviewees argued that traditional risk management movement towards ERM is at its early stages. Interviewees discussed that silo risk mind-set is gradually moving towards ERM. Organisations have realised the necessity of a risk committee that includes all organisational risks management. Moreover, majority of interviewees stated that managing organisational risks should be everyone's responsibility to gain an effective ERM. As ERM is a long-term process, there is a need for effort and patience in order to gain the full potential of ERM.

Similarly interviewee 18 discussed that:

The issue is that ERM committee is not really involved in all organisational decision making. Giving more responsibility to this committee and evolving them in organisational decision making processes is one of the key transformations from silo based risk management to ERM. So, developing an independent risk management process that is not affected by profit-driven sectors is very important.

ERM integration in to core decision making process has also been supported through literature. According to Shortreed (2010), in ISO 2009 framework, risk management and organisation decision making process are integrated: Organisations' managers consider risks that might affect organisational objective achievement.

Some interviewees believed that partial ERM transition is possible. In this regard, Interviewee 23 discussed that:

Organisations could never get rid of the silos completely, but it is important to employ some people with the responsibility of specific tasks across the silos. So it's each silos responsibility to get engaged in to organisation adapted risk approach and take part in management activities.

Interviewee 4 argued that:

Silo will never go away completely from organisations risk management. RM concept was developed based on solo structure; however ERM is based on holistic view of organisation's risks, and manages them in a way to minimise effect of risks in organisation objective achievement. So integrating ERM in to a process that has been structured based on solo thought is not completely achievable.

Based on findings in respect of this question, it is concluded by the Researcher that an effective ERM implementations depends on its alignment with organisational direction in which the organisation operates in. It is critical to identify in which area the organisation is doing well and where are the areas of it weaknesses. Defining the right risk culture is also very important to support the needed changes among the organisation. Moreover, risk resource identification helps the collaboration between sections.

### **Question B (2)**

This question considered the changes applied in automotive industries' risk management approach after global financial crisis (GFC), which specified by variable [ERMSTS-1] (see Table 5-1). Participants were asked whether Iran automotive industry changed its view of organisational risk management after GFC and if yes, how. Interviewees were moreover asked to discuss any more improvement needed regarding organisational risk management. As it shown in Figure 5-5, about more than two thirds (74%) of interviewees believed that Iranian automaker organisations had partially changed their method of risk management from traditional towards a holistic view. While less than one fifth (16%) of respondents considered GFC as a turning point of shifting from RM to ERM approach, only 10% stated no change seen in existing risk management approach (Appendix B, Table B-5). So in total it was agreed by 90% of interviewees that at least partial changes had been made to Iran automotive industries risk management approach.



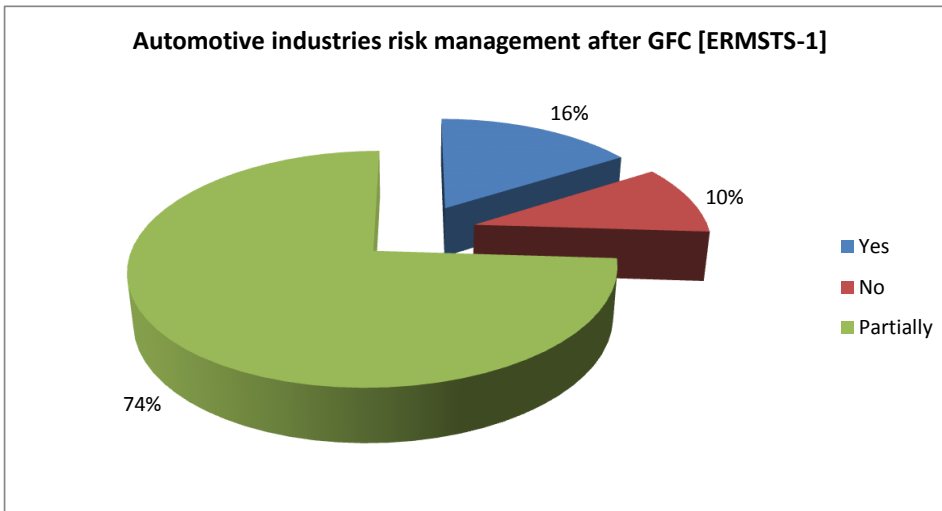


Figure 5-5: Frequency distribution of variable ERMSTS-1

The participants also were asked to discuss the prevalent changes in their organisation after GFC. More than 70% attributed improved risk oversight as main drivers of change in their organisation risk management approach. Respectively, establishing a risk management team and appointing Chief Risk Officer (31%) and slow moving silo risk structure integration (26%) considered as other main changes in organisations' risk management practice. Indeed, senior managers have tried to move their organisations away from silo based risk practices, by revising their risk management structure.

Interviewee 28 stated that:

Since global crisis, organisation B has tried to overcome the unexpected internal and external disasters by defining organisational risk structure. Establishing a comprehensive risk committee and assigning CRO was one of the key steps of enhancing risk oversight and integrating silo risk structure among the different organisational levels.

This is while the important role of CRO in effective ERM implementation has been argued in literature. A survey by Beasley *et al.* (2007) confirms that existence of CRO, and active

involvement of senior managers have positive influence in ERM effectiveness across the organisation.

A large numbers of interviewees discussed that ERM still has long way to go, and more work required in order to positioning ERM effectively in their organisations.

In this regard interviewee 7 argued:

There is a need of ERM integration with organisational strategy setting. ERM needs to be applied across the organisation to identify those areas that ERM makes the most and least values, in order to determine either to carry on or limit it. Otherwise it will not gain the desirable outcomes in organisation objective achievement.

Another interviewee (no, 24) said that:

Organisations' managers should know that ERM is an ongoing process and does not finish with risks identification, assessment and report. ERM indeed grows with organisation objectives and becomes a "way of business". ERM has to be aligned and function in same line with organisational strategic objectives.

According to Fraser and Simkins (2007), one of the main reasons of ERM failure is lack of ERM integration into organisational daily business processes. Moreover, according to this research's findings, ERM is still being adopted as a regulatory compliance process, this means, the full potential benefits of ERM has not been achieved by organisations.

When participants asked about the ways of attaining effective enterprise risk management, they mentioned the following two steps as the most important actions: 1) providing shareholders with the value of ERM, 2) having senior managers' strong support. Most of the interviews argued that understanding how ERM creates value for an organisation, is the most important way of attaining senior managers' support. Aligning ERM with organisational strategic objectives also considered critical by interviewees in order to focus on risks which are relevant to the organisation's aims and objectives.

Furthermore, there is a need of strong link between ERM and organisational internal and external environment in order to take in time reactions based on environmental changes. Rasmussen *et al.* (2007) with the same view mention that, 1) having a good understanding of ERM and its benefits for organisations, 2) communicating and sharing risks among organisations' layers, an 3) developing a clear risk structure and responsibility, are the ways of effective ERM implementation.

Based on responses to this question, it is concluded by the Researcher that, global financial crisis was considered as a sign of CEO's wrong risk management behaviour. Therefore, after GFC, Iran's automakers have focused more on their risk management approach and tried to apply effective methods of risk management in order to prevent financial disasters. It stated by 90 % of interviewees that their organisation was partially implementing ERM; however, there were weaknesses in their ERM implementation that more work and effort needed to overcome them.

### **Question B (3)**

This question aimed to realise whether Iranian automaker organisations had implemented ERM in their organisation and if yes, how. The variable chose for this question was [ERMIMP].

In response, 67% of interviewees believed that ERM was partially implemented in their organisation, while 27% stated that ERM was fully implemented. From interviewees, 6% did not confirm the ERM implementation in their organisation (Appendix B, Table B-6.1).

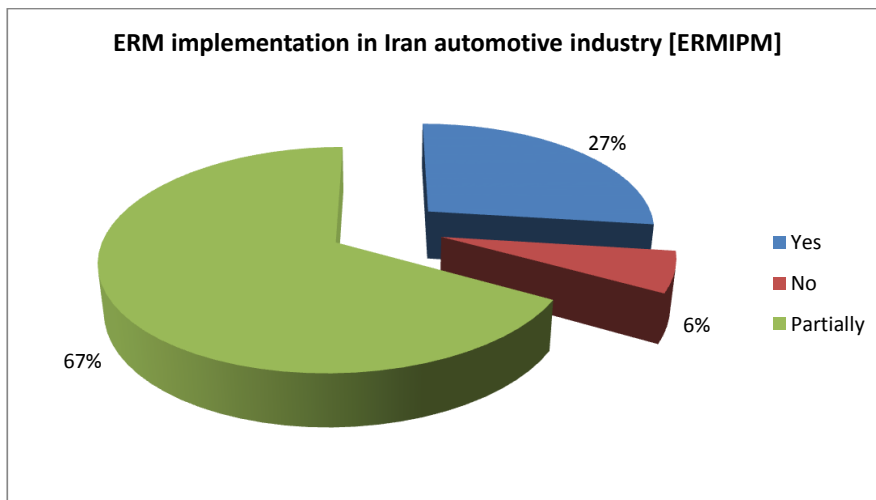


Figure 5-6: Frequency distribution of variable ERMIPM

In this question, participants were also asked to discuss the ERM implementation and the level of its maturity in their organisation if any [ERMSTS-2]. Interviewees were requested to explain the current state of ERM in their organisation. In this regard, more than 90% of respondents cited that ERM was being studied more than 8 years and was being implemented over 6 years in their organisation. However, as Figure 5-7 represents, only 23% of all interviewees believed that ERM had effective function in their organisation during these years, and 77% of interviewees discussed that their organisation had not gained desirable result from its ERM implementation yet due to many different reasons (Appendix B, Table B-6.2).

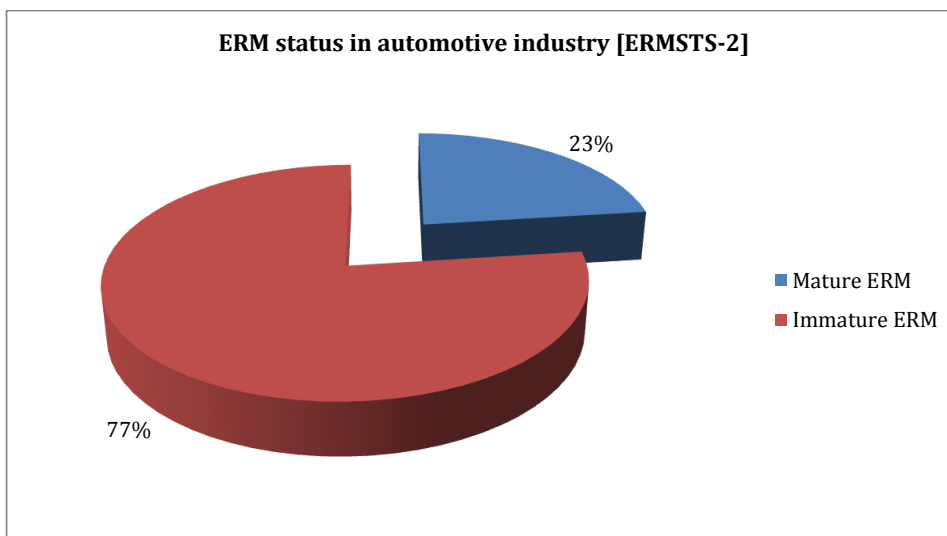


Figure 5-7: Frequency distribution of variable ERMSTS-2

Based on the results of researches by Gates (2010) and Kaplan and Mikes (2014), ERM was in beginning stages of its adoption in majority of their examined organisation. Also according to outcomes of the study conducted by Beasley *et al.* (2010) in various organisations, more than one-third of participants agreed on immature ERM in their organisation. These results indicate that ERM adoption is rising due to increase of ERM knowledge in organisations and industries but the level of its maturity is still rather modest.

Interviewee 9 argued that:

We claim that we have developed a risk management committee for more than 7 years and have adopted ERM for more than five/six years; however we cannot claim that we are implementing ERM effectively. They are weaknesses that we need to consider and overcome. Just claiming we are applying ERM is not enough; the important issue is that what we really do! ERM needs to be applied in whole organisation and cover the whole business process. I think our organisation's ERM has still long way to go in order to reach its effective implementation [...].

Similarly interviewee 15 stated that:

There are some pre-requirements that organisations need to consider in order to have a successful ERM. Firstly, organisations need some specific resources and skilled people who are really professional in ERM process. Secondly, personals in different levels should get familiar with the process in a way to accept the new process and follow its structures. The most important issue is board of directors' support of the established process. They are many other things that should be considered in order to have a mature ERM implemented [...].

It is concluded from the finding of this question that though organisations have been moving towards ERM implementation, however there are many more works need to be done in order to reach to ERM maturity in Iran automotive industry.

#### **Question B (4)**

Following the previous question, this question asked interviewees to explain the main reasons of ERM immaturity in automotive industry of Iran [ERMIMMAT]. Interviewees, who believed that ERM had not been implemented in their organisation effectively, each mentioned different reasons for their ERM immaturity presented in Figure 5-8. As illustrated in Figure 5-8, over 77% argued that the sanction that their country faced for about two years and half diverted their focus on some critical issues other than their ERM matter. Moreover, 75% argued that more knowledge and work on ERM and its implementation is needed in order to enable the effective implementation of ERM.

Over 70% stated lack of strong support and involvement of senior managers as the main reason of ERM immaturity. With similar percent, 70% discussed that ERM implementation is a costly process and needs enough financial resources for fundamental changes in organisation structure in addition to senior managers' involvement. 63% considered lack of ERM culture as main reason of ERM immaturity. And finally, 60% cited that Iran's automotive industry includes very big sub-organisations and being able to implement ERM in

whole areas of such big organisations it's a time consuming process and needs enough allocated time and a strong support of senior management (Appendix B, Table B-7).

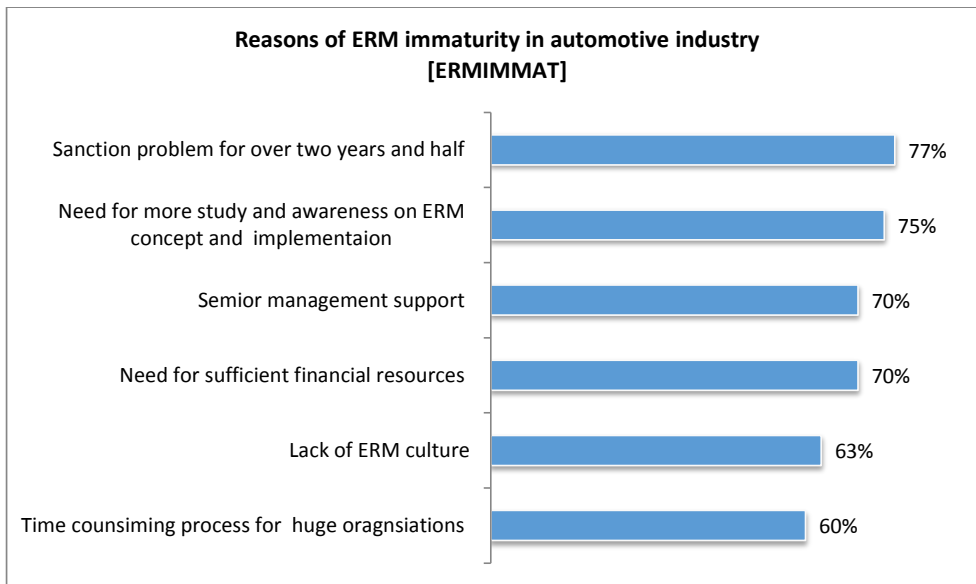


Figure 5-8: Reason of ERM immaturity in Iran automotive industry

In addition nearly 60% of all interviewees cited that their organisation have set many new plans (including ERM improvement) after overcoming the few years of sanctions. They indeed were hopeful to have an impressive progress in their effective ERM implementation with in coming few years.

### Question B (5)

This question was designed to realise which kind of ERM frameworks Iran automotive industry was using. Interviewees were asked whether they organisations had applied any universal formwork or they had their own designed framework [ERMFRMW].

Almost all respondents replied that their organisation have studied universal frameworks and learned from them, however, they have developed their own ERM frameworks based on their organisation's need. Interviewees cited that their frameworks are very close to ISO 3100:2009 standard.

In this regard, interviewee 2 said that:

When our organisation decided to implement ERM, we spent about more than a year studying different framework and standards of ERM in our risk management team. We tried to learn from existing approach and analyse their strengths. We tried to apply those strengths in our framework, we also considered the existing frameworks' weaknesses and tried to remove them in our model. Our ERM framework is very close to ISO 3100:2009 standard.

The findings of this question are consistent with Mikes (2009a; 2011) researches investigating how organisations have chosen and adopted their ERM framework. Mikes's (2009a; 2011) researches' outcomes show that there is no sole and particular ERM approach suitable for all cases. In order to having an effective ERM approach, organisations have to adopt a framework that is appropriate and matches with their aims and objectives, and organisational structure.

#### **Question B (6)**

This question aimed to determine how challenging the factors such as: (Senior managers poor support of effective ERM implementation, insufficient organisational risk history, reluctance and resistant to accept the changes, lack of risk communication, and absence of a stable risk structure) were in organisational effective ERM implementation [ERMCHLNG]. Table 5-2 lists the frequency disturbing of each factor discussed by interviewees based on four descriptors of importance from "very challenging" to "not challenging" options.



Table 5-2: Frequency variable ERMCHLNG

| ERMCHLNG |                                                              | Frequency (%) |                  |             |                      |                 |
|----------|--------------------------------------------------------------|---------------|------------------|-------------|----------------------|-----------------|
|          |                                                              | Variable      | Very Challenging | challenging | Slightly Challenging | Not Challenging |
| a        | Senior managers poor support of effective ERM implementation | ERMSNMNG      | 73%              | 27%         | 0                    | 0               |
| b        | Insufficient organisational risk history                     | ERMRSKHSTRY   | 64%              | 30%         | 6%                   | 0               |
| c        | Reluctance and resistant to move towards changes             | ERMSTAFF      | 24%              | 47%         | 30%                  | 0               |
| d        | Lack of organisational risk communication                    | ERMCOMM       | 76%              | 14%         | 10%                  | 0               |
| e        | Lack of an stable risk structure                             | ERMSTRUC      | 46%              | 40%         | 15%                  | 0               |

As it is shown above (Table 5-2), almost three- quarters of interviewee’s (73%) described factor A: (senior managers poor support of effective ERM implementation), as a challenging factor effecting ERM implementation. With nearly the same frequency, 76% of interviewees believed that factor D: (Lack of organisational risk communication) is another challenging factor and very important in organisations’ effective ERM implementation (Appendix B, Table B-8). This empirical evidence complies with the researches done by Leggett, (2007) and Yazid *et al.* (2011) which emphasised that organisations suffer from lack of risk communication due to poor risk culture and organisational security policies believing different departments’ risk should stay confidential and solved confidentially.

Regarding lack of organisational risk communication, interviewee 21 discussed:

[...] in our organisation culture, it has not been common that all layers and departments of organisation communicate their experiences and failure in different aspects. They mostly are interested to boast their success and achievements rather than sharing their weaknesses. This silo mind though and being conservative on sharing the failures has been causing heavy compensations for our businesses.

In addition interviewee 13 argued:

There is a belief in organisations' senior managers that, organisational risks and vital issues that have massive effect on organisation's performance, should not be communicated in all levels, but should be assessed and managed in specific teams without leaking in other layers.

Table 5-2 also illustrates that 64% of respondents considered factor B: (insufficient organisational risk history) as a very challenging factor in effective ERM implementation. However, nearly one –fifth (%6) of respondents argued that, although organisational risk history will help risk management team to function better, however, risk decisions cannot always be made based on previous risk history as organisational internal and external environment is being exposed to many changes and this makes organisation to face many new risks that have not happened before.

Interviewee 9 supported the importance of organisations' risk history:

[...] risk history helps the risk management team to identify risks that have been frequently happening and jeopardizing organisation's objective achievement. So the risk officer could pay more attention to the main risks that are more likely to happen.

With a contradictory opinion, Interviewee 11 commented:

Having access to organisational risk history could help to better identification of existing risks. However, this is not enough, as organisations will experience different internal and external environment including new threats and risks each time.

Regarding factor C: (managers and staff reluctance to move towards changes) about 70% of interviewees described this element as either a challenging or very challenging factor in effective ERM implementation. However, about 30% of interviews believed that employees and middle managers accomplish the organisational tasks which are determined for them, so this is senior managers' responsibility to determine the needed actions and tasks to be performed through other employees. Interviewee 14 considered (managers and staff reluctance to move towards changes) as a challenging factor and argued:

This is a very challenging factor and could have different reasons. Sometimes managers are reluctance to accept and move towards changes due to their weak understanding of new concepts. And employees would not like to do more tasks than what they have already been doing; this is because they do not consider themselves as part of the business and its success. So, they would like to do minimum function, most of them do not like to do more efforts.

Interviewee 28 with the same view discussed:

[...] Managers and employees would like to keep on doing the ways that they are familiar with. Sometimes they are scared to evaluate themselves with new functions as they think they might be judged as not functioning effectively in the new process.

On the other hand, interviewee 16 conversely argued:

[...] this is senior managers' ability to determine and direct operational and middle managers, and employees in to the right direction. Staff need be thought and directed to the direction that has been planned by the boards for their organisations. So, this is

not employees' choice to decide whether they would like to do something or they don't.

In agreement with interviewee 16, interviewee 27 commented:

Organisations employees have no power on deciding whether to perform a plan or not. They definitely have to follow the structure determined by organisation's seniors. So the main processes and decisions must be determined and commanded by seniors to the other layers to be accomplished.

Regarding factor E: (Absence of organisational stable risk structure), over four-fifth of respondents believed that, absence of a stable risk structure especially in their organisation has been challenging and critical. About 85% of respondents argued that continuous changes of top management teams' in their organisations (every few years) has effected and delayed the some functions such as effective implementation of ERM.

Interviewee 4 discussed:

Automotive industry in our country belongs mostly to the public sector. So, our C-suite executives and senior managers get changed every few years. This causes delay in our progress in some processes such as ERM implementation as every new group come up with their own structures and plans. So, the new structure takes time to settle down among organisation and its different levels.

Interviewee 10 also supported the importance of stable organisational risk structure:

As ERM is relatively new process in our organisation, we still are struggling with a stable ERM structure and plans. Based on our organisation's policy, our senior executives are changed every few years. This causes some disruption in ERM effective implementation as every new team would like to plan the ERM function according to their point of view.

Question 6 addressed one of the most important parts of this research which was challenges of ERM implementation. Analysis of answers to this question determined the main challenges of effective ERM implementation in automotive industry of Iran, it also provided empirical basis that needed to be considered in the proposed framework of aligning ERM with performance management developed in Chapter 3 (Figure 3-1). Findings of this question showed that, all mentioned factors were considered by great number of respondents as challenging and important elements in performing effective ERM implementation.

### **5.2.3 Section C: Aligning Enterprise Risk Management (ERM) with Performance Management (PM)**

Section C of interview contained particulate questions with the purpose to support development of the framework aligning ERM with performance management. Each question of this section considered different aspects of ERM and performance management alignment. The first questions considered interviewees vision on alignment between ERM and performance management presented with variable [ERMALPM]. Then second question asked the potential benefit expected from ERM alignment with performance management for organisations [ERMALPMBEN-1]. The third question explored whether automotive industry have aligned their ERM with performance management [ERMALPMSTS]. The fourth questions investigated the importance of senior management support on ERM alignment with performance management [ERMALPMSNMNG]. The significant role of organisations' strategic planning in aligning ERM with performance management [ERMALPMSTPLN] explored in the fifth question of Section C. The next question then investigated the role of risk communication [ERMPMRSKCOM] as well as the role of internal and external environmental monitoring [ERMPMINTEXT], in effective alignment of ERM with performance management. The last question of Section C considered the importance of resources and capabilities in aligning ERM with performance management [ERMPMR&C].

**Question C (1)**

First question of this section (available in Table 5-1) investigated the participants' view on importance of ERM and performance management alignment [ERMALPM].

Figure 5-9 illustrates that 72% of interviewees considered aligning ERM with performance management as either critical or very important in organisations sustainability. In addition, 20% considered this alignment as an important factor. However, 8% of interviewees believed that organisational ERM and performance management alignment through a framework was slightly importance as this alignment is automatically done if ERM does its job correctly (Appendix B, Table B-9).

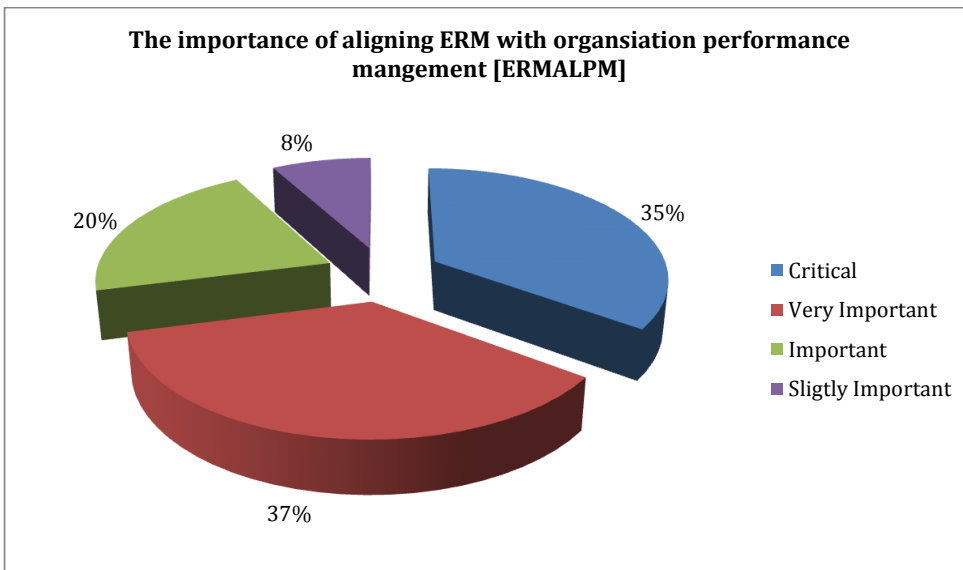


Figure 5-9: Frequency distribution of variable ERMALPM

Interviewee 5 supported the importance of ERM alignment with organization performance management:

Both ERM and PM follow the same goal which is organisation aim and objective achievement. PM through all activities that are done to make sure that all aims and objectives are achieved and ERM through identifying and managing the risks that might threaten organisation objective achievement. So they need to be aligned through an effective process to move in the right direction toward organisation's aim and increased performance.

Interviewee 21 with almost the same belief discussed:

The aim of implementing ERM is to identify an organisation's risks and opportunities, and manage them in a way to move the organisation towards objective achievement and increased performance. Therefore it is necessary to put ERM process in the same line as organisation's objective setting and performance management [...].

On the other hand with contrary opinion interviewee 27 discussed:

When organisations structure their ERM system, this process is automatically designed based on organisations performance. So, ERM functions according to aims and objectives that have been planned for the organisation. Indeed, any action or decision that is taken in organisation should follow organisation's aim and objectives. ERM and PM also are not exceptional, they should be set based on organisations' aims so, they automatically are aligned.

### Question C (2)

The next question, asked the potential benefits of ERM alignment with performance management for organisations [ERMPMBEN-1]. As illustrated in Figure 5-10 below, over four-fifth of respondents stated organisation aim and objective achievement (87%) and enhanced performance (84%) as the main benefits of this alignment. Well preparation for future volatilities (64%), risk adjusted decision making (60%), long-term sustainability

(64%), and value creation for shareholders and competitive advantages (54%) was stated by the interviewees as outcomes of this alignment (Appendix B, Table B-10).

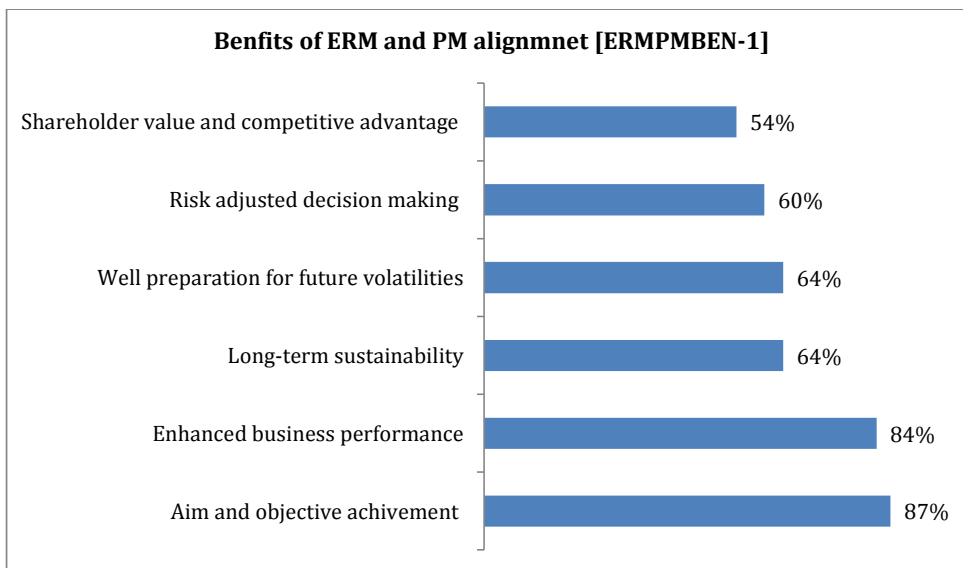


Figure 5-10: Benefits expected from organisational ERM and PM alignment

In this regard interviewee 1 cited that:

Organisational ERM and PM alignment will result to organisations' aims achievement, long-term success and prosperity. [...] organisations which have effective ERM and PM alignment could ensure that they can manage their organisational activities towards enhanced performance. This will enable organisations to generate value for its shareholders and look for competitive advantage.



Interview 17 also with the same view discussed:

Considering definition of ERM and performance management illustrates that both ERM and PM include actions ensuring an organisation that its aims are met. Aligning ERM and PM in an effective and structural function, strengthen an organisation in its goals and objectives achievement. Successful organisations generate value for their stakeholders and gain competitive advantage.

In conclusion, the large majority of respondents perceived the alignment of ERM with organisational performance management as a very important step towards increase in organisations' performance, objective achievement, long-term success, value creation for shareholders, and ultimately gaining competitive advantage.

### **Question C (3)**

The third question of Section C (available in Table 5-1) aimed to discover whether Iranian automaker organisations had aligned their ERM with organisational performance management [ERMALPMSTS].

Respondents were asked whether their organisation had aligned ERM and performance management and if yes, what the state of this alignment was. As shown in Figure 5-11, almost 97% of interview replied that their organisations have not aligned their ERM with performance management through a structured manner and by using a formal framework.

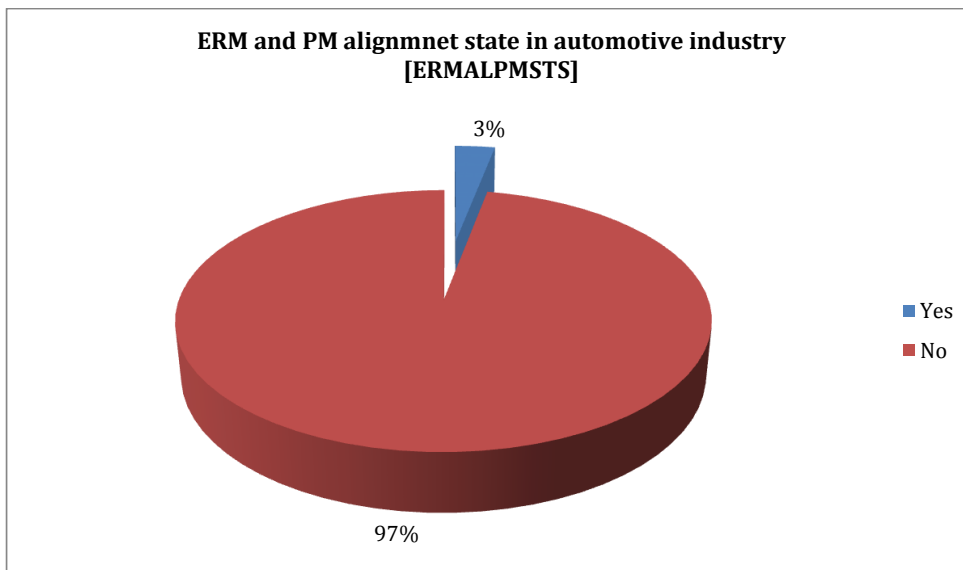


Figure 5-11: Frequency distribution of variable ERMALPMSTS

Almost all interviewees argued that as their organisations are very big in size and each of them has more than hundred subsidiaries with too many employees, therefore they have not been able to cover all the subsidiaries with mature ERM yet. It was discussed by the respondents that their organisation mostly aligns its individual projects' risk management with performance management.

Interviewee 7 discussed:

Previously, when we used to manage our risks in traditional manner, we had a map for each project and we used to measure and assess risks associated with each project's objectives. But now we are kind of hang on, we are implementing ERM and expanding it gradually in whole organisation, but as we have not yet covered all our subsidiaries, we still consider the alignment of each individual project's risks management with organisational performance.

Interviewee 18 also had the same opinion:

Our organisation is very big and ERM is in initial stages of implementation in some of our subsidiaries. So, we still have not adopted an approach of aligning ERM with PM and we still align separate projects' risk management with performance management. Moreover, in those sections that we have ERM implementation, the ERM process and organisational PM are kind of aligned in an informal and unstructured manner. However, in the very near future having an effective framework of ERM and PM alignment will be a must for us.

The findings of this question confirm that although senior managers consider an effective framework aligning ERM with performance management as a very useful approach critical in obtaining organisational performance; however, they have not developed and implemented such a framework in their organisation. Indeed, ERM and performance management alignment is being done in an unstructured and informal manner in their organisation.

#### **Question C (4)**

Fourth question of section C (available in Table 5-1) aimed to address the importance of senior managers' support on ERM and organisational performance management alignment that presented through variable [ERMPMSNMNG]. Figure 5-12 displays that, only 6% of respondents considered this element as an important factor on ERM and performance management this alignment. Indeed, approximately all interviewees expressed that senior managers play either a critical (80%) or a very important (14%) role in implementation of ERM and performance management alignment.

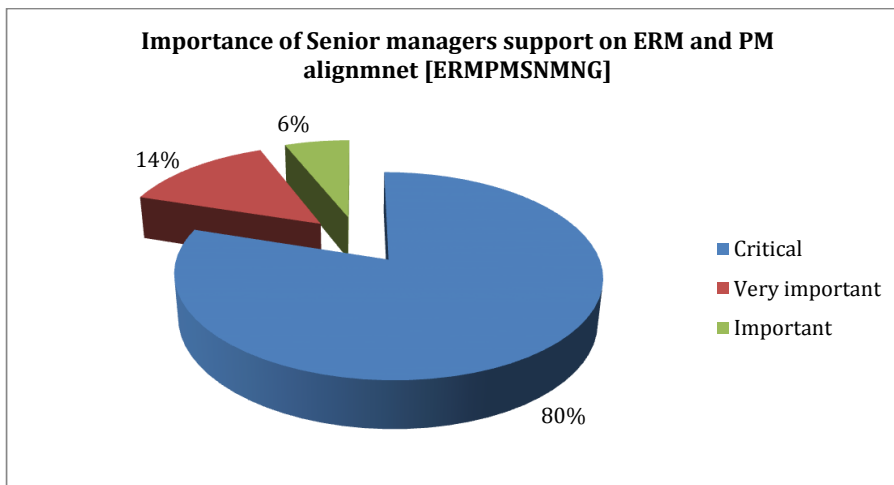


Figure 5-12: Frequency distribution of variable ERMPMSNMNG

Interviewee 1 discussed that effective ERM and performance management alignment needs the strong support of senior managers:

Implementation of any processes that is related to organisational aims and objectives requires strong support of senior managers. Indeed, any new process first considered by board of directors and the final decision along with plans and structures are declared to different layers of organisation. So, any new managerial function first should be approved and then supported by senior managers in order to gain success.

Interviewee 3 with a similar opinion stated:

[...] in fact, senior executives have control on all strategic decisions that are made in an organisation. Therefore, senior managers are the most important people who determine and monitor tasks related to each managerial function implementation.

This question's outcomes confirm that senior managers are the first and topmost team in any organisations who play a critical role in supporting any strategic process and managerial function among the organisation. So, without involvement and support from their side, an effective alignment of ERM and performance management would not be

accomplished. These findings are consistent with studies by (Beasley *et al.*, 2005, Gordon *et al.*, 2009; Ping and Muthuveloo, 2015) arguing that participation and support of senior managers influences the effective alignment of ERM and performance management.

### Question C (5)

This question (available in Table 5-1) was designed to discover the interviewees' opinion on importance of strategic planning's role on effective ERM and performance management alignment [ERMPMSTPLN].

Table 5-3 analyses the frequency distribution of interviewees' answers through five descriptors options from "not important" to "critical". All interviewees cited that strategic planning plays either critical (87%) or very important (13%) role in ERM and performance management alignment. Almost all respondent argued that strategic planning is a core organisational activity that determines the direction of ERM and performance management process.

Table 5-3: Frequency distribution of variable ERMPMSTPLN

| How important is the role of strategic planning in effective ERM and PM alignment |           |            |
|-----------------------------------------------------------------------------------|-----------|------------|
| Response                                                                          | Frequency | Percentage |
| Critical                                                                          | 26        | 87%        |
| Very Important                                                                    | 4         | 13%        |
| Important                                                                         | 0         | 0          |
| Slightly Important                                                                | 0         | 0          |
| Not Important                                                                     | 0         | 0          |
| Total                                                                             | 30        | 100%       |

In this regard interviewee 6 discussed that strategic planning is an undeniable part of ERM and performance management alignment:

If you consider strategic planning, ERM, and PM deeply, they all have common contents. Strategic planning determines the organisational aims and objective based on organisation's internal and external environment. ERM identifies and manages all events that have positive or negative effect on organisation's objective achievement. Performance management includes all actions taken to ensure that organisational goals and objectives are obtained. Therefore strategic planning determines the right direction of ERM and PM process through determining the strategic aims and objectives.

Interviewee 15 also considered strategic planning as an important factor of ERM and PM alignment:

ERM and PM are the processes that have to function based on what the organisation has planned to achieve. An organisation's mission and objectives are determined by its strategic planning. So, both ERM and PM have to follow the direction made by strategic planning. Infact, strategic paling, performance management and ERM are all functioning towards organisations' objective achievement.

It is concluded from the outcomes of this question that strategic planning has a critical role in aligning ERM with organisational performance management. It was argued by the large majority of respondents that strategic planning, ERM, and performance management are linked together.

### **Question C (6)**

The sixth question of section C, aimed to discover the interviewees opinion on the importance of risk communication, as well as the significance of internal and external environment monitoring in an effective ERM and performance management alignment that are shown as variables [ERMPMRSKCOM] and [ERMPMINTTEXT] in Table 5-1. As it's presented in Table 6-4 below, more than two-third of respondents believed that risk

communication had either a very important (53%) or critical (27%) effect on organisational ERM and performance management alignment. About 10% considered this factor as an important need for this alignment, while another 10% of interviewees argued that risk should only be communicated in specific management levels without involving other layers as communicating the organisational risks in all levels will endanger organisations' security matters.

Table 5-4: Frequency distribution of variable ERMPMRSKCOM

| Importance of organisational risk communication in effective ERM and PM alignment |           |            |
|-----------------------------------------------------------------------------------|-----------|------------|
| Response                                                                          | Frequency | Percentage |
| Critical                                                                          | 8         | 27%        |
| Very Important                                                                    | 16        | 53%        |
| Important                                                                         | 3         | 10%        |
| Slightly Important                                                                | 3         | 10%        |
| Not Important                                                                     | 0         | 0          |
| Total                                                                             | 30        | 100%       |

Interviewee 12 had strong emphasis on importance of risk communication among organisations:

The aim of ERM and PM alignment is to steer the organisation towards objective achievement, success, and sustainability. So, anything that might happen to jeopardize organisational objectives achievement or vice versa anything that could be a positive help in moving organisation towards its aim should be communicated to be managed better. Communication is the key of problem solving [...].

Interviewee 23 also believed on significance of risk communication across organisations:

Risk communication among an organisation's layers could have many positive effects. For instance: any small weaknesses or errors that might become a risk later on, will be discussed and discovered in a very early stages. So, risk managers could assess and manage risk before it becomes a disaster. Secondly, risk communications gives awareness and knowledge to all levels to act against risks and this is really helpful in organisations performance and success. [...] Every organisation and businesses should be careful about what's going on around them. External and internal environment are continuously changing and these changes have both positive and negative effect on organisation's performance. So, it is very important internal and external environment issues to be considered and communicated continuously in order to take in time action upon them.

From those interviewees that believed risks could not be communicated among the organisations, interviewee 14 argued:

In addition to the benefits of organisational risk communication, the negative effects of it also should be considered. All middle managers who work in the organisations are not that reliable to be aware of everything and specifically weaknesses of the organisation. They might use these weaknesses against the organisation or distribute it out of the organisation for our competitors benefit [...]. All in all, I believe that organisational risks should only be communicated between some specific groups.

Interviewee 19 also with the same view discussed:

[...] sometimes communication organisational risks not only is not beneficial, but also could be harmful. Organisations risks should only be communicated between specific people in specific positons; otherwise, it would jeopardize the organisation's security issues. Risk issues are one of the important matters that have direct effect on organisations activities and success. This matter should only be discussed between organisations' specific team.



When interviewees were asked about importance of internal and external environment monitoring on effective ERM and performance management alignment, they all believed that this is an undeniable part of aligning ERM with performance management. Approximately 100% of respondents cited that continual internal and external environment monitoring is a necessary action needed for any organisation to keep update with any changes.

Interviewee 30 expressed that:

Continual internal and external environment scanning is the only way of identifying and managing risks and opportunities in time. This indeed helps organisations to take any necessary actions in time [...]. Internal and external environment analysis enables organisation to get informed of what is going around. Not paying enough attention to internal and external environment means an organisation's managers are moving towards their goals blindly [...].

Interviewees 18 also discussed:

Risks and opportunities are discovered only when organisational internal and external environment are monitored effectively. Ignoring this important factor threatens organisations' survival. A business's prosperity is subjected to its awareness and in time action based on its internal and external environment.

The finding of this question indicates that organisational risk communication and internal and external analysis are two significant factors that should be considered in the process of aligning ERM with performance management. Outcomes of this question confirm that if risks are not communicated across the organisation, they will remain hidden and this will prevent performance management to ensure that organisation is moving in right direction towards aim and objectives achievement. This is consistent with the research by KPMG (2007) that discuss increase communication is one of the most important ways to break silos down. Moreover, it is emphasised that if organisations ignore the importance of continuous internal and external environmental assessment, they will not be able to keep competitive advantage and will fail to gain increase performance and gain success.

### Question C (7)

This question was the last interview question (available in Table 6-1) that addressed the importance of resources and capabilities in ERM and performance management alignment presented by variable [ERMPMR&C]. Participants were asked to express their view about the role of resources and capabilities in an effective ERM and performance management alignment. All 30 interviewees argued that any managerial function taken by an organisation needs certain resources and capabilities. The majority of respondents discussed that aligning ERM with organisational performance management is a strategic process that will definitely need its own resources and capabilities in order to be implemented effectively.

Interviewee 29 discussed:

Any process in an organisation requires some specific and relevant resources and capabilities. Before starting to perform a process, its needed resources should be provided. Aligning ERM with PM is a huge and very important process across an organisation. It definitely needs financial resources, expert people with professional knowledge on ERM and performance management, available data and information, and many other things that are needed to enable the achievement of this alignment effectively.

Interviewee 26 also supported the importance and necessity of resources and capabilities in aligning ERM with PM:

Aligning ERM with PM is a critical organisational process and it has an important effect on organisations prosperity and sustainability. This process needs expert people with certain knowledges and skills. As implementing this alignment will need fundamental change in whole organisation, it also needs appropriate financial resources and supports to enable the application of required changes. Unfortunately, sometimes organisations' seniors make some critical plans without having a clear image of the necessary resources needed for the plan to be accomplished [...].

It is concluded from the outcomes of this question that resources and capabilities play a critical role in successful implementation of ERM and performance management alignment. As argued by almost all the interviewees, achieving an effective alignment of ERM and performance management without relevant resources and capabilities (such as: techniques, financial resources, relevant knowledges, and etc.) would not be impossible.

### 5.3 Conclusion

Through qualitative data analysis of this research, become evident that there is an increased interest in Iran automotive industry about ERM implementation and its alignment with organisations' managerial functions (such as: performance management). However, the maturity of ERM among this industry was still in low level. Interview findings are consistent with existing empirical and theoretical researches discussed in Chapters 2 and 3. It was found out through the literature that researches regarding the link and effect of ERM and performance management is under-researched, however, there is limited empirical evidence of their effective alignment in practice. This is while; the evidence obtained from literature review support the criticality of ERM alignment with organisational performance management.

Result of qualitative analysis illustrates that senior managers of Iran automaker organisations strongly believe that aligning ERM with performance management plays a critical role in their organisations' enhanced performance and long-term sustainability. The majority of participants in this interview confirmed that sustained ERM need to be aligned with organisational performance management. It was agreed by most of the participants that taking advantage of full ERM potential, will not be possible if it is not aligned with strategic planning and performance management. Based on experiences shared by interview practitioners, became evident that ERM creates competitive advantage and generates value for organisations' shareholders. However, there is a need for more researches to identify the ways of quantifying the value created by ERM.

Analysis of qualitative data confirmed the key challenges of ERM discussed in literature review which are: insufficient risk history existing in organisations, lack of risk communication among organisational layers, lack of involvement and support of senior managers, and insufficient risk culture. Interviewees stated the increase in senior management support on risk management, however, discussed the need for improvement in this area. It was also argued by the participants that there is a need for a structured system to record and keep organisational risks history; this would help the organisations' risk managers to have a background of their organisational threats enabling them to discover and deal with upcoming risks more effectively. Interviewees moreover discussed that, having a stable ERM structure will help their organisations to accelerate the ERM implementation progress and its alignment with performance management. It was mentioned by several interviewees that senior management team of their organisations is changed every few years, and new management teams start with new managerial structures ( such as: new ERM structure) every time. This delays the progress of ERM efficiency in these organisations.

Interview data also supported the importance of factors such as: strategic planning, external and internal environment analysis, risk communication, and appropriate resources and capabilities in effective ERM and performance management alignment.

The qualitative findings analysed in this chapter support this research's aim to develop an effective framework aligning ERM and performance management in order to overcome the shortcoming of previous approaches of ERM in automotive industry of Iran, and providing academia and industry with practical guideline of this alignment.

Finally, the theoretical assertion of this research that is the need for an effective alignment between ERM and performance management is supported by empirical findings of the qualitative data analysis. The second part of this empirical research is presented in Chapter 6 through analysis of survey questionnaire (quantitative data collection).

## **Chapter 6: Quantitative data collection and analysis**

### **6.1 Introduction**

The current chapter analyses this research's quantitative data gathered through research surveys, with the purpose of supporting and assuring the validity of qualitative phase of this research (Chapter 5). As discussed previously in Chapter 5, cross-sectional and sequential design was applied to empirical part of this research.

The quantitative data was gathered in December 2015 through distributing the questionnaire in automotive industry of Iran including (two main industries and their subsidiaries). The questioners contained twenty-six close-end questions related to ERM and performance managements' critical aspects and their alignment.

The questioner was classified into four sections of participants' descriptive profile, ERM, RM, and aligning ERM with performance management. About two hundred and fifty copies of the questioner were distributed randomly to industry professionals (with relevant field) to take part in this research, however 101 (40 percent) completed questioner were returned back to the Researcher.

Responses to the survey questionnaire contained five scales of importance from "critical" to "not important" where applicable. A sample of survey questionnaire is available in (Appendix C). As discussed in Subsection 5.7.2 of Chapter 5, the quantitative analyses presented in this research are univariate and bivariate. This chapter's data analysis is also presented in the same form as empirical and theoretical research's outcomes argued in Chapters 2, 3 and 5, to enable the comparisons and provide valid conclusions.

### **6.2 Univariate and Bivariate Analyses**

This section consists of four subsections including different parts of this research's survey questionnaire. Subsection 6.2.1 (Section A of the questionnaire) considers descriptive profile of the survey's participants. Subsection 6.2.2 (Section B of the questionnaire) addresses the current state of ERM in Iranian automaker organisation. Subsection 6.2.3 (Section C of the

questionnaire) investigates respondents' risk management experience and the level of their familiarity with ERM. Lastly, Subsection 6.2.4 (Section D of the questionnaire) analyses the obtained quantitative data regarding alignment of ERM and performance management, and explores the key elements (discussed broadly in Chapter 7) validating the theoretical assumption of developing a Framework Aligning ERM with Performance Management.

Table 6-1 below presents the critical factor codes assigned by the Researcher to be used for quantitative data analysis.

Table 6-1: Quantitative questions' codes

| No                                    | Survey questionnaire                                                            | Codes     |
|---------------------------------------|---------------------------------------------------------------------------------|-----------|
| Section A: Participants' Profile      |                                                                                 |           |
| 1                                     | For how many years have you been involved in ERM?                               | ERMEXP-1  |
| 2                                     | What is your organisational position?                                           | ERMPOS    |
| 3                                     | Which level of seniority applies to you?                                        | ERMSEN    |
| Section B: Enterprise Risk Management |                                                                                 |           |
| 4                                     | Are you familiar with ERM concept?                                              | ERMFAM    |
| 5                                     | Please rate the level of your ERM knowledge                                     | ERMKNOW   |
| 6                                     | Has your organisation implemented ERM?                                          | ERMIMP    |
| 7                                     | Are you directly involved in the process of ERM?                                | ERMEXP-2  |
| 8                                     | What is the current state of ERM in your organisation?                          | ERMSTS    |
| 9                                     | Which scope of risks does your organisation cover?                              | ERMSCOP   |
| 10                                    | What is the maturity level of your organisation's ERM?                          | ERMMATUR  |
| 11                                    | Please rate the level of your organisation's senior management's support of ERM | ERMSENSUP |
| 12                                    | Please rate the importance of below factors in effective ERM implementation.    | ERMFAC-1  |
|                                       | Which of them are implemented in your organisation?                             | ERMFAC-2  |
|                                       | - Senior management support                                                     | SENSUPFAC |
|                                       | - ERM framework                                                                 | FRMWFAC   |
|                                       | - Risk management knowledge                                                     | TECHFAC   |
|                                       |                                                                                 | RESFAC    |

Alignment of ERM with Performance Management: Case of Automotive Industry

|                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                            |
|------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                      | <ul style="list-style-type: none"> <li>- Resource and capabilities</li> <li>- Reforming management structure</li> <li>- Risk communication</li> <li>- INT&amp; EXT environmental monitoring</li> <li>- Strategic planning</li> </ul>                                                                                                                                                                                                                                                                                                                                                                       | <p>REFMFAC</p> <p>COMMFAC</p> <p>INT&amp;EXTFAC</p> <p>STPLNFAC</p>                                                                                        |
| 13                                                   | What are the advantages of effective ERM implementation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | ERMADVTG                                                                                                                                                   |
| 14                                                   | In which area ERM is most likely to create value for your organisation?                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | ERMVALU                                                                                                                                                    |
| Section D: Developing ERM and PM alignment framework |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                            |
| 20                                                   | Are your organisation's ERM and performance management aligned?                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | ERMALPMSTS                                                                                                                                                 |
| 21                                                   | What are the benefits of aligning ERM with performance management?                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | ERMMPMBEN -1                                                                                                                                               |
| 22                                                   | Please rate the importance of each above potential benefits for your organisation.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | ERMMPMBEN -2                                                                                                                                               |
| 23                                                   | What are the main challenges of ERM alignment with performance management in you organisation?                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | ERMPMCHAL                                                                                                                                                  |
| 24                                                   | <p>Which of the following factors are critical in developing an effective alignment between ERM and performance management?</p> <ul style="list-style-type: none"> <li>- Senior management support</li> <li>- Appropriate resources and capabilities</li> <li>- Effective alignment framework</li> <li>- ERM and performance management integration with strategic objectives</li> <li>- Risk and performance management communication among the organisation</li> <li>- Constant internal and external environment monitoring</li> <li>- Consolidate enterprise risk management infrastructure</li> </ul> | <p>ERMPMFAC-1</p> <p>ERMPMSENSUP</p> <p>ERMPMRES&amp;CAP</p> <p>ERMPMFRMWK</p> <p>ERMPMSTOBJ</p> <p>ERMPMCOMM</p> <p>ERMPMINT&amp;EXT</p> <p>ERMPMSTRC</p> |

|    |                                                                                                                          |            |
|----|--------------------------------------------------------------------------------------------------------------------------|------------|
| 25 | Please rate the importance of above factors in developing an effective alignment between ERM and performance management. | ERMPMFAC-2 |
| 26 | Which benefits do you expect from an effective Alignment Framework implementation in your organisation?                  | ERMPMBEN-3 |

Source: The Researcher

### 6.2.1 Section A: Participants' descriptive profile

The survey questionnaire is structured based on interviews analysed in Chapter 5, and starts by addressing the descriptive profile of survey respondents. So, the current subsection consists of three questions exploring the basic data related to participants' profile and ERM experience among Iran's automotive industry.

In this chapter also, the outcomes of the questionnaire are tested to check the correlation existence between some certain variables. Specific codes were developed by the Researcher and assigned in to main variables of collected quantitative data to be examined in this research. These factor codes are listed in Table 6-1, and are used constantly in this chapter for quantitative data analysis.

Figure 6-1 displays respondents' length of risk experience in years using variable [ERMEXP-1], (Appendix D, Table D-1). The majority of participants responded that they had experience in enterprise risk management for more than 10 years (66%), however about 24% had worked between 5 to 10 years in risk management field. The rest (10%) had less than 5 years' experience. The results of this question (which were asked in both interview and questionnaire) determined that both interview and survey samples contained large number of participants with ERM experience.



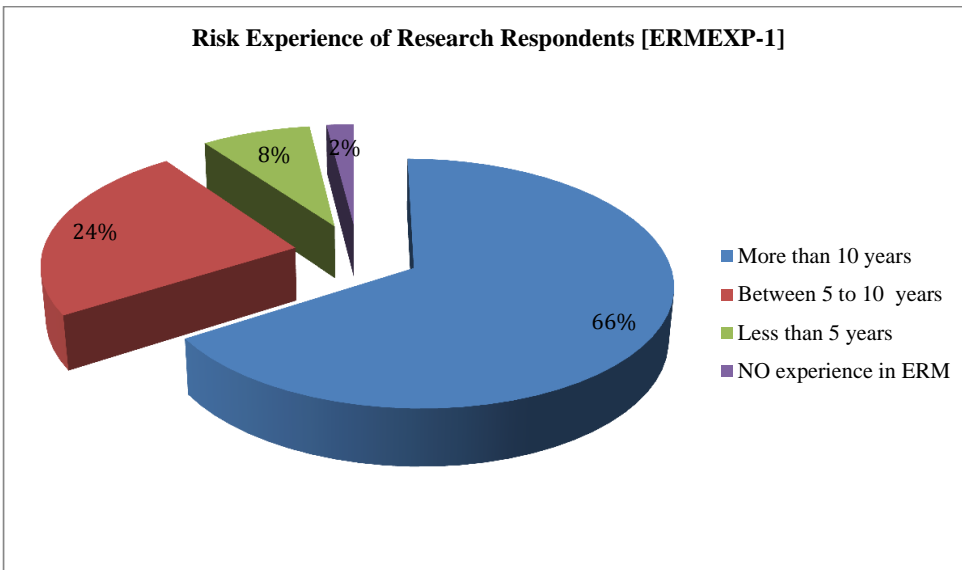


Figure 6-1: Respondents' ERM experience (survey)

The next two questions explored the organisational position of respondents [ERMPOS] (Figure 6-2), and their level of seniority [ERMSEN] (Figure 6-3) in their organisation.

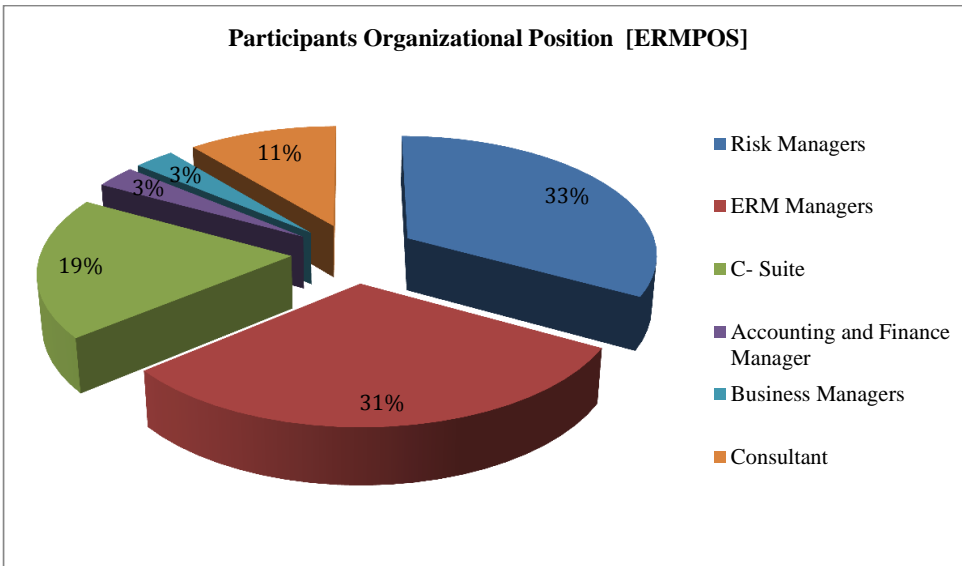


Figure 6-2: Participants' organisational Position (survey)

As it is shown in Figure 6-2, over 60 % of participants were either risk manager (33%) or ERM managers (31%). Almost one- fifth (19%) were C- Suite, while 11% were consultant. The rest (6%) were consisting of business managers, accounting and finance managers (Appendix D, Table D-2).

Regarding the seniority level of survey participants displayed in Figure 6-3, the majority of respondents were top management (36%), and middle management (28%). About 24% were working as senior managers. The remaining (12%) fell into operation management, entry levels, or other categories. Comparing results of this variable [ERMSSEN] in survey questionnaire (Figure 6-3) and interviews (Figure 5-2), illustrates the quite different distribution. As in the interview sample participants were divided to senior managers (60%), C-Suite (33%), and middle managers (7%) (Appendix B, Table B-2). This difference is due to different sampling type used for selecting the research participants (discussed in detail in Chapter 4). As qualitative research plays the main role of data collection in this research it was critical that the interview participants be selected from senior managers who had more significant experience to share.

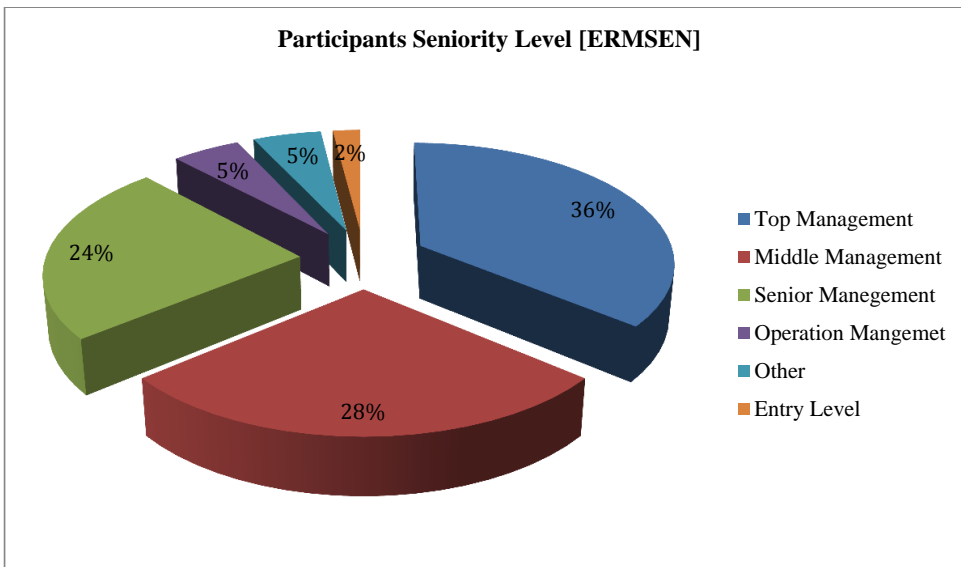


Figure 6-3: Participants' Seniority Level (survey)

In order to explore any dependency between respondents' experience in ERM [ERMEXP-1] and their organisational seniority level [ERMSEN], a cross-tabulation and then a Chi Square test was done in Microsoft Excel. This examination is a sample of inferential bivariate analysis, which analyses various variables concurrently.

No relation would be existing among two variables, if any of them is independent. This test's level of significance was (0.05). First, a pivot table performed in (Appendix E, Table E-1), based on observed values obtained from respondents, then the expected value of entries were calculated (Appendix E, Table E-2). Then, In order to identify the degree of interdependency (probability), the difference among observed value and expected value was calculated (Appendix E, Table E-3). This difference then squared (Appendix E, Table E-4) and divided by expected value (Appendix E, Table E-5) in order to compute the sum of all entries (Chi Square). Moreover, the degree of freedom (df) and the probability of this test were also calculated (Appendix E, Table E-5). The full details of this calculation are available in Appendix E (Table E-1 to E-5).

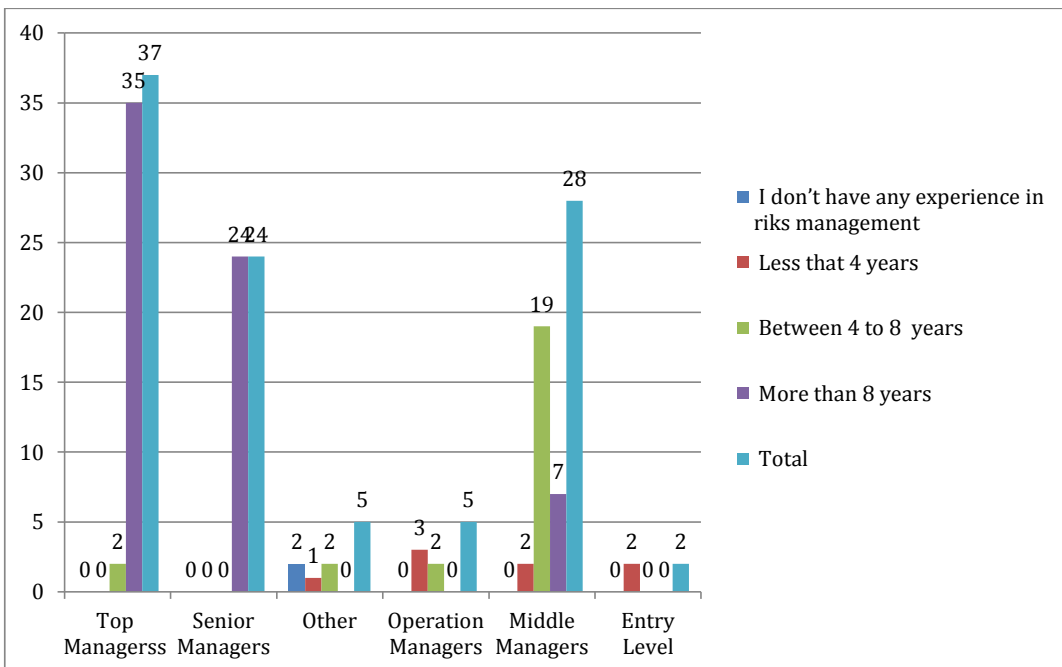


Figure 6-4: Cross tabulation of ERMEXP-1 and ERMSEN variables

As shown in Figure 6-4 above, 67 out of 101 participants in survey questionnaire (66%) had more than 10 years' experience in ERM and risk management. This is while 37 out of 101 (36%) were top managers and 24 out of 101 (24%) were senior managers. About 28 out of 101 (28%) were in middle management position. Therefore, 65% of survey sample included participants with more than 10 years' experience and in one of the three positions of senior manager, top managers, or middle manager. The result of the cross tabulation of variables [ERMEXP-1] and [ERMSEN] illustrated a high correlation between these two variables. Summary of the bivariate analysis is shown in Appendix D (Table D-27 to D-29).

### **6.2.2 Section B: ERM**

Section B of survey questionnaire comprises numbers of questions related to participants' organisational ERM. Indeed, this section intends: to identify survey respondents' level of ERM knowledge and experience, to evaluate the current status of ERM as well as level of senior management's support of ERM in Iran automotive industry, to explore the organisational factors influencing the implementation of effective ERM, and to investigate the benefits of an effective ERM alignment in organisations' sustainability. This section has been structured based on section B of interview questions (Subsection 5.2.2).

This section encompasses questions four to fourteen of the survey. Question four asked participants to determine whether they were familiar with ERM concept [ERMFAM].

About 93% of answers were affirmative, meaning that the massive amount of participants would be able to provide appropriate answer to survey questionnaire. However, based on the survey structure, the few participants who were not familiar with ERM, were directed to Section C, question fifteen of survey questionnaire in order to share their risk management experience as a valuable data for this research (Appendix C).

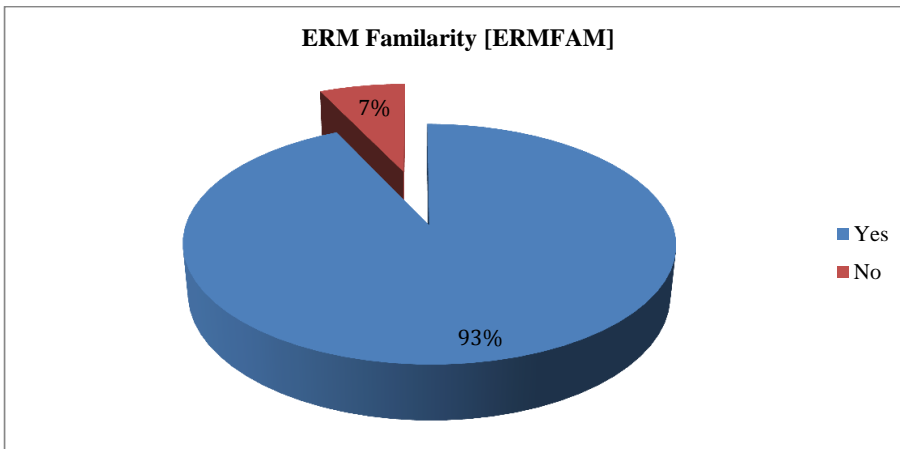


Figure 6-5: Participants' level of ERM familiarity (survey)

The next question then asked the participants to rate their level of ERM knowledge [ERMKNOW] from “excellent” to “poor”. In this question also the respondents who scaled their understanding of ERM as poor, were directed to Section C, question fifteen of the survey to join those who had no familiarity with ERM (question four).

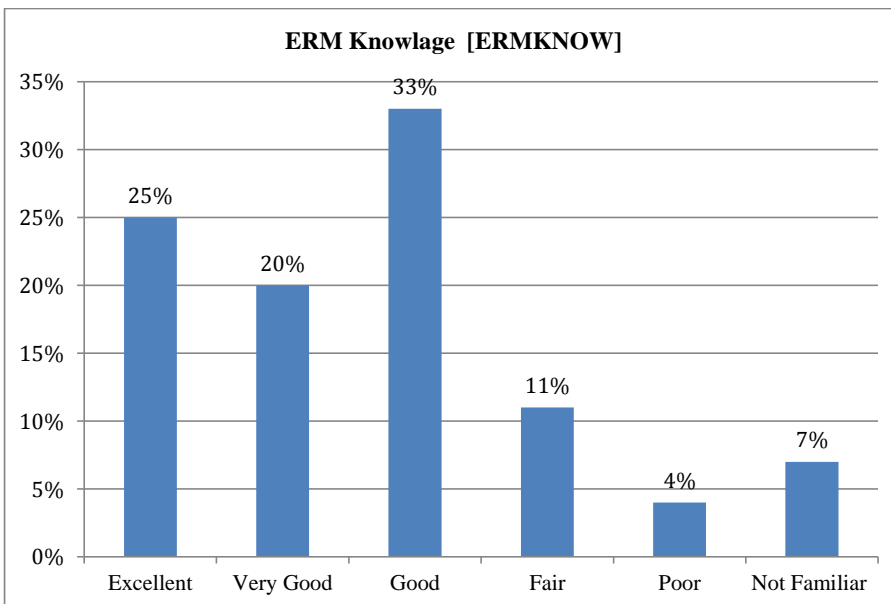


Figure 6-6: Respondents' level of ERM knowledge

As illustrated in Figure 6-6, nearly half of the participants rated their ERM knowledge as either excellent (25%) or very good (20%), while more than one-third (33%) considered their ERM understanding as good. This ensured the Researcher that the majority of survey participants had adequate knowledge on ERM and were able to provide high quality data for this research. While 11% of respondents rated their ERM understanding as fair, 11% admitted either inadequate knowledge of ERM or had mentioned in previous question that had no familiarity with ERM.

Another cross tabulation was performed in Excel to measure any relationship among [ERMEXP-1] and [ERMKNOW] variable. The results are shown in Figure 6-7 while the detailed calculation is available in (Appendix E, Tables E-6 to E-10).

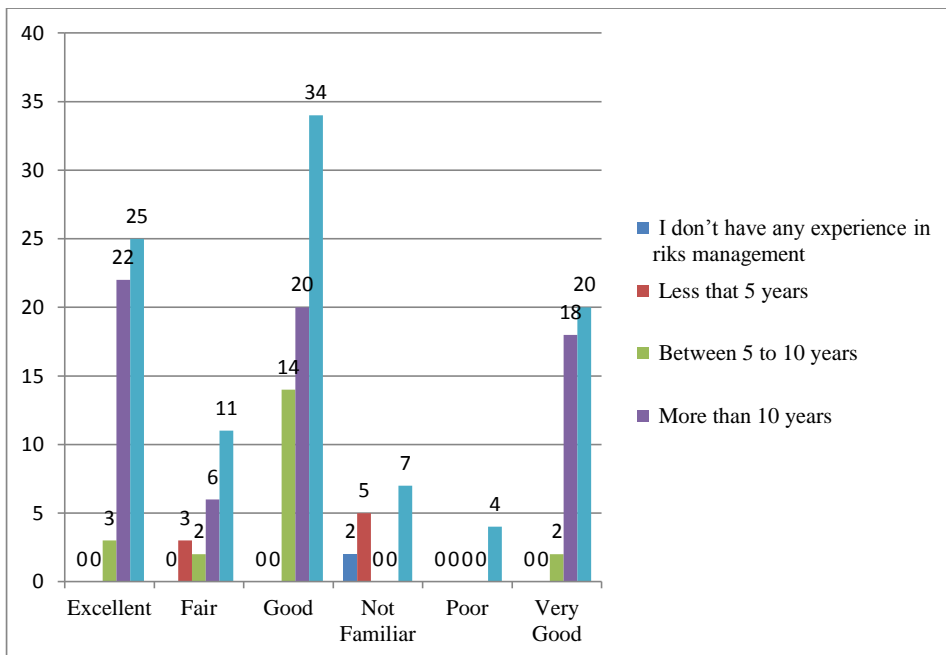


Figure 6-7: Cross-tabulation of ERMKNOW and ERMEXP-1 variables

As it is displayed in Figure 6-7, all the respondents who were not familiar with ERM had no experience in risk management. Surprisingly, all the few participants who claimed their ERM knowledge as poor had risk management experience between five to ten years. However, the majority of respondents who rated their ERM knowledge as excellent, very good, or good and

who also had more than ten years' experience in enterprise risk management were accounted for 60% of the whole sample (60 out of 101 respondents).

Question six asked the respondents whether their organisation had implemented ERM [ERMIMP]. As displayed in Figure 6-8 below, 83% responded that ERM had been adopted in their organisation; however 17% replied either their organisation had not adopted ERM or had mentioned in previous questions that they were not familiar with ERM. Those few respondents who answered "no" to this question were directed to continue their answers from question eleven of the survey. This ensured the Researcher regarding the quality of attained data, as only those who had sufficient ERM knowledge continued to answer Section B's questions.

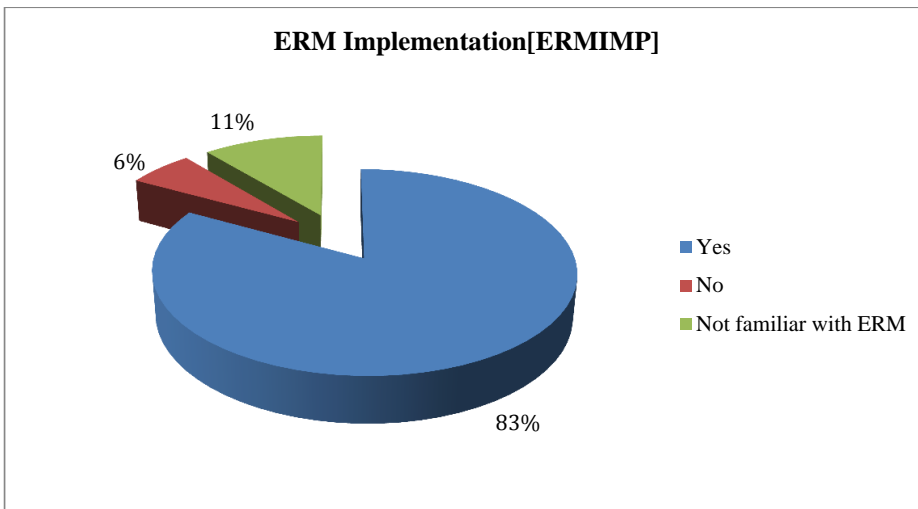


Figure 6-8: ERM Implementation (survey)

Question seven evaluated level of respondents' involvement in ERM process [ERMEXP- 2]. As shown in Figure 6-9 below, 30% of respondents had experience in all stages of ERM, while 21% were involved in ERM implementation stage. Approximately, one-third was involved in planning and design (10%), identification and specification (6%), development

(8%), validation (5%), and monitoring (4%). However, about 16% of the participants had no direct involvement in ERM process (Appendix D, Table D-7).

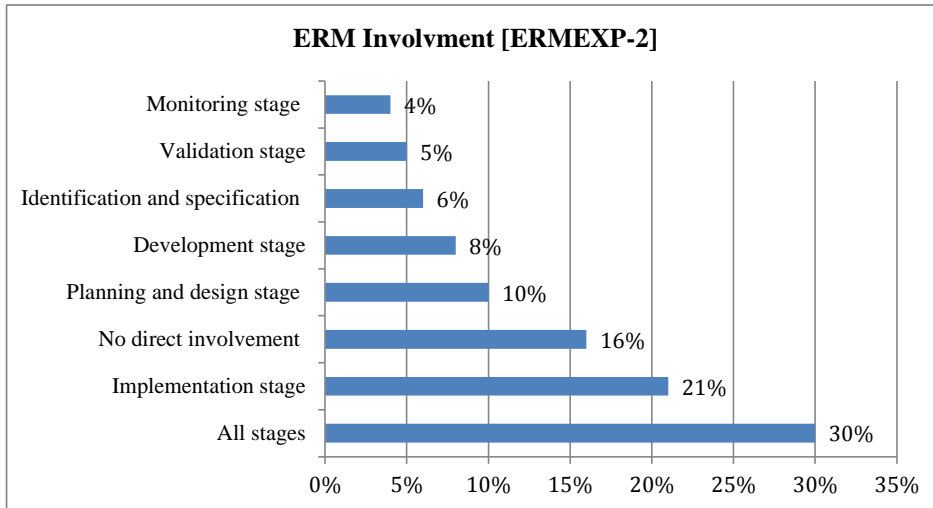


Figure 6-9: Involvement in ERM process

These outcomes confirmed the respondents' adequate level of ERM knowledge and ensured the Researcher that a high quality of relevant data obtained to this research. Therefore, questions four, five, and seven accomplished Section B's first aim, which was exploring the participants' level of ERM knowledge. Question six (discussed above) along with question eight and nine intended to explore the current state of ERM in automotive industry. So, question eight sought to find out the current status of ERM in the organisations [ERMSTS] that is presented in Table 6-2. In question nine participants were asked to identify the risks which were covered through their organisations' ERM [ERMSCOP] shown in Figure 6-10. The Researcher designed these questions in order to strengthen the outcomes of interview questions in (Chapter 5, Section 5.2.2) that investigated the similar variables (Appendix D, Tables D-8, D-9).



Table 6-2: ERM current status in Iran automotive industry

| <b>ERMSTS</b>                                                                    |                  |                   |
|----------------------------------------------------------------------------------|------------------|-------------------|
| <b>Please describe ERM's current status in your organization</b>                 | <b>Frequency</b> | <b>Percentage</b> |
| Undeveloped                                                                      | 4                | 4%                |
| Currently developing the ERM concept and application, not finalized yet          | 0                | 0%                |
| Informal enterprise risk management in place, ERM needs more study and knowledge | 8                | 7%                |
| Partial ERM implementation in place, it needs more study and progress            | 73               | 73%               |
| Developed formal ERM in place                                                    | 3                | 3%                |
| No ERM in place                                                                  | 2                | 2%                |
| Not familiar with ERM                                                            | 11               | 11%               |
| <b>Total</b>                                                                     | <b>101</b>       | <b>100</b>        |

According to participants' responses shown in Table 6-2, only 3% of respondents considered their organisations' ERM status as developed. Approximately three-fourth of respondents (73%) described partial ERM implementation in their organisation. About 11% answered that their ERM is either undeveloped or is being implemented in informal manner. The rest (13%) were either not familiar with ERM or had no ERM adopted. These results are similar with the findings of a report by RIMS (2011) discussing that more than half of their examining organisations had implemented ERM either partly or completely.

Regarding ERM scope in automotive industry, participants were asked to identify the risks which were covered through their organisations' ERM process [ERMSCOP] (Figure 6-10).

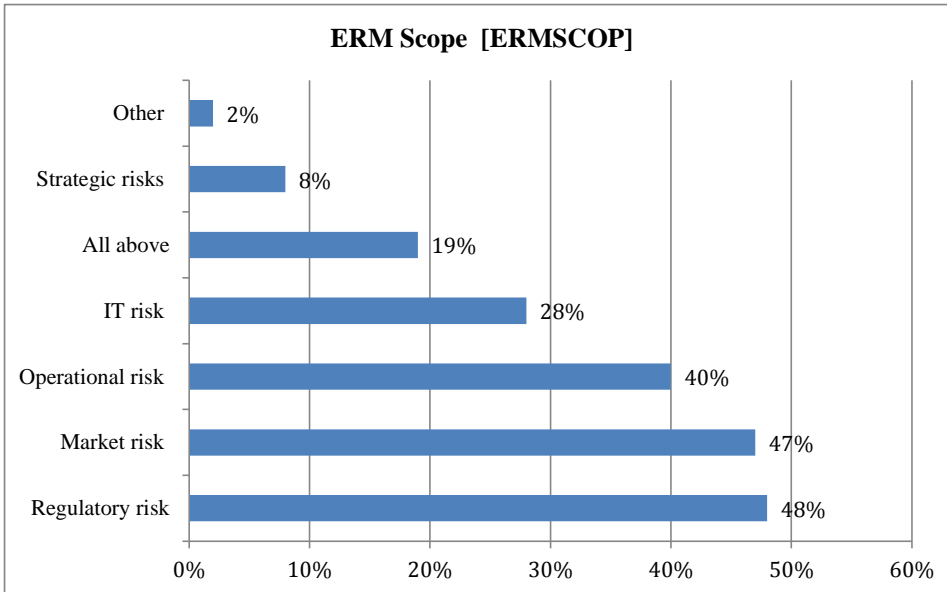


Figure 6-10: ERM scope

As represented in Figure 6-10, nearly one-fifth (19%) of the sample participants answered that all listed risks were covered by their organisations' ERM. Almost half of the participants mentioned, regulatory risks (48%), market risks (47%), and operational risks (40%) that were covered by their ERM and stated that remaining risks were managed out of the ERM scope (Appendix D, Table D-9). Similarly, Findings of a research by Deloitte (2012) indicates that market and regulatory risks were considered as "key risks". However, strategic, operational, and IT risks were taken in to account as emerging but important risks to ERM. Findings of question nine indicate that Iranian automakers do not consider all main risks under ERM's cover. The outcomes of question eighth and nine confirm that these organisations are still away from fully effective ERM implementation and their progress is not as fast as it should be.

Question ten then sought to explore the level of ERM maturity in automotive industry [ERMMATUR]. The respondents chose their answer from the list given in the survey. As shown in Table 6-3, almost none of the respondents considered their organisational ERM in strategic or optimised level of maturity. While 5% categorised their ERM as undeveloped

process, 31% described it as established. Half of the participants (50%) found “formalized” as the most appropriated level of their organisation’s ERM maturity (Appendix D, Table D-10). These finding are almost in same line with literature findings reporting low maturity level of ERM in organisations discussed in Chapter 2 and 3. Outcomes of this question show the slow progress of ERM in under investigated organisations; Iran automotive industry has long way to go in order to gain the full potential of ERM and create strategic value.

Table 6-3: ERM Maturity Level

| ERMMATUR                                                   |           |            |
|------------------------------------------------------------|-----------|------------|
| Please describe level of ERM maturity in your organization | Frequency | Percentage |
| Undeveloped                                                | 5         | 5%         |
| Formalised                                                 | 51        | 50%        |
| Established                                                | 31        | 31%        |
| Optimized                                                  | 1         | 1%         |
| Strategic                                                  | 0         | 0%         |
| No ERM in place                                            | 2         | 2%         |
| Not familiar with ERM                                      | 11        | 11%        |
| Total                                                      | 101       | 100%       |

Undeveloped –No structured ERM approach in place  
 Formalized –ERM framework in place but partially implemented among the organisation  
 Established – A formal ERM framework in place  
 Optimised – A structured ERM framework in place along with continual improvement  
 Strategic - A well-defined ERM aligned with strategic and other functions

Through question eleven, the respondents rated the level of senior management’s supports of their organisational ERM [ERMSSENSUP]. Though, over 80% of respondents stated that ERM had been adopted in their organisation (Figure 6-8), it is displayed in Figure 6-11, that none of them stated a sign of an excellent support of senior managements on their ERM. In fact, 7% of respondents considered their senior managers’ support on ERM as very good. Three quarters felt that this support was either good (41%) or fair (34%), while 5% describe it as poor (Appendix D, Table D- 11).

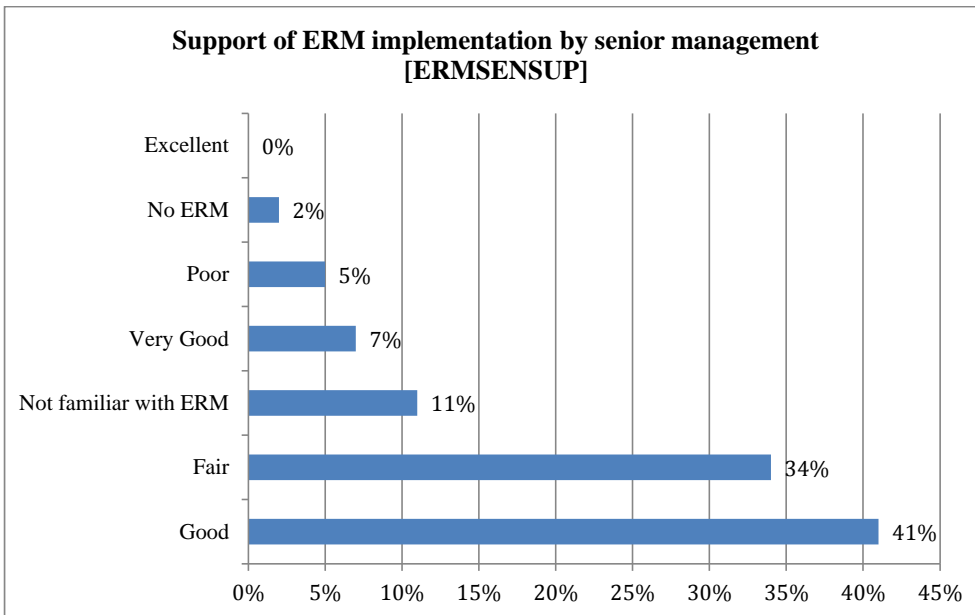


Figure 6-11: Level of senior management support on organisational ERM implementation

A correlation coefficient were then performed in excel in order to measure the relation between maturity level of ERM and level of senior management ERM support in Iranian automakers organisations. As it is illustrated in Table 6-4 below, the result is ( $r= 0.907$ ) which confirms the positive relation among these two variables.

Table 6-4: Correlation Matrix of variables ERMMATUR and ERMSSENSUP

|                   | <i>ERMMATUR</i> | <i>ERMSSENSUP</i> |
|-------------------|-----------------|-------------------|
| <i>ERMMATUR</i>   | 1               |                   |
| <i>ERMSSENSUP</i> | 0.907125926     | 1                 |

The above correlation matrix shows that higher level of ERM maturity is along with senior managers' greater support on ERM implementation. This result is also consistent with interview findings in Chapter 5, and literature review (Chapter 2) discussing the necessity of senior managers' involvement and support in effective ERM implementation and its sustainability (APQC, 2010). As, less than half of the respondents (41%) stated the support of

their senior managers on ERM as “good” (Figure 6-11), this shows that ERM in Iran automotive industry has not yet obtained the required traction.

The next question (twelve) attempted to measure the importance of listed organisational factors (Table 6-5) in an effective ERM implementation by asking participants to score them on the scale of “not important” to “critical”, [ERMFAC-1]. Table 6-5 below, illustrates that 70% of respondents assessed senior management supports on ERM [SENSUPFAC] as critical, and 15% considered it as very important factor in effective ERM implementation. ERM framework [FRMWKFAC] was described as critical by 81% and felt very important by 8%. Moreover, 67% of respondent rated risk management knowledge and technique [TECHFAC] as critical, and 21% thought it was very important. These results are similar to outcomes of interviews, that more than 80% of interviewees considered senior management support and an ERM framework as two significant elements in effective ERM implementation. Also, risk communication [COMMFAC] with (57%) rated as either critical or very important factor.

Table 6-5: Frequency distribution of the ERMFACT-1 variable

| Factors    | Frequency (%) |                |           |                    |             |                       | Total |
|------------|---------------|----------------|-----------|--------------------|-------------|-----------------------|-------|
|            | Critical      | Very Important | Important | Slightly Important | Unimportant | Not familiar with ERM |       |
| SENSUPFAC  | 70            | 15             | 4         | 0                  | 0           | 11                    | 100   |
| FRMWKFAC   | 81            | 8              | 0         | 0                  | 0           | 11                    | 100   |
| TECHFAC    | 67            | 21             | 1         | 0                  | 0           | 11                    | 100   |
| STRUCFAC   | 43            | 33             | 11        | 3                  | 0           | 11                    | 100   |
| RESFAC     | 40            | 32             | 15        | 2                  | 0           | 11                    | 100   |
| COMMFAC    | 21            | 36             | 21        | 12                 | 0           | 11                    | 100   |
| INT&EXTFAC | 72            | 16             | 1         | 0                  | 0           | 11                    | 100   |
| STPLNFAC   | 61            | 28             | 0         | 0                  | 0           | 11                    | 100   |

Each of the other factors; stable ERM structure [STRUCFAC], adequate resources and technologies [RESFAC], environmental scanning [INT&EXTFAC], and strategy planning [STPLNFAC], were rated as either very important or critical by more than 70% of survey participants( Appendix D, Table D 12.1). This question’s findings are also consistent with interview outcomes that the mentioned factors were considered as very important and critical in effective ERM implementation. Afterward, the respondents were asked in the second part

of this question to select the above factors (listed in Table 6-5) which were being implemented in their own organisations.

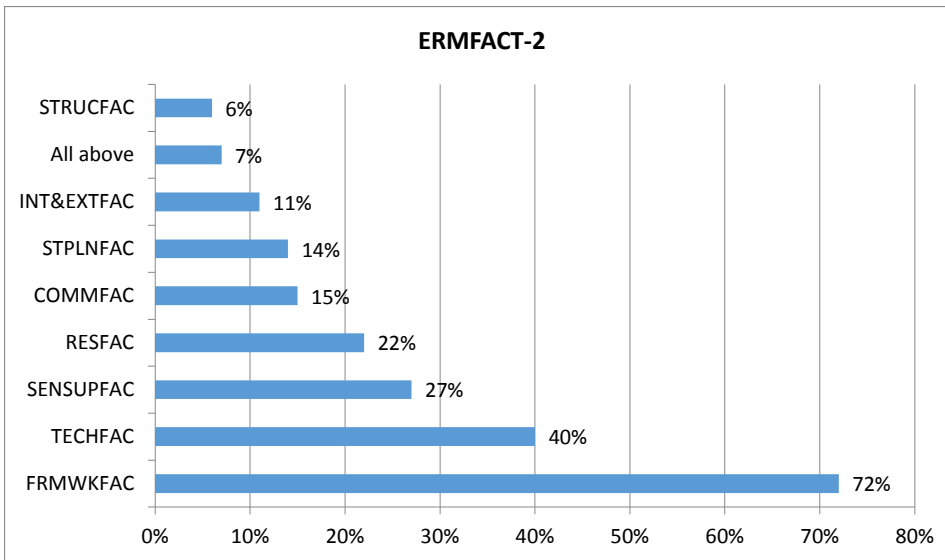


Figure 6-12: Organisational factors implementation in respondents' organisations

As shown in Figure 6-12, only 7% claimed that all listed factors were being applied in their organisation. The only factor considered by more than half of the respondents was ERM framework (72%). About 40% believed they had appropriate risk management knowledge and technique embedded in their organisation. However, other organisational factors were considered by between 10% to 30% respondents (Appendix D, Table D-12.2).

Question thirteen explored the advantages associated with ERM implementation from respondents' point of view [ERMADVTG]. Survey participants selected their response from the factors listed in Figure 6-13. The four most advantages mentioned by the respondents were: long-term success and sustainability (78%), risk adjusted decision making (69%), enabling aim and objective achievement (62%), and increased shareholder value and competitive advantage (60%). More than half of the participants also thought ERM implementation would improve business performance (58%), and optimised business cost

(51%). Approximately quarter of respondents (24%) considered all listed factors as the benefits associated with ERM implementation (Appendix D, D-13).

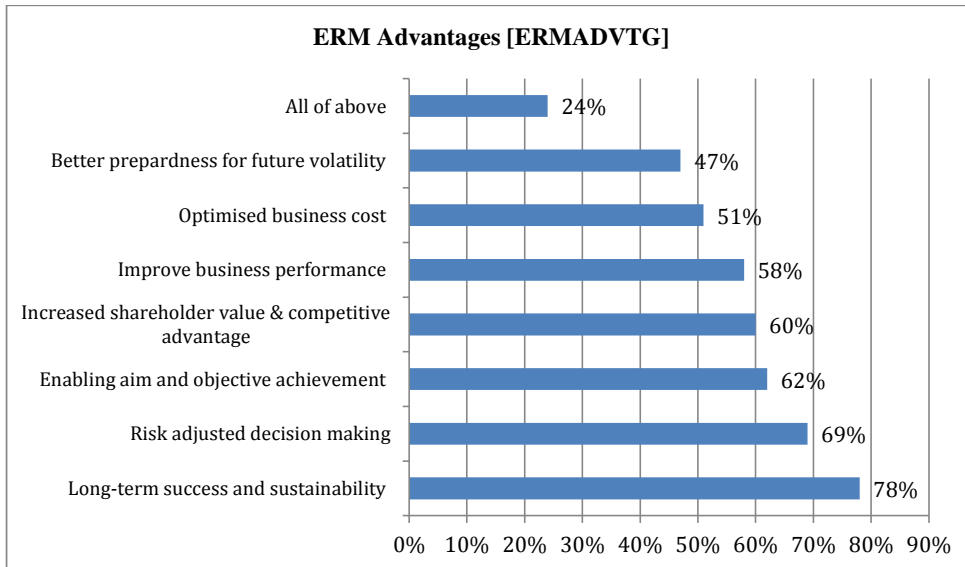


Figure 6-13: ERM Advantages

Findings of this question are in line with interview findings regarding the benefits that organisations could gain through effective ERM implementation. It was also discussed in the literature review (Chapters 2) that effective ERM steers organisations towards sustainability, risk adjusted decision making and increased performance (Acharyya and Mutenga, 2013).

Next question (fourteen) asked the survey participants to score the degree of likelihood of each listed areas in which ERM could create value [ERMVALU]. As is it shown in Table 6-6, respondents measured the probability of the listed areas of value on the scales of “will not occur”, “it might occur”, “likely to occur”, “very likely to occur”, and “will definitely occur”.

Regarding likelihood of gaining strategic view of organisational risks, 71% answered that it was either definitely or very likely to occur. In a research by Towers Perrin (2006), strategic view of organisational risk was identified as a critical benefit of ERM.

Table 6-6: Areas of ERM value creation

| ERMVALU                                                        | Frequency (%)    |                      |                 |             |                |                       |
|----------------------------------------------------------------|------------------|----------------------|-----------------|-------------|----------------|-----------------------|
|                                                                | definitely occur | very likely to occur | likely to occur | Might occur | will not occur | Not familiar with ERM |
| Cost reduction and competitive advantage                       | 17               | 21                   | 39              | 8           | 4              | 11                    |
| Better regulatory compliance                                   | 15               | 38                   | 25              | 7           | 4              | 11                    |
| Strategic view of organisational risks                         | 39               | 32                   | 16              | 1           | 1              | 11                    |
| Improved control on unexpected issues                          | 37               | 29                   | 23              | 0           | 0              | 11                    |
| Senior managers' increased ability to face and solve the risks | 36               | 31                   | 17              | 3           | 2              | 11                    |

Moreover, 39% thought that ERM could definitely or very likely create cost reduction and competitive advantage, while the same number believed, it was likely to occur. This means that ERM still has not associated completely with risk cost reduction. About half of the respondents replied that ERM could improve organisations' regulatory compliance either very likely (38%) or definitely (15%). More than two-third said it was very likely (29%) or definitely (37%) more control on unexpected issues by implementing ERM. Moreover, 36% of participants believed that ERM will for sure increase the ability of senior management to face and solve the risks issues and 31% thought that this was very likely to happen. Table 6-6's data are shown graphically below in Figure 6-14.



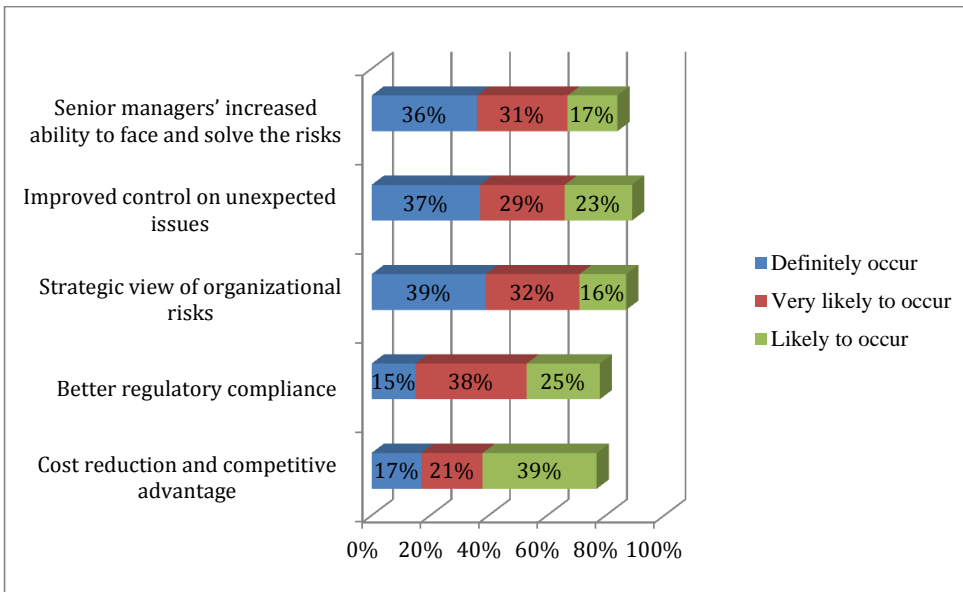


Figure 6-14: Area of ERM value creation in terms of likelihood

Therefore, for three out of five mentioned areas of value, over 65% of participants believed that each was either “will definitely occur” or “very likely to occur”. This is sign of gradual change in ERM’s image from just being a regulatory ruling to a managerial function increasing organisations’ value among other enterprises.

The next section investigates the survey participants’ risk management experience, those who had been involved in risk management for a years but their ERM knowledge was poor.

### 6.2.3 Section C: Traditional Risk Management

Based on the pilot survey’s feedback, this section was added to the survey questionnaire in order to separate the respondents who were not familiar or had poor knowledge of ERM in comparison to others. From all participants, 11 out of 101 stated that they had either no or poor understanding of ERM, so in the first question of this section (question fifteen) participants were invited to define their definition of risk management. Then in question sixteen, they were asked whether their organisation adopted and implemented any risk

management framework or not. In response to this question, 8 out of 11 answered that a risk framework had been developed by their risk management team and was being used.

In question seventeen, respondents were asked to determine the following listed factors which applied to their organisation; 1) risk committee and chief risk officer oversight (stated by 10 out of 11); 2) senior management support and involvement in risk management (mentioned by 9 participants); 3) aligned risk management with performance management in place (said by 2 participants); 4) internal and external environment was constantly considered and being applied in organisational strategic planning (stated by 2 respondents).

Then question eighteen was sought to explore the organisational actions that were taken by Iran automotive industry after Global Financial Crisis, to improve their risk management. Nearly all participants (10 out of 11) answered that they organisation had moved towards the followings: establishment of risk management committee, and employment of expert and skilled members in boards of directors and risk management committee. These outcomes are similar with interview results analysed in Chapter 5.

In the next question, the participants were asked to select the reason of not having ERM implemented in their organisation. Almost all participants (10 out of 11) believed that lack of enough allocated time and resources to study and improve ERM was one of the main reason of not having ERM implemented in their organisation, while more than half indicated the lack of appropriate support and involvement of senior managers. Staff and managers' resistance aegenised changes mentioned by 7 out of 11. Similarly, 7 respondents indicated the lack of accurate understating of ERM advantage as the reason of not having effective ERM implemented. Moreover, 5 of the respondents also added few years sanction in their country as one of the big obstacles in ERM's implementation and progress. These findings consistent with interviewees' answer in Chapter 5.

The next subsection analyses Section D of the survey questionnaire, including the questions significant to validate the factors which found critical in developing the framework aligning ERM with performance management.

### 6.2.4 Section D: Developing a framework aligning ERM with performance management

This section contained seven questions designed with the aim of providing empirical evidence to validate the importance of the factors considered critical (in Chapter 3 and 5), in developing an effective framework aligning ERM with performance management.

Chapter 7 will discuss the compilation of all empirical findings in to the framework, and then provides practitioners and academics with a practical guidance for implementation of the validated aligning framework (Chapter 7, Figure 7-1).

Question twenty (First question of this section) asked the survey participants, whether their organisation had aligned their ERM with organisation performance [ERMALPMSTS]. As displayed in Figure 6-15 below, 36% believed that aligning ERM with performance management were being done informally in their organisation, while 33% thought their organisations had no alignment between ERM and performance management. Moreover, 15% said that the alignment is under investigation. Less than 5% answered that ERM and performance management were aligned either completely (2%) or partially (3%) in their organisation (Appendix D, Table D-20).

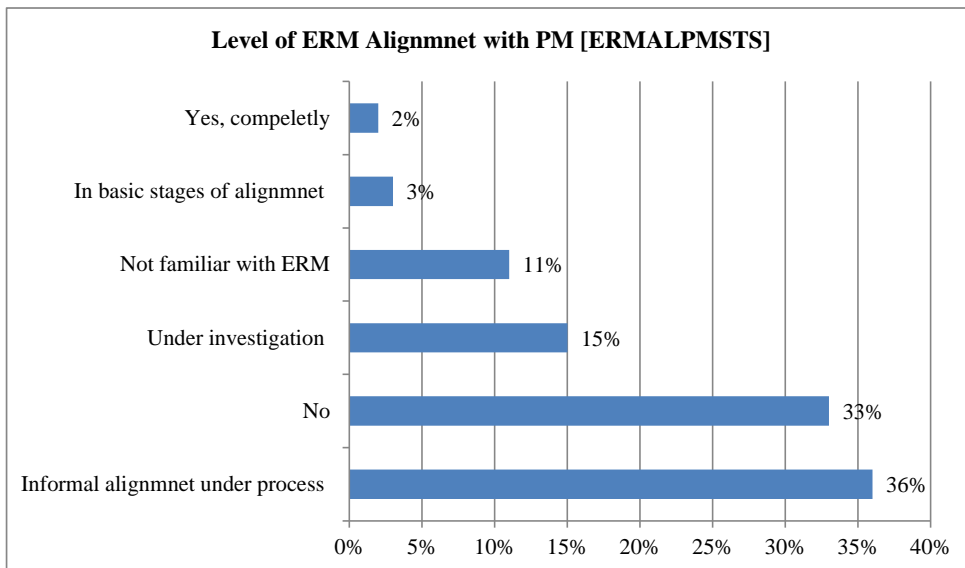


Figure 6-15: Level of ERM alignment with organisations' performance management

The above findings confirmed that aligning ERM and performance management was not considered in-depth in automotive industry of Iran, and there is a need for more effort and study in order to implement this alignment effectively.

Then in question twenty one, participants were asked to select the benefits (listed in Figure 6-16) that organisations could gain through aligning their ERM with performance management [ERMPMBEN-1]. As it is displayed in Figure 6-16, each of the mentioned benefits was chosen by more than 60% of respondents. However, the largest numbers belong to three following benefits: 1) long-term sustainability (80%), 2) competitive advantage and increased stakeholder value (73%), and 3) improved in business performance (70%). Slightly more than one-third of respondents (38%) chose all mentioned items as benefits of ERM and performance management alignment (Appendix D, Table D-21).

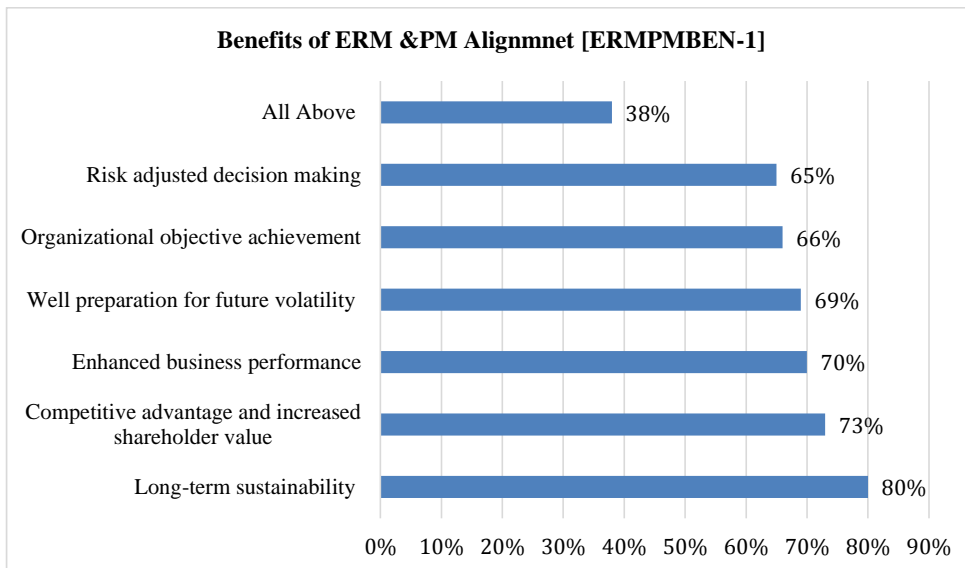


Figure 6-16: Benefits of ERM and PM alignment

Findings of this question are consistent with interview findings discussed in Chapter 5 (Section 5.2.3) that organisations could achieve more risk adjusted decision making and long-

term sustainability, improve their business performance, and move towards aim and objective achievement through aligning ERM with performance management.

Furthermore, question twenty two asked the respondents to express their opinion regarding importance of each potential benefit (discussed in previous question) for their organisation [ERMPMBEN-2].

Table 6-7: Frequency distribution of variable ERMPMBEN-2

| ERMPMBEN-2                                            | Frequency (%) |               |           |                    |               |                       |
|-------------------------------------------------------|---------------|---------------|-----------|--------------------|---------------|-----------------------|
|                                                       | Critical      | Very impotent | Important | Slightly important | Not important | Not familiar with ERM |
| Risk adjusted decision making                         | 77            | 12            | 0         | 0                  | 0             | 11                    |
| Competitive advantage and increased shareholder value | 85            | 54            | 0         | 0                  | 0             | 11                    |
| Enhanced business performance                         | 80            | 9             | 0         | 0                  | 0             | 11                    |
| Well preparation for future volatility                | 61            | 16            | 12        | 0                  | 0             | 11                    |
| Organisational objective achievement                  | 88            | 0             | 1         | 0                  | 0             | 11                    |
| Organisational long term success and sustainability   | 39            | 40            | 9         | 1                  | 0             | 11                    |

Table 6-7 illustrates that three most critical benefits from respondents view were: organisational objective achievement (88%), competitive advantage and increased shareholder value (85%), enhanced business performance (80%). Three remaining benefits' criticality level was: risk adjusted decision making (77%), well preparation for future volatility (61%), and organisational long-term success and sustainability (39%).

Interview participants and survey respondents had almost the same opinion regarding the importance level of benefits (listed in Figure 6-16). Furthermore, a correlation matrix analysis between [ERMFAM] and [ERMPMBEN-1] confirms the positive relation among ERM understanding and identifying its benefits (Appendix F, Table F-2).

The Researcher compared the outcomes of empirical investigation in Iranian automaker organisations with these organisations' low level of ERM maturity and failure in ERM alignment with performance management. It is concluded that, although senior managers are really keen to improve their organisations' risk management approach and implement the alignment between ERM and performance management, however, it is a challenge for them to understand and find appropriate approaches to perform this alignment in practice. In other word, the benefits of ERM and its effective alignment with performance management is understood and approved by the majority of the research participants, however it is difficult for them to find the ways on how this concept should be applied effectively in practice (Beasley *et al.*, 2010).

Respondents then were asked in question twenty three, to identify the challenges of aligning ERM and performance management in their organisation [ERMPMCHAL].

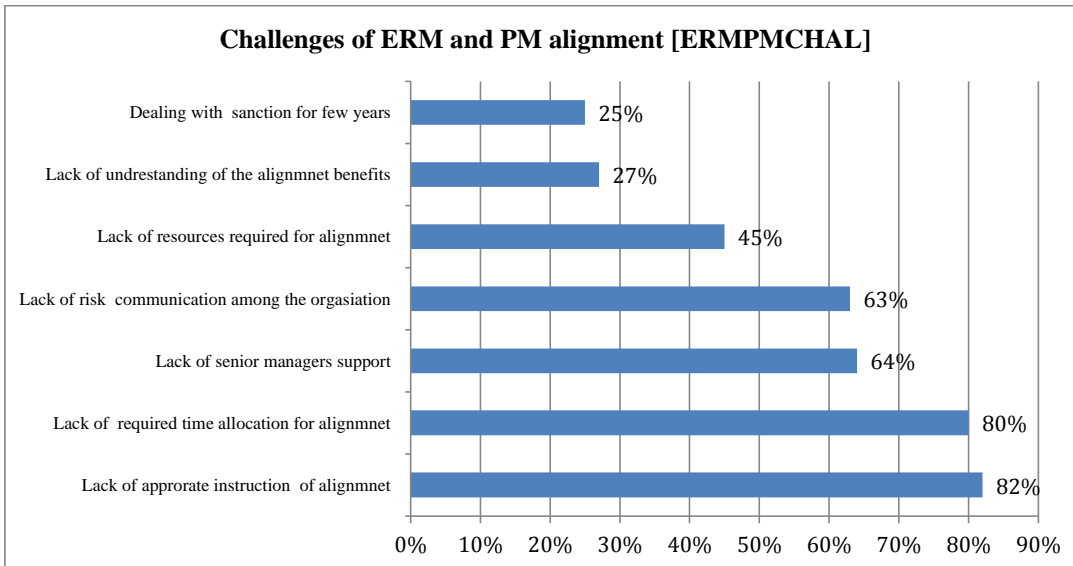


Figure 6-17 Challenges of ERM and performance management alignment

As Figure 6-17 illustrates, 82% emphasised on lack of appropriate guidance, and 80% stated lack of sufficient time allocation to perform the required changes in existing organisational structure as the biggest challenges of ERM and performance management alignment. This was similar to a research's findings done by Beasley *et al* (2010). Moreover, 63% saw lack of risk communication in organisation layers as a challenging factor, with almost the same amount (64%) senior managers' poor involvement and support was thought as a challenge of this alignment. This is consistent with a work by Francis and Richards (2007) discussing the need of continuous risk reporting to boards and senior management; receiving organisational risk information regularly would help senior managers to take the right decision and plan effectively for their business. Nearly half of the respondents (45%) emphasised on lack of sufficient resource allocation for ERM and performance management alignment. Lack of well understanding the benefits of aligning ERM and performance management were mentioned approximately by one- third (27%) of participants. Moreover, about quarter of respondents thought dealing with sanctions for few years had prevented this industry to progress their managerial functions.

In question twenty four participants were asked to select the factors that in their opinion were critical to developing an effective alignment between ERM and performance management [ERMPMFAC-1].

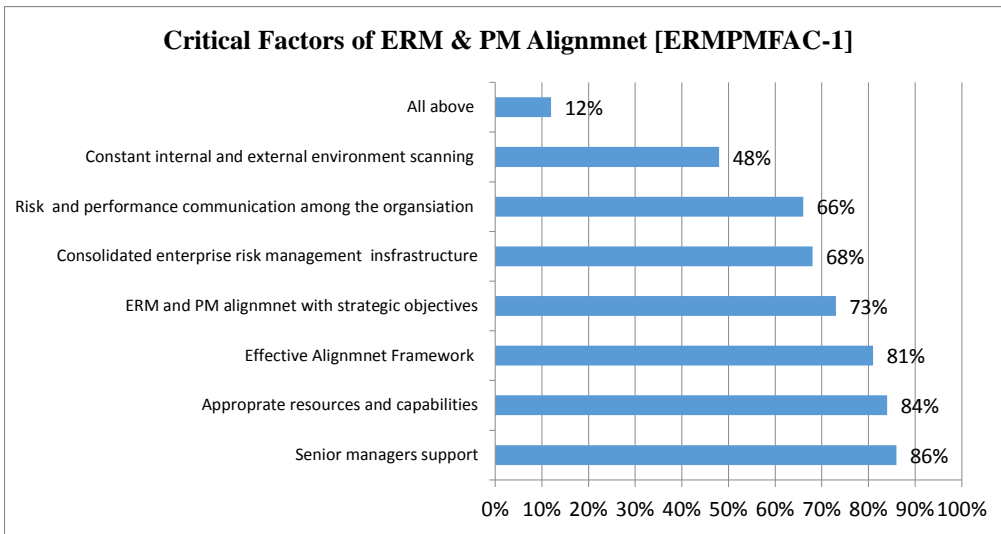


Figure 6-18: Critical factors in ERM and performance management alignment

As it is displayed in Figure 6-18, three following factors were considered by more than four-fifths of respondents as vital factors for aligning ERM with performance management: 1) a framework of ERM and PM alignment (81%); 2) senior management support (86%); and 3) appropriate resources and capabilities (84%).

Moreover, 73% considered aligning ERM and performance management with organisational key objectives as critical. Also, 68% considered enterprise risk management infrastructure as very important. Risk communication among organisations was emphasised by 66%. Nearly, half of the respondents (48%) believed continuous internal and external environment analysis were very important factors. Ultimately, 12% considered all listed factors as critical in developing effective alignment between ERM and performance management.

Then the participants were asked in question twenty five to rate the importance level of each above factors in developing an effective alignment between ERM and performance management [ERMPMFAC- 2]. Table 6-8 shows the level of each factors importance in five scales from “critical” to “not important” in participants’ opinion.



Table 6-8: Frequency distribution of variable ERMPMFAC-2

| ERMPMFAC-2   | Frequency (%) |               |           |                    |               |                       |
|--------------|---------------|---------------|-----------|--------------------|---------------|-----------------------|
|              | Critical      | Very impotent | Important | Slightly important | Not important | Not familiar with ERM |
| ERMPMFRMWK   | 80            | 9             | 0         | 0                  | 0             | 11                    |
| ERMPMSENSUP  | 84            | 5             | 0         | 0                  | 0             | 11                    |
| ERMPMRES&CAP | 83            | 6             | 0         | 0                  | 0             | 11                    |
| ERMPMSTRC    | 71            | 11            | 32        | 0                  | 0             | 11                    |
| ERMPMSTOBJ   | 62            | 17            | 10        | 0                  | 0             | 11                    |
| ERMPMCOMM    | 59            | 11            | 19        | 0                  | 0             | 11                    |
| ERMPMINT&EXT | 42            | 25            | 22        | 0                  | 0             | 11                    |
| ALL FACTORS  | 12            | 36            | 41        | 0                  | 0             | 11                    |

Approximately, 90% of survey participants believed that existence of an ERM and performance management alignment framework was either critical (80%) or very important (9%). Similarly, almost 90% considered senior managers’ support on this alignment, as critical (84%) or very important (5%). Again the third factor (appropriate resources and capabilities) was emphasised by nearly 90% as critical (83%) or very important (6%). Moreover, 82% considered enterprise risk management infrastructure as either critical (71%) or very important (11%). About 80% chose ERM and performance management’s alignment with organisations ’strategic planning as a vital (62%) or very important (17%) factor of this alignment. Risk communication among organisation was also considered critical by 59% and very important by 11%. Constant internal and external environment scanning was considered critical by 42% or very important by 25%. As discussed in qualitative analysis (Chapter 5), interview participants considered the following factors critical to ERM alignment with performance management: senior managers’ support on ERM and PM alignment (80%), ERM and performance management’s alignment with organisations ’strategic planning (87%), Risk communication among organisation (80%), internal and external environment scanning (100%), appropriate resources and capabilities (100%) (available in Appendix B, Tables B-12 to B-15).

The Researcher performed a correlation matrix in Excel (Appendix F, Table F-1) to quantify the correlation between organisational critical factors (measured in question twenty five) in aligning ERM with performance management. The result of the correlation test (CORREL) ensured the Researcher that it was a quite positive correlation among the factors that considered critical to development of a framework of ERM and performance aligning and a positive relationship with the level of ERM maturity. These findings validate the need for the framework aligning ERM with performance management.

Analysis of both qualitative and quantitative data confirms that the level of importance of each factor listed in the Figure 6-18 was almost the same in both interviewees and survey respondents' point of view which complies with findings of literature review.

Finally, the last question of the survey (question twenty six) sought to explore the potential benefits that survey respondents were expecting from performing the alignment between ERM and performance management in their organisation [ERMPMBEN-3]. Respondents chose their answers from the options listed in Figure 6-19. As it is shown, three benefits which selected by majority were: 1) enabling long term success, and sustainable profitability for organisation (71%); 2) enhanced business performance (69%); and 3) organisational aim and objective achievement (68%). More than half expected shareholder value creation and competitive advantage (57%), and optimised risk and performance costs (54%). A little over 10% expected all listed benefits through aligning ERM and performance management.

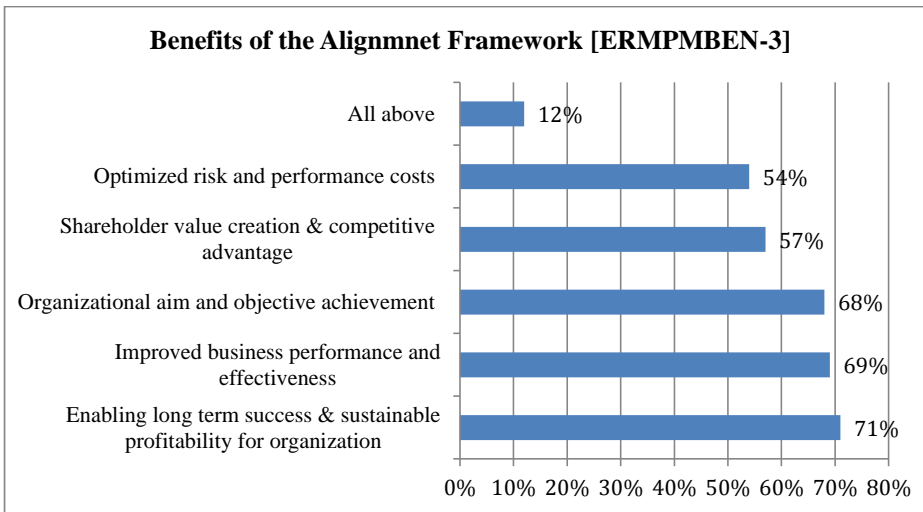


Figure 6-19: Benefits of the alignment framework

Findings of this research’s quantitative investigation support the validity of qualitative phase of this research. The next section concludes the outcomes drawn from quantitative part of this research.

### 6.3 Conclusion

This section discusses some main conclusions drawn from analysis of quantitative data collected through questionnaire survey. A large number of survey participants stated an increase attention in effective ERM and its alignment with performance management in Iran’s automotive industry. However, they admitted that their organisations’ ERM was still immature and more study needs to be done for effective ERM implementation and its alignment with performance management. This outcomes are consistent with findings of qualitative phase of this research analysed in Chapter 5, and with the empirical and theoretical findings of academic and industry practitioners argued in Chapter 2. Therefore the validity of qualitative and quantitative data was verified through their consistency with finding of researches on ERM and performance management argued through literature review.

The outcomes of this research's qualitative and quantitative data analysis confirm the increasing tendency in ERM development and its effective alignment with organisational performance management in Iranian automaker organisations. However, it should be emphasised that aligning ERM with performance management has to begin with development of a stable ERM infrastructure among organisations and strong support of senior management. It was stated by survey participants that aligning ERM with organisation performance management would add value and generate competitive advantage to organisations. Aligning ERM with organisation performance management and strategic objectives was considered as an approach driving organisations to long-term sustainability and enhanced performance. These outcomes validate the qualitative part of this research as they are consistent with interviewees' viewpoint discussed in Chapter 5.

The majority of survey participants considered; -enhanced organisation performance, long-term success and sustainable profitability, organisational aim and objective achievement, and risk adjusted decision making- as the main benefits of aligning ERM with organisational performance management. However, a large number of participants stated difficulties (such as: lack of practical approaches and appropriate guidelines on how to apply ERM and performance management alignment into their current organisational structure) in applying this alignment in practice.

The main challenges of ERM and performance management alignment reported by participants were: lack of appropriate instruction of alignment; insufficient support of senior managers; and inadequate time and resource allocation for this alignment. These findings consistent with other researches' assumptions discussed in literature review.

The Researcher's proposal for developing an effective Framework Aligning ERM with Performance Management is therefore supported through above findings. The proposed framework is discussed in Chapter 7 based on empirical investigation achieved from both interview and questionnaire survey.

The next chapter discusses the findings of qualitative and quantitative empirical research and links the research's empirical finding with outcomes of literature review. Also, the proposed aligning framework developed in Chapter 3, Section 3.1, is validated through discussion of empirical findings in Chapter 7.

## **Chapter 7: Discussion**

### **7.1 Introduction**

This chapter intends to create the links among this research, existing academic studies, and the practical context of the automotive industry of Iran. This research aims to validate the proposed framework of aligning ERM with performance management in order to fill the gap in the extant literature identified and discussed in Chapter 3, Section 3.2. In addition, this chapter aims to provide academics and industry practitioners with effective implementation guidance with regard to the developed framework. Through this chapter, the Researcher presents the main elements of ERM and performance management based on the existing literature and the research's findings.

This chapter comprises five further sections, as follows: Section 7.2 discusses the critical organisational factors affecting the implementation of the framework aligning ERM with performance management. Section 7.3 discusses the revised framework along with its validation based on the research's empirical findings, obtained through qualitative and quantitative data collection. Section 7.4 provides step-by-step guidance for the effective implementation of the alignment framework. Section 7.5 discusses the framework's strengths while, Section 7.6 considers its limitations. Finally, the conclusion of the whole chapter is discussed in Section 7.7.

### **7.2 Critical organisational factors and the framework aligning ERM with performance management**

The critical issues of this research, as identified through an examination of the extant literature (Chapter 2 and 3), have also been supported by the empirical findings of the qualitative and quantitative analysis conducted in this research. These factors have important implications for organisations' senior managers, and their success in ERM implementation and its effective alignment with performance management. Hence, the Researcher has considered these factors as critical in enabling the implementation of effective alignment between ERM and performance management.

The analysis of the primary data (Chapters 5 and 6) enabled the Researcher to identify the critical organisational factors, how they interact, and how they affect the alignment between ERM and performance management.

### **7.2.1 Framework aligning ERM with performance management and organisational factors**

A study of the previous researches (see Chapter 2, Sections 2.2.2 and 2.2.3) revealed an increase over the last two decades in organisational knowledge, attention to risk and approaches regarding its effective management (Baird, 2005; Power, 2009; McNally, 2013; Gatzert and Martin, 2015). The existence of various internal and external factors (discussed in Chapter 2) has shifted and increased organisations' interest with regard to the adoption of ERM. External factors such as uncertainties and economic crisis have caused huge financial losses for organisations, causing them to pay greater attention to their risk management. However, the shortcomings in respect of risk and the strategic focus of many organisations has drawn attention to an effective approach with regard to risk management (Quinn, 2009; Hoyt and Liebenberg, 2011; McNally, 2013, COSO, 2016). Moreover, according to several researches (such as: Kleffner *et al.*, 2003; KPMG, 2007; EIU, 2007; Chapman, 2011; RIMS, 2013), most organisations have been encouraged to reconsider and revise their existing process of risk management as a result of regulatory, political and economic external pressures. Therefore, in the recent years, organisations have attempted to adopt ERM and align it with their organisational structure (Ramirez, 2008; Arena *et al.*, 2011).

Moreover, the literature gap identified in Chapter 3 (Section 3.2) illustrates that a lack of ERM alignment with performance management and its integration with other organisational initiatives such as strategic planning, remains as an unresolved issue for senior managers. Previous researches support the significance of aligning ERM with organisational performance management. Several researchers (Mikes, 2005; Beasley *et al.*, 2008; Gordon *et al.*, 2009; Hoyt and Liebenberg, 2011; Nickmanesh *et al.*, 2013; Ping and Muthuveloo, 2015) discuss that an increase in organisational performance is possible through the alignment of ERM and performance management. However, the existing literature on aligning ERM with

performance management is mostly of a visionary and descriptive basis. Indeed, there remains a lack of an effective framework aligning ERM with performance management in practice.

The alignment of ERM with other organisational activities – strategic planning, continuous external and internal monitoring, central risk data systems, relevant resources, capabilities for effective risk management – have also been considered as critical in achieving a sustainable ERM implementation (Lam, 2003; Mikes, 2005; Cokins, 2010). For instance, Nocco and Stulz (2006) and Clarizen (2012) argue that there is a need for a consolidated framework that monitors and identifies any emerging volatility, enabling managers to take timely reaction regarding potential negative business threats (Nocco and Stulz, 2006; Clarizen, 2012). Frigo (2008) discusses that senior managers need to receive continuous reporting about potential risks to recognise any external or internal events influencing their organisation (Frigo, 2008). Having studied the literature review, the Researcher concludes that ERM alignment with core organisational elements has been considered by several researchers; however, as discussed in Chapter 3 (Section 3.2), most of previous contributions in this regard are of a conceptual and descriptive basis. So, aligning ERM with performance management and other organisational elements in practice remains a gap in the literature.

Below is a summary of the literature gap identified through the literature evaluation in Chapter 3 regarding the alignment of ERM with performance management.

- Lack of integration of ERM with organisational strategic objectives;
- Lack of strategic alignment of ERM with external and internal environment;
- Lack of dynamic and effective framework along with clear guidance enabling ERM and performance management alignment in practice;
- Lack of risk communication between organisations' layers ;
- Insufficient data quality and risk resources;
- Lack of risk data aggregation for effective risk reporting and management;



Therefore, the literature review supports the significance of “organisational strategic planning, external and internal scanning, central risk data system, risk communication, and resources and capabilities” in the effective alignment of ERM with performance management (Walker, 2009; Beasley *et al.*, 2010; Power, 2011; Wisutteeuwong and Rompho, 2015).

As discussed earlier in this chapter and in the literature evaluation (Chapter 3), a majority of the previous studies and contributions on aligning ERM with performance management are of a visionary and descriptive basis rather than being implemented in practice. Some studies have considered definitions of ERM, performance management, their challenges and limitations (Mikes, 2005; Killackey, 2008; Gordon *et al.*, 2009; Leech, 2012; Ayadi *et al.*, 2014). While, some others have studied ERM and performance management interaction (Beasley *et al.*, 2005; Hindson and Cazenave, 2009; Kanhai and Ganesh, 2014; Ping and Muthuveloo, 2015). Few researchers have focused on implementational approaches of ERM and performance management alignment, with little guideline on its implementation. This confirms that the studies on the alignment of ERM and performance management are under-researched and require further investigation in order to contribute to the literature (Cokins, 2010; Wisutteeuwong and Rompho, 2015).

For instance, Barton *et al.* (2002), Kaplan (2009), and Nickmanesh *et al.* (2013) discuss the advantage of ERM implementation and the benefits of ERM alignment with performance management. Therefore, the value and potential benefits that this alignment could bring to organisations is discussed descriptively in existing researches with lack of a practical guidance regarding this alignment, which places these researches in a visionary-descriptive basis (Gordon *et al.*, 2009; Kanhai and Ganesh, 2014; Ping and Muthuveloo, 2015). The few studies that focus on the alignment of ERM and performance management lack appropriate guidance on the implementation of this alignment in practice.

Therefore, based on the literature review (Chapters 2), in order to establish long-term sustainability, organisations need to align their ERM process with strategic planning and performance management, supported by the involvement of senior management, appropriate resources and capabilities, and an up to date central data system (Beasley *et al.*, 2009; Hindson, 2013). In order to align the literature outcomes with participants’ view in the empirical research, the Researcher applied empirical investigation, exploring the

organisational factors that were considered by research participants to be critical in establishing the alignment between ERM and performance management.

The findings of the interviews confirmed that over 80 percent of the interview sample considered the support of senior managers as critical in the alignment of ERM and performance management. While 87 percent stated that ERM's alignment with an organisation's strategic planning is vital for the effective implementation of ERM. All the interviewees stated that aligning ERM and performance management without continuous internal and external monitoring and appropriate resources and capabilities would be impossible. Risk communication among organisation was also considered by about 80 percent of interviewees as very important in developing this alignment.

Also the findings of survey questionnaire confirmed that 86 percent of respondents considered senior management involvement as significant in ERM and performance management alignment. Resource and capabilities was felt critical by 84 percent, while 73 percent emphasised on ERM integration with strategic planning. Existence of an effective alignment framework was also considered by 81 percent, as critical for this alignment. The findings of the empirical research are therefore consistent with the literature review.

### **7.2.2 Support of senior managers for ERM and its alignment with performance management**

Throughout the literature, several researchers have discussed the importance of senior managers' support on ERM and its effective implementation in organisations (Rao and Dev, 2007; Mikes, 2009a). For instance, Lam (2003) and Liebenberg and Hoyt (2003) report that constant improvement of ERM needs the strong support of organisations' senior managers. While Aabo *et al.* (2005) and Paape and Spekle (2012) emphasise on the important role of CRO, and establishing organisational risk committees supported by senior management. Regarding continuous risk oversight and senior managers' support of ERM, a research by Ernst and Young (2011) found that more than 80 percent of their under-investigation organisations had enhanced their senior management oversight on organisational risk management. The results of a survey by AON (2013) also confirm that organisations' senior managers aim to receive regular updates regarding their organisational risks in order to be aware and keep control of their business risks. However, despite recent increased attention to

ERM, senior managers are still looking for alternative ways for implementing effective ERM in practice (Chapman, 2007; Beasley *et al.*, 2010).

The interview participants stated that if ERM does not receive strong support from senior managers, it becomes a risky process itself, losing its sustainability over time. This is while, less than half (30 percent) of participants reported the existence of support from senior management on their ERM and its alignment with organisational factors. Indeed, the qualitative analysis revealed a lack of senior management involvement on organisations' effective ERM development due to senior managers' poor understanding of ERM's benefits for organisations' sustainability. Therefore, the Researcher has integrated senior managers' support as an important factor to validate the framework of aligning ERM with performance management (Section 7.3, Figure 7-1). Involvement of senior management on ERM is considered as a critical element of the alignment framework enabling the implementation of a sustainable ERM process and development of an effective alignment between ERM and performance management (Beasley *et al.*, 2010; Quon *et al.*, 2012; COSO, 2016).

The findings of the quantitative data analysis similarly show that less than half (27 percent) of participants observed signs of senior management's strong support on their organisations' ERM. Having a correlation coefficient matrix performed among [ERMMATUR] and [ERMSSENSUP] variables (Chapter 6, Table 6-4), confirms the positive correlation between ERM maturity and senior management support. In fact, organisations those have a mature ERM implemented report having experienced of greater support from their senior managers.

Both the primary and secondary researches of this study (Chapters 2, 5, and 6), confirm the critical role of senior management in a successful and sustainable ERM aligned with organisational performance management. This element is therefore considered as one of the foremost drivers of effective ERM and performance management alignment. Having identified the significance of senior managers' support, the Researcher suggests that further studies investigate the approaches toward improved organisational risk control and management by senior managers.

Furthermore, 80 percent of interviewees emphasised on the important role of risk committee in effective ERM and its alignment with other organisational initiatives. This view is

consistent with literature that employing professional people with years of experience in ERM field strengthen organisations' ability in managing their risks more effectively (Berbenbeim, 2005; Van den Berghe and Louche, 2005; Wagner and Layton, 2007; Grace *et al.*, 2015).

### **7.2.3 Benefits of aligning ERM with performance management**

As ERM is a relatively new research content, it is likely that an organisation's managers will seek an understanding of the benefits of ERM implementation and the advantages of its alignment with other managerial functions such as performance management (Elahi, 2010; Locklear, 2012). The general benefits of ERM are discussed in the literature reviewed through this research. However, organisations should identify the potential benefits of ERM associated with their particular organisation's specific objectives and strategic direction. Researchers and senior managers agree that ERM has a number of benefits for organisations; however, managers find it difficult to implement the ERM concept in practice in their current organisational structure (Onorato 2007; Beasley *et al.*, 2010). One challenge in achieving this is how to align ERM with organisational performance management (Blasini and Leist, 2013).

Some of the benefits mentioned in the literature regarding ERM and performance management alignment are: long-term business sustainability, enhanced business performance, aims and objective achievement, shareholder value creation and competitive advantage (Beasley and Frigo, 2010; Branson, 2010; Mcshane *et al.*, 2011; Kanhai and Ganesh, 2014). The majority of previous researches regarding the benefits of this alignment are mostly descriptive in nature, with limited empirical evidence supporting the theoretical assumptions (Wisuttee Wong and Rompho, 2015).

The framework aligning ERM with performance management was developed in Chapter 3 (Figure 3-1), based on a literature review evaluation (Chapter 3) and secondary data attained from ERM and performance management studies discussed in Chapters 2. The Researcher then became able to validate the proposed framework through empirical qualitative and

quantitative investigation in Chapters 5 and 6. The outcomes of empirical investigations are presented in the following.

Based on the outcomes of qualitative analysis, 84 percent of participants stated enhance business performance, and 87 percent considered the achievement of the organisation's aims and objectives as the most important benefits of aligning ERM and performance management. Organisations' long-term sustainability and risk adjusted decision making were identified by more than 60 percent, while 54 percent emphasised on shareholders' value and competitive advantage as the benefits of this alignment (Chapter 5, Figure 5-10).

Furthermore, the quantitative findings illustrated that enhanced business performance, competitive advantages, shareholder value creation, and aim and objective achievement were considered by more than 80 percent of respondents as the most critical benefits of ERM and performance management alignment. These findings are consistent with the literature review, indicating that in recent years organisations have had greater appreciation of the benefits of ERM and more often emphasise on ERM implementation and its alignment with their existing managerial functions such as performance management (Hoyt and Liebenberg, 2006; Beasley *et al.*, 2009; Cokins, 2010; COSO, 2016). However, researchers agree that more empirical researches are required regarding ERM and the value of its alignment with organisational performance management (Hoffman, 2009; Manab *et al.*, 2010).

Ai and Brockett (2008) discuss that ERM should be developed and performed based on an organisation's strategic objectives in order to increase organisational performance. Aligning ERM with strategic planning enables senior managers to identify and manage the key risks and identify any source of opportunities that could create value for the organisation (Ai and Brockett, 2008).

According to the literature review, the previous researches mostly consider the advantages of ERM implementation and its alignment with performance management from theoretical aspects. Therefore, little empirical evidence exists supporting the benefits of aligning ERM with performance management.

The qualitative and quantitative analyses undertaken in the current research confirm that the following elements are critical in the effective aligning of ERM with performance management:

- support of senior managers;
- integration of ERM with organisations' strategic planning;
- appropriate resource and capabilities;
- continuous external and internal monitoring;
- risk communication within organisation;
- consolidated enterprise risk management infrastructure;

#### **7.2.4 Challenges of aligning ERM with performance management**

Having discussed the literature gap in Chapter 3 (Section 3.2), the main challenges of ERM and its alignment with performance management are identified as: lack of senior management support, lack of guidance in how to implement ERM and align it with organisational performance in practice, lack of sufficient resources and capabilities providing ERM expertise. It was discussed through the literature review that organisations claim that they have adopted ERM, but in reality senior managers struggle to overcome the challenges associated with ERM implementation and its alignment with organisations' existing managerial functions (Beasley *et al.*, 2009; Marsh, 2012; Hindson, 2013). Every organisation deals with different challenges in ERM implementation based on that organisation's specific aims and objectives (Fraser and Simkins, 2007; Marsh, 2012; COSO, 2016).

The key challenges of ERM alignment with performance management as identified through analysis of the interviews conducted in this research are: lack of senior management having a good understanding and being in support of this alignment (73 percent), lack of sufficient risk history enabling the effective management of risk (64 percent), lack of stable risk management structure (64 percent), and managers' reluctance to change the existing processes (24 percent). In the quantitative part of the data analysis, the key concerns were identified as: lack of clear guidance with respect to alignment (82 percent), lack of required time and resources for the alignment (80 percent), lack of sufficient ERM knowledge and

support from senior management (64 percent), lack of risk communication among the organisation (63 percent), and dealing with special circumstances such as sanctions (25 percent). The findings of the empirical research confirm the challenges to ERM implementation and its aligning with performance management as discussed in the literature.

It is recommended by interviewees that, in order to overcome these challenges, there is a need for organisations to invest more in organisations' ERM in terms of time, knowledge, adequate resources, skills and capabilities, risk infrastructure. The interviewees further discuss the need to employ risk specialists to provide the required guidance for the effective implementation of ERM and performance alignment. Similarly, Aabo *et al.* (2005) and Fraser *et al.* (2008) discuss that employing ERM professionals and establishing a network of expert people in the ERM field helps to overcome the challenges of ERM implementation (Aabo *et al.*, 2005 and Fraser *et al.*, 2008; Andersen and Roggi, 2012).

Based on the outcomes of the qualitative and quantitative analysis (Chapters 5 and 6), and in order to overcome the main challenges of effective ERM implementation and its alignment with performance management, some guidance has been incorporated to the developed aligning framework, which is discussed in Section 7.4

### **7.2.5 Key findings of the qualitative and quantitative analysis**

This section reviews in summary, the key empirical findings of this research attained by the Researcher through surveys and interviews. The findings are presented in Table 7-1 below:

Table 7-1: Key empirical finding of qualitative and quantitative analysis

| <b>Empirical findings of qualitative data (interview) and quantitative data (survey)</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Framework of aligning ERM with PM</b>                                                 | <p>82 percent of interview participants believed aligning ERM with PM to be very important for organisations' aim and objective achievement, enhanced performance, and long-term sustainability.</p> <p>Senior management support regarding this alignment was emphasised by 80 percent, as a critical factor enabling this alignment. Also, ERM integration with organisations' strategic planning (87 percent), adequate resource and capabilities (100 percent), and internal and external monitoring (90 percent) were considered critical in effective ERM and PM alignment. Risk communication was also emphasised by (80 percent) as very important.</p> | <p>Survey respondents considered the alignment of ERM and PM as a critical action for organisations' prosperity.</p> <p>Senior management support was identified as critical in effective ERM and PM alignment by 86 percent of respondents. ERM integration with organisation's strategic planning was stated by 73 percent, and adequate resource and capabilities by 84 percent.</p> <p>68 percent believed on stable EM infrastructure, while risk communication was mentioned by 66 percent as the factors enabling this alignment.</p> |
| <b>Strong support of senior managers for an effective implementation</b>                 | <p>Senior managers' support was considered very critical by over 80 percent of interviewees for ERM adoption and its alignment with PM.</p> <p>A lack of strong involvement from senior managers for ERM may result in ERM becoming a risky process itself, losing its sustainability over time.</p> <p>80 percent of interviewees emphasised on the valuable consultative role of a risk committee in ERM implementation and its alignment with other</p>                                                                                                                                                                                                      | <p>Less than half of the survey respondents (27 percent) believed there was acceptable level of ERM support from their senior management side. In fact, none of the respondents reported the active support of senior management in their organisation. this is while, senior management involvement was considered either critical or very important by 85 percent of participants</p>                                                                                                                                                      |



Alignment of ERM with Performance Management: Case of Automotive Industry

| <b>Empirical findings of qualitative data (interview) and quantitative data (survey)</b> |                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                        |
|------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                          | organisational practises.                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                        |
| <b>Benefits of ERM and PM alignment</b>                                                  | Interview participants considered organisational aim and objective achievement (87 percent), enhanced business performance (84 percent), risk adjusted decision making and organisational long-term sustainability (64 percent), risk adjusted decision making (60 percent), and shareholder value creation and competitive advantage (54 percent) as the critical benefits of ERM and PM alignment. | Survey respondents believed that aligning ERM with PM results to benefits such as: long term sustainability (80 percent), shareholder value creation and competitive advantage (73 percent), Enhanced business performance (70 percent), well preparation for future volatility (69 percent), and objective achievement (66 percent).                  |
| <b>Challenges of ERM and PM alignment</b>                                                | The main concerns of ERM implementation and its alignment with performance management as identified by the interviewees are: senior managers' poor support (73 percent), lack of organisational risk communication (76 percent), sufficient organisational risk data (64 percent) and lack of a stable ERM structure (64 percent).                                                                   | The main challenges selected by survey respondents are: lack of appropriate guidance regarding implementation (82 percent), lack of senior management support (64 percent), lack of required resource and capabilities (45 percent), lack of risk communication among organisations (63 percent), dealing with sanctions for a few years (25 percent). |

Source: The Researcher

The outcomes of this research's empirical data analysis (Chapters 5 and 6) are convergent with each other and support the Researcher's theoretical assertion for need of developing an effective framework aligning ERM with performance management.

### **7.3 Validation of the framework aligning ERM with performance management**

This section explores how the framework aligning ERM with performance management that was developed in Chapter 3 based on the literature findings revised in the light of the empirical findings. However, the main factors of the framework were verified through the empirical analysis in Chapters 5 and 6.

The theoretical framework presented in Chapter 3 (Figure 3-1) was developed based on the gap of the existing literature (discussed in Chapter 3, Section 3.2), which confirmed the need of a framework aligning ERM with performance management. Thus, the fundamental organisational elements critical to this alignment were first identified in Chapter 3, and then validated by empirical analysis through Chapters 5 and 6. Ultimately, practical guideline on how to implement the developed framework aligning ERM with performance management would be provided as the final stage in Section 7.4.

The proposed theoretical framework developed in Chapter 3 (Figure 3-1) was based on three main phases: strategic direction (input), ERM and performance management alignment cycle (the process), and organisational performance (output). The Researcher discusses that risk identification and risk management should be based on an organisation's business strategic direction. Therefore, the input factor of the framework is strategic direction. The second phase of the framework is the main part of the process, including the key organisational factors critical to aligning ERM with performance management. This phase starts with a demonstration of the strategic plans and objectives based on the organisation's external and internal environment analysis. As discussed through the literature, organisational aims and objectives are likely to be affected by changes in the external and internal environment.

After determining the main theoretical phase of the framework, drawn from literature supporting the alignment between ERM and performance management, the Researcher performed an empirical qualitative and quantitative research in order to validate the significance of organisational elements influencing the implementation of this alignment. The revised ERM and performance management alignment framework, shown in Figure 7-1, includes some critical findings of the empirical research influencing the effective alignment of ERM with performance management that had not been embedded in the theoretical framework presented in Chapter 3, Section 3.3, and Figure 3-1. The incorporated elements are presented in red boxes in the revised framework (Figure 7-1). Step-by-step guidance regarding the framework implementation is provided in Section 7.4, following. Through comparing the initial theoretical framework (Figure 3-1) with the revised framework (Figure 7-1), the additional elements are seen.

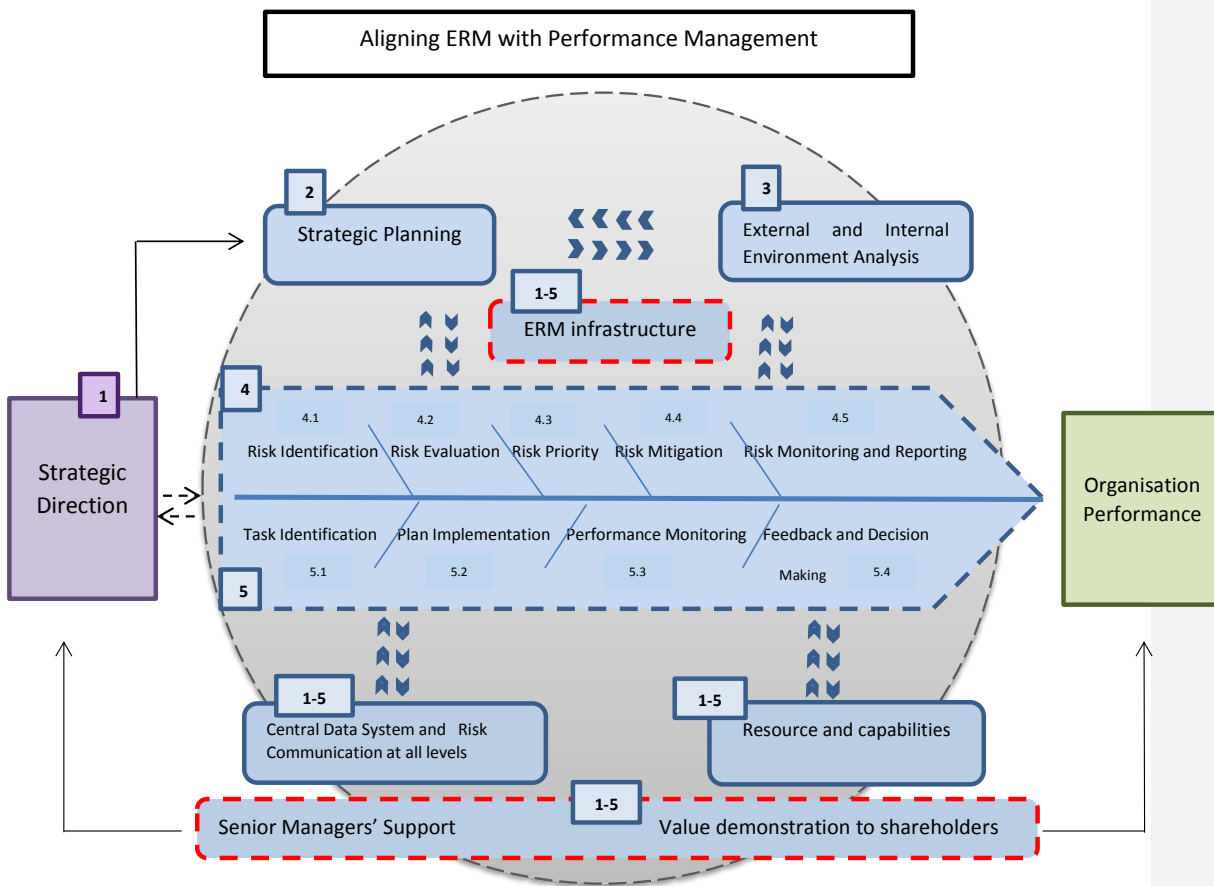


Figure 7-1: Aligning ERM with performance management framework

Source: The Researcher

One of the critical factor incorporated to the framework, supports the need of the active involvement of organisations' senior managers through the entire process of alignment ERM with performance management. The importance of senior managers' support was discussed through the literature, it was also emphasised by both the qualitative and quantitative research participants that risk ownership should remain within the organisation, with responsibility given to each organisational level and continuous monitoring by senior managers and boards. It was moreover emphasised by participants that it is significant to demonstrate the potential benefits of ERM and its alignment with organisation's managerial functions (such as: performance management, strategic planning) to the business shareholders, as being aware of the advantages of this alignment will increase the support in respect of its implementations and sustainability. So, "value demonstration to shareholders" was also added to the validated framework.

Another element incorporated into the framework and discussed broadly by this research's participants, is the necessity of a stable ERM infrastructure. It was stated by the majority of interviewees and survey respondents that one of the main challenges of effective ERM implementation and its alignment with organisational processes is the lack of an established ERM infrastructure in their organisation. The research participants stated that their organisations' boards and senior management members change every few years, and each new management team comes up with their own viewpoint and applies their own approaches on organisational processes. This delays the progress in some critical managerial functions such as ERM implementation. Therefore, the empirical findings confirm that integrating a stable ERM infrastructure is critical in the effective implementation of an ERM and performance management alignment framework. The participants believed that having an independent risk committee with a stable structure that is not affected by changes in boards and senior management team is needed in order to accelerate the development of ERM.

Overall, through analysing the empirical findings of the qualitative and quantitative research, the Researcher identified the following components as the critical factors to be incorporated to the proposed framework (Chapter 3, Figure 3-1):

- Senior management active involvement;

- Value demonstration to shareholders;
- ERM infrastructure;

The following section provides practical guidance for the effective implementation of the Framework Alignment ERM with Performance Management (Figure 7-1).

#### **7.4 Implementation guidance for the practical alignment of ERM with performance management**

This section presents practical guidance provided by the Researcher for effective implementation of the framework aligning ERM with performance management developed in Figure 7-1. Based on existing researches, managers should first assess their organisation's existing risk management condition, and then attempt to align it with other managerial functions (Rao and Dev, 2007; Power, 2009; Govindarajan, 2011). Therefore, it is recommended that managers try to answer the critical questions below before starting the implementation of the alignment process.

- What is the existing structure of the organisation? And how can ERM be effectively embedded within it?
- What are the benefits of ERM implementation and its alignment with organisational performance management?
- How can boards and senior management be convinced to actively support ERM implementation and its alignment with performance management?
- How will competitive advantage, shareholder value, long-term sustainability and ultimately enhanced performance be achieved through aligning ERM with performance management?

The Researcher discusses that answering the above questions is significant in ERM implementation and vital in validating the framework aligning ERM with performance management. Considering the above questions are previsions of guideline toward the effective implementation of the alignment framework. Evaluation of the current

organisational structure enables managers to decide how to incorporate ERM. The ultimate aims of any ERM implementation should be defined by the senior managers and communicated among all organisational layers. Organisational strategic direction is set by senior managers; however organisational vision, mission and strategic objectives need to be shared and understood by all employees at all levels to enable them to perform towards those goals.

Thus, the Researcher has incorporated the following stages in the implementation process of aligning ERM with performance management.

Stage 1: Identify the strategic direction

Stage 2: Set strategic planning

2.1: Vision

2.2: Mission

2.3: Strategic objectives

Stage 3: External and Internal environment analysis (SWOT and PESTEL analysis)

3.1: Opportunities and threats

3.2: Strengths and weaknesses

Stage 4: Incorporate ERM process into organisation existing processes

4.1: Risk identification

4.2: Risk evaluation

4.3: Risk priority

4.4: Risk mitigation

4.5: monitoring and reporting

Stage 5: Incorporate ERM process into organisation's performance management

5.1: Plan

## 5.2: Implementation

## 5.3: Monitoring

## 5.4: Feedback

In addition, although the following five elements are critical in aligning ERM with performance management, they are not considered as individual stages of the implementation process. Indeed, these continual elements are omnipresent and incorporated among whole organisation's structure.

- Support and involvement of senior management (Stages 1 to 5);
- Value demonstration to shareholders (Stages 1 to 5);
- ERM infrastructure (Stages 1 to 5);
- ERM communication at all levels and central data system (Stages 1 to 5);
- Resource and capabilities (Stages 1 to 5);

It is recommended that elements such as: understanding, defining, assessing, communicating, training and learning, and aligning- should be also considered and performed during each stage of the framework.

Practical guideline on implementing each stage of the alignment framework (Figure 7-1) is discussed in the following subsections.

### **7.4.1 Identify the strategic direction and set organisational strategic planning (Stages 1 and 2)**

The first stage of the alignment framework starts with determining the strategic direction of the organisation, which should be set by the senior managers of the organisation. Organisations first need to determine in which direction they are moving and to identify their aims and strategic objectives. Before attempting to recognise and manage the key organisational risks, it is critical that organisational strategic objectives are clearly defined and understood by senior managers. This enables the organisation to recognise, focus, and manage those risks affecting an organisation's achievement of its objectives (Chapman, 1997; Govindarajan, 2011). Organisational strategic planning (Stage 2) is determined based on the

strategic direction of the organisation and is dependent on the organisation's vision, mission, and strategic objectives being identified and determined by senior managers. After determining the key organisational aims and objectives, the organisation's external and internal environments are monitored (Stage 3), to identify any positive and negative factors influencing the organisational aims and objectives. Stage 3 is discussed in the following section.

#### **7.4.2 External and internal environment scanning (Stage 3)**

Today's organisations are more exposed to dynamic and volatile external and internal environments. The complexity and dynamism of the external and internal environments might affect the performance of an organisation. In order to recognise the factors affecting the achievement of an organisation's objectives, it is important that managers establish a process that continuously monitors their external and internal environments (Frigo, 2008; KPMG, 2011). Sometimes environment volatility affects the determined aims and objectives of an organisation and persuades managers to apply changes in their strategic planning (Power, 2009). Recognising these environmental factors is a critical step in both developing and implementing ERM and aligning it with performance management. There are various tools and techniques available for analysing the external and internal environments; however, the researcher argues that senior managers should adopt those techniques that best suit their organisation's structure. The tools considered by the Researcher in this section are SWOT and PESTEL analysis. SWOT analysis identifies: 1) internal areas of the business that have advantage over others (strengths), 2) internal areas of business that have weaknesses, 3) the external environmental factors that the business could take advantage of (opportunities), and 4) the external environment factors that could become a problem for the business (threats). In regards to external factors, PESTEL analysis can be adopted in order to recognise any opportunities or threats that could be caused by political, economic, social, technology, environment, or legal issues. Therefore, continuous internal and external environment monitoring enables senior and risk managers to identify those factors that might impede the effective implementation of ERM and other organisational activities.



Stage 4 of the framework is ERM that classifies and manages the organisational risks that have been identified through external and internal environment analysis. Indeed, external and internal environment analysis enables the organisation to identify the key risks and manage them in a timely fashion through using effective tools.

#### **7.4.3 ERM governance as part of the alignment process (Stage 4)**

This stage discusses the implementation of the ERM framework and its connection with other initiatives of the alignment framework. ERM starts by identifying the risks that might have an effect on the achievement of the organisation's objectives (Step 4.1). It should be emphasised that the elements affecting an organisation, do not always bring a negative effect, they may influence organisational objectives positively and should be seized as opportunities in some cases. The identified opportunities should be considered by senior managers in terms of embedding them in the achievement of organisational objectives. After identifying risks in Step 4.1, these risks then are assessed and evaluated in Step 4.2 (risk evaluation). Based on the organisation's situation, senior managers decide which risks are in priority to be dealt with (Step 4.3). Through the next step (4.4), the appropriate actions is taken (such as risk acceptance, avoidance, and mitigation) based on the organisation's risk appetite and risk tolerance, in order to overcome those risks (Quinn, 2009; Brustbauer, 2016). Finally, the outcomes of the ERM should be continuously monitored and reported (Step 4.5). Indeed, ERM steps (4.1, 4.2, 4.3, 4.4 and 4.5) function repeatedly through the system.

The Researcher recommends that all managers in an organisation should be involved in ERM, should understand their role in the ERM implementation, and should attempt to generate a sustainable ERM in their organisation. Poor support of effective ERM implementation could result on lost opportunities and a damaged business (Brooks, 2010). The result of the ERM governance informs the strategic direction (Stage 1), where the organisation's performance management is decided.

#### **7.4.4 Aligning the ERM process into an organisation's performance management (Stage 5)**

This stage addresses the organisation's performance management (Stage 5), which starts with planning the organisational tasks and activities (Step 5.1). As discussed in the previous section, the outcomes of the ERM process inform the strategic direction (Stage 1). These outcomes will influence planning undertaken in strategic management (Stage 1) for the performance management function (Stage 5). Following this, the process of performance management will commence (5.1), identifying and planning the tasks and activities needed across the various organisational layers and teams. After the organisational tasks are set, Step 5.2 occurs, whereby the required actions are taken towards achieving the organisation's aims and objectives. In this regard, managers and employees perform those tasks that have been planned and assigned to them. The performance of these tasks is monitored through Step 5.3, and the result are reported to Step 5.4, which comprises feedback and recognition and drives the outcomes of whole process of performance management (Stage 5) to inform the organisation's strategic direction (Stage 1) in order to ascertain whether the organisation is performing well and in line with the planned direction or if changes are needed. The four steps (5.1, 5.2, 5.3, and 5.4) of the performance management process (Stage 5) function continuously and repeatedly through the system.

Moreover, as explained in Section 7.4 the followings are the continual elements of the framework omnipresent and incorporated among whole organisation's structure.

- Support and involvement of senior management (Stages 1 to 5);
- Value demonstration to shareholders (Stages 1 to 5);
- ERM infrastructure (Stages 1 to 5);
- ERM communication at all levels and central data system (Stages 1 to 5);
- Resource and capabilities (Stages 1 to 5);

The above elements are not considered as individual stages of the implementation process. In fact, these elements feed the framework continuously and through all the stages (1 to 5).

## 7.5 Strengths of the framework aligning ERM with performances management

Through the literature review (Chapter 2), it became evident that during the last decade organisations' interest on approaching effective risk management has been increasing. However, the complexity of risk management has created a challenge for researchers to identify the organisational factors critical to the effective implementation of ERM and its alignment with performance management. After reviewing the literature and exploring the literature gap, the Researcher proposed a theoretical framework aligning ERM with performance management (Chapter 3, Figure 3-1). However, the empirical research analysis (Chapters 5 and 6) identified a number of factors to be applied into the proposed framework.

Therefore, the revised framework (Chapter 7, Figure 7-1) was developed in order to provide Iran's automotive industry and academia with practical guidance regarding how to align ERM with organisational performance management. This framework aims to increase knowledge on the complex nature of ERM, and to identify the elements that have a critical effect on ERM alignment with performance management. Ultimately, the framework aims to create shareholder value, competitive advantage, organisational long-term sustainability, and to enhance organisational performance.

The main strengths of the framework aligning ERM with performance management are discussed in the following:

- The framework includes existing aspects of findings from both academia and industry

A comprehensive literature review (Chapters 2 and 3) considered a breadth of researches on ERM and its alignment with organisations' managerial functions. The aligning framework developed in this research has a theoretical and empirical basis of the extant literature and previous researches and applies the components of proven studies to explain aligning ERM with performance management.

- The framework consists of interaction among ERM and critical environmental factors

The developed framework is a dynamic framework that evolves at the same time as changes in the organisation's external and internal environments. As the framework aims to align risk management with organisational strategic objectives and performance management, it would lead to value generation for shareholders, competitive advantage and organisational sustainability.

- The framework is aligned with critical organisational elements

The existing literature contributions on ERM concentrate mainly on specific ERM aspects and their effect on ERM implementation. The current research examines the key elements taken from literature through empirical research. Therefore, the developed framework includes key organisational factors influencing ERM implementation and its alignment with performance management.

Having reviewed the existing literature along with an analysis of empirical research (Chapters 5 and 6), the Researcher discusses that the framework aligning ERM with performance management has the potential to lead organisations toward competitive advantage, shareholder value creation, optimised organisational cost, aim and objective achievement, and enhanced performance. Various previous researches have sought competitive advantage and long-term sustainability as the main motivation of ERM implementation (Samuels, 2005; Clarizen, 2012).

Moreover, the Researcher contends that implementing the developed alignment framework enables organisations to identify their environment risks at an early stage, and to reduce encounters with market volatility. The alignment framework aims to: create effective control around the organisation's risks, to increase risk communication among managers across different layers of the organisation, to increase the quality of risk reporting to senior managers, and to improve senior management support and involvement in the risk management process.

## 7.6 Limitations of the framework aligning ERM with performance management

This section discusses the most important limitations of the framework aligning ERM with performance management with regard to the following aspects.

- The complexity associated with the framework of aligning ERM with performance management

Due to ERM's complexity and its incorporation with other management functions and various organisational elements in the aligning framework (Chapter 7, Section 7-1), it might be difficult to manage at the beginning of the framework adoption. It should be emphasised that the framework has been developed for those organisations that have a good understating of ERM principles. So, this limitation might apply to those with inadequate knowledge of ERM.

- The developed framework is limited to the context of automotive industry

The developed aligning framework (Chapter 7, Section 7-1) addresses the challenges and concerns of Iranian automaker organisations in aligning ERM with performance management. Applying this research in other sectors and industries provides the opportunity to investigate the potential changes and/or collaboration of certain elements of the framework based on the business area that the organisation operates in.

The limitations of the developed framework discussed above are recommended as opportunities for further researches in Chapter 8 (Section 8.6).

## 7.7 Conclusion

This chapter brought together the outcomes of both theoretical (Chapter 2) and empirical (Chapters 5 and 6) researches. Furthermore, the critical aspects of this research and the existing studies regarding ERM and its alignment with organisational structure were discussed. The results of this research show that the support and active involvement of senior managers is the most critical factor enabling ERM's implementation and its alignment with performance management. With sufficient senior management support, organisations will be

able to apply any required changes (such as: developing a stable ERM structure, and allocating needed resources and capabilities) in order to move towards this alignment.

An analysis of the empirical data indicated that effective ERM implementation and its alignment with performance management leads organisations towards generating value for shareholders, objective achievement, competitive advantage, long-term sustainability, and enhanced performance.

The findings also confirm that ERM is gradually finding its place in organisations' strategic management and is becoming a necessary part of organisations. However, a literature review and an analysis of empirical researches showed that there is no universal framework of ERM applicable to all organisations. In fact, organisations should choose a suitable ERM approach based on their internal and external analysis and their business structure.

Based on the literature review and outcomes of empirical researches, the critical factors influencing ERM implementation and its alignment with performance management are: senior management support, strategic planning, internal and external monitoring, resources and capabilities, central risk data system, and risk communication, which were all discussed in detail through the literature review (Chapter 2) and empirical analysis (Chapters 5 and 6).

Moreover, this research investigated the challenges of ERM implementation and its alignment with performance management. The greatest challenges for the Iran's automotive industry regarding ERM and performance management alignment are: inadequate support from senior managers, lack of a stable ERM structure, lack of resources and capabilities, and lack of up-to-date risk history.

The next chapter focuses on this research's conclusions and recommendations for further researches.

## **Chapter 8: Conclusion and recommendation**

### **8.1 Introduction**

Through this chapter, the Researcher demonstrates the contributions to the body of knowledge, and discusses how the research's aims and objectives have been accomplished. In addition, the Researcher draws conclusions from the research outcomes and provides recommendations for future studies in this field. This chapter discusses how this research addressed the literature gap identified in Chapter 3 and responded to the need for more research on aligning ERM with performance management.

This chapter proceeds as follows: research aims and objectives are reviewed in Section 8.2. Research questions along with the key research findings are presented in Section 8.3. The research limitations are discussed in Section 8.4, followed by contribution to literature in Section 8.5. In Section 8.6, the Researcher provides recommendation for further research in the ERM and performance management field. Section 8.7, finishes this research by drawing conclusions from the findings, and provides recommendations on how to implement the framework of ERM alignment with performance management effectively in Iran's automotive industry.

### **8.2 Research aims and objectives**

This section explains the achievement of this research's aims and objectives, which were introduced in Chapter 1 (Sections 1.3, 1.4).

The research aims are:

1- To explore the alignment between ERM and performance management in Iran automotive industry.

2- To develop a framework for the effective alignment of ERM and performance management, supported by practical guidance and recommendations for academics and practitioners, aiming at enhancing organisations' performance management.

This research has achieved both of its aims. The Researcher performed investigations through literature review regarding ERM and performance management definitions, their various frameworks and approaches, and their alignment. By evaluating the existing literature regarding ERM and performance management in Chapter 3, it became evident that researches on ERM and its alignment with performance management are mostly in conceptual and descriptive basis. The researches that were found to have an implementational basis lacked effective guidance regarding such implementation. This paucity of existing implementational researches confirmed that the studies on ERM and its alignment with performance management were under-researched and that further investigation was required. Investigating the literature contributions on ERM, performance management, and their alignment as well as the exploration of literature gap using a Four Quadrant matrix developed by Althonayan (2003), provided the foundation for developing the theoretical framework of aligning ERM with performance management presented in Chapter 3, Figure 3-1. This alignment framework was revised in Chapter 7, Figure 7-1, based on the empirical findings obtained through qualitative and quantitative data collection. Step-by-step guidance regarding the implementation of the validated alignment framework is also provided in Chapter 7, Section 7.4.

The following objectives were set in order to achieve this research's aims.

1- To review various definitions of ERM and performance management and to define a more efficient definition of them.

2- To conduct an in-depth, both general and specific (automotive industry) literature review, and to evaluate existing ERM and performance management frameworks along with their strengths and weaknesses.



3- To investigate the benefits, barriers, and challenges of existing approaches regarding alignment of ERM and performance management in automotive industry of Iran.

4- To explore senior managers' knowledge on ERM and its impact on performance management, and to investigate the importance of their involvement in implementing the alignment between ERM and performance management.

5- To validate the framework aligning ERM with performance management, and discuss its potential benefits and limitations.

Through Chapter 2, the various existing definitions of ERM and performance management were reviewed and more efficient definitions of these terms were provided by the Researcher in Sections 2.2.3 and 2.4. Various approaches of ERM and performance management were investigated through Chapter 2; the barriers and challenges in aligning ERM with organisational performance management were considered and their strength and weaknesses evaluated through Chapter 3. Consequently, relevant factors of existing ERM and performance management approaches were considered in developing the theoretical framework of aligning ERM with performance management.

Ultimately, by identifying the research gap (Chapter 3, Section 3.2), the theoretical framework aligning ERM with performance management was developed in Chapter 3, Figure 3-1, based on a theoretical field study. However, the framework was later informed by the empirical phase of the research and consequently revisions were made to this framework. The empirical research (Chapters 5 and 6) identified the critical internal and external factors influencing the implementation of ERM alignment with performance management. Thus, the findings of the empirical research transformed the theoretical aligning framework into a

validated and practically applicable framework (Chapter 7, Figure 7-1) for the automotive industry of Iran.

The following research questions have been designed to peruse the aims and objectives of this research.

### **8.3 Research questions**

This research's aims and objectives have been pursued through answering five questions, presented in Chapter 1, Section 1.5. Questions 1 and 2 explore the maturity and current state of ERM and its alignment with performance management, along with their challenges of this alignment, and are as follows:

1- Are current ERM approaches of Iran's automotive industry aligned with performance management? If yes, how? If not, why?

To answer the first research question, the existing literature on ERM and performance management approaches along with their strengths and weaknesses, and their effect on each other, were reviewed through Chapter 2. The Researcher then evaluated the existing ERM and performance management approaches in terms of their alignment in Chapter 3 and through using the Four Quadrant Matrix developed by Althonayan (2003). This researcher's theoretical investigation indicates that over last two decades, the volatility and complexity associated with businesses' external and internal environments have shifted organisational focus to seek a more effective risk management approach. Hence, ERM has become a critical component of business sustainability (Mikes and Kaplan, 2013). However, several researchers discuss that ERM merits greater attention and further study in order to find its space in organisations effectively.

In addition, several researches regarding the alignment between ERM and performance management approaches were reviewed (Chapter 2). Researchers such as Beasley *et al.* (2005), Doyle *et al.* (2007), Gordon *et al.* (2009), Hoyt and Liebenberg (2009), Kanhai and Ganesh (2014), and Ping and Muthuveloo (2015) maintain that shareholder value creation,

long-term sustainability, and competitive advantage are the most important aims for organisations, and that these could be achieved through an effective risk management process and its alignment with organisational performance management. However, the majority of the literature reviewed in Chapter 2, Section 2.5, about ERM and performance management alignment is descriptive and conceptual in nature. Such literatures mostly discuss the potential benefits of aligning ERM with performance management rather than providing guidance on how this alignment can be achieved in practice.

The findings of the qualitative empirical research are consistent with the literature findings; interview participants discussed an increased awareness and interest in ERM in their organisations. However, ERM is still in its early stage of implementation in those organisations. More than two-thirds of interviewees (67 percent) stated that though ERM had been in the process of being implemented for over six years in their organisations, this implementation was still in its early stages and required more study. Moreover, 77 percent of participants believed that though ERM had been studied in their organisation for over eight years, the desired results of its implementation had not yet been gained. The results of quantitative research also indicate that 70 percent of respondents claimed either an informal alignment or no alignment between their organisations' ERM and performance management. Therefore, the findings of this research confirm the theoretical and empirical discussions of the academics and industry researchers reviewed in Chapters 2.

The second research question explores the existing challenges and barriers that organisations face in aligning ERM with performance management, to determine how these challenges should be considered and overcome, enabling organisations to move towards effective alignment.

2- What are the barriers and challenges of aligning ERM with performance management in Iran's automotive industry?

It was discussed through the literature that although interest from boards and senior managers on ERM adoption has been increasing in recent decade, they are exposed to some challenges

and difficulties for implementing ERM in their organisations and its effective alignment with organisational initiatives. Therefore, after reviewing and evaluating the existing relevant literature in Chapters 2 and 3, the Researcher accomplished an empirical investigation (analysed in Chapters 5 and 6). This enabled the identification of existing external and internal barriers and challenges faced by Iran automaker organisations in implementing effective ERM and its alignment with performance management.

The qualitative research findings reveal that the most significant challenges about ERM's implementation and its alignment with performance management were: poor understanding of ERM and inadequate support from senior management (73 percent), lack of risk communication (76 percent), insufficient risk data (64 percent), lack of a stable risk infrastructure in the organisation (46 percent), and resistance by managers within the participant organisations to accept the changes (24 percent).

The analysis of the quantitative data identifies the most challenging factors of aligning ERM with performance management as follows: 82 percent emphasised a lack of appropriate guidance, while 80 percent considered lack of sufficient time and resource allocation for the required changes in organisation's structure. Moreover, 63 percent identified a lack of risk and performance communication in the organisational layers, while senior managers' involvement and support was stated by 64 percent as a challenge to this alignment.

The primary research findings are consistent with the outcomes of the review of the existing literature. As discussed in Chapter 2, the most important challenges reported in the literature review were: 1) Poor understanding of ERM and its potential benefits, 2) Lack of knowledge in how to integrate ERM into existing managerial functions, 3) Insufficient risk data quality and lack of appropriate resources for ERM implementation, 4) Lack of an existing dynamic and effective framework for ERM and PM alignment, and 5) Lack of active involvement of senior managers supporting ERM's implementation (Lee and Anderson, 2006; Leggett, 2007, 2008, 2009; Yazid *et al.*, 2011; Gupta, 2011).

As discussed in the literature review, while it is debated by previous studies that aligning ERM with performance management could move organisations towards value creation, long-

term successes and enhanced performance, these studies lack practical guidance and an empirical perspective on implementing the alignment between ERM and performance management. Although organisations' managers are convinced of the potential benefits of this alignment, it is still difficult to perform this concept in practice and to implement its fundamental principles within existing organisational structure.

Therefore, in order to address the gap of the literature, the following three research questions were designed to generate a basis for the framework aligning ERM with performance management (Chapter 3, Figure 3-1), along with a practical guideline for its effective implementation in the automotive industry of Iran.

3- What are the organisational elements critical for Iran's automotive industry in ERM's alignment with performance management? How they are incorporated into the alignment framework?

This question explores the organisational elements influencing the effective alignment of ERM and performance management. Therefore, after evaluating the critical factors explored in the existing literature contributions, a primary research analysis was performed and the findings were analysed in Chapters 6 and 7.

Based on the findings of the qualitative analysis, the most critical factors identified as: a need for continuous internal and external environment monitoring and for appropriate resources and capabilities (100 percent), a need for integrating ERM with strategic planning (87 percent), a need for senior managers' support and active involvement (80 percent), and a need for risk communication across and between all organisational layers (80 percent).

Moreover, based on the quantitative analysis, the significant organisational factors influencing the effective alignment of ERM with performance management were identified by the survey participants as follows: senior managers' strong support of the alignment (85 percent), an effective alignment framework along with practical guidance (89 percent), adequate knowledge and understanding of ERM (88 percent), ERM alignment with

organisations' strategic planning ( 89 percent), stable structure of ERM (77 percent), and appropriate resources and capabilities ( 72 percent).

The next research question explores the potential outcomes and critical aspects of aligning ERM with performance management.

4- How does aligning ERM with performance management lead to long-term sustainability, competitive advantage, and enhanced organisational performance in Iranian automaker organisations?

As discussed in Chapters 5 and 6, the participants of this research were asked about the influence of aligning ERM with performance management in terms of the organisations' sustainability, competitive advantage, and enhanced performance. Participants were also asked about the potential benefits that this alignment could generate for their organisation.

The findings of the empirical research identified the following factors as key drivers of organisational long-term sustainability: 1) establishment of a stable ERM infrastructure, and 2) support of senior managers. The empirical research analysis also indicated that the participants who were ERM experts and had experience in this area stated that ERM would create organisational value and competitive advantage in various ways based on ERM's alignment with the organisational strategic objectives and other managerial functions such as performance management.

The majority of both the qualitative and quantitative research participants believed that the implementation of effective ERM alignment with performance management, supported by the integration and cooperation of those organisational critical elements underpinning the basis of this alignment, would move organisations towards enhanced performance. The Researcher concludes that more researches and further empirical evidence are needed in order

to enable the measurement of outcomes and value produced through ERM's alignment with performance management. Measuring the generated value of ERM implementation and its alignment with performance management could be challenging but it is critical —for organisations' shareholders.

5- How critical is the role of senior managers in the effective implementation of ERM -and its alignment with performance management?

One of the important challenges of aligning ERM with performance management discussed in the existing literature (Chapters 2 and 3), was a lack of adequate involvement and support from senior management. This was also confirmed by the empirical data analysis (Chapters 5 and 6). The majority of research participants stated that senior managements' risk oversight and sponsorship on ERM alignment with performance management is a critical factor, with huge room for improvement. The senior management of this research's participating organisations state that they have adequate knowledge about ERM's content and benefits, and claim that ERM is being implemented in their organisations; however, a traditional view of risk and a silo mind-set prevails in their approach to risk management. This is consistent with literature review discussing that despite increased awareness on ERM benefits, there is a lack of ERM culture in organisations (Kimbrough and Componation, 2009). Transition from risk management's silo mind-set to ERM culture need to start from senior management and move towards whole organisation's layers.

#### **8.4 Research limitations**


This section presents the most significant limitations of this research, affected by matters such as time and resource availability, and access to appropriate information and people.

- The research case study was restricted to one country and one sector

The case study of this research was confined to just one country (Iran) and organisations of one industry (automotive industry). Therefore, further research conducted in another national environment or other industries and/or sectors might result in novel and complementary insights. This would allow researchers to compare the outcomes of the same research in different countries, industries and/or sectors.

- Qualitative nature of research

Researchers such as Silverman (2001) and Creswell (2007) argue that qualitative researches are associated with potential bias as both interviewers and participants interpret the social reality. Therefore, the Researcher adopted a mixed data collection and analysis method in order to minimise the potential bias and limitations associated with semi-structured interviews.

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- Research sample size

This research's data collection sample includes 30 interviews and 101 survey questionnaires. However, the size of this sample is justified by the profession of the selected interview participants, and the context of the case study, which was the automotive industry.

- The Researcher's challenges in organising the interview sessions

It was challenging for the Researcher to obtain the needed information from the case study organisation. The qualitative data collection comprised in-depth interviews, for which the interviewees were required to participate in person. The arranged interview sessions were repeatedly postponed by the subject organisation, for various reasons such as avoiding interruption to participants' work. Moreover, some of the interview sessions were paused due



to urgent matters that required the interviewee's attention. However, the Researcher was able finally to complete the interviews, although it took additional time to that originally planned.

Despite the research limitations discussed above, the adopted data collection and analysis method enabled the Researcher to obtain and validate critical required elements and to identify key concepts. Although the current research was conducted in the context of the automotive industry, it is possible to implement the framework aligning ERM with performance management in other industry sectors. However, the senior management of different industries might need to customise the framework based on their organisational structure.

## 8.5 Research contributions and novelty

Phillips and Pugh (2010) discuss that it is expected from each academic research to contribute to the body of knowledge by providing new theoretical and empirical insights. This research provides the following main contributions to the body of knowledge.

### 8.5.1 Contributions to knowledge and practice

This research responded to the limitations of the previous researches in aligning ERM with performance management.

First, an in-depth review was conducted ~~on-of the~~ different concepts and approaches of ERM and performance management, supported by existing academic literature and the reports ~~stated~~ by practitioners in this research area. This ~~continued by~~ was complemented by the Researcher's investigation on the influence of internal and external factors, and other organisational initiatives on ERM's alignment with performance management. To the best of the Researcher's ~~best-of~~ knowledge, there are ~~a~~ limited researches in the context of the automotive industry ~~sector~~ that have empirically explored the organisational elements critical to ERM's implementation and its alignment with performance management. Although ERM has ~~been receiving~~ gained momentum in the research agenda of practitioners from different fields, ~~however,~~ the majority of researches on ERM have focused on industries with a

financial context (Arena *et al.*, 2012). In recent years, due to increased interest on ERM, a number of researches on ERM have been performed in different industries. ~~H~~; however, ERM's content and its alignment with managerial functions (such as: performance management) in the automotive industry have gained limited attention from researchers. Therefore, this research ~~contributed~~ contributes to the literature through providing new insights on ERM and its alignment with performance management from the perspective of the automotive industry.

Also, previous studies on ERM and its alignment with managerial functions have mostly considered the context of Western countries. Hence, the current research provides a new insight by investigating ERM implementation and its alignment with performance management in as Asian country such as Iran. To the Researcher's best of knowledge, this research is one of the pioneers investigating critical factors and organisational strategies influencing the effective ERM implementation and its alignment with performance management in the country of this research's case study.

Moreover, in response to the limitations of previous studies, this research ~~has contributed~~ s to the existing knowledge by developing a framework aligning ERM with performance management in the automotive industry, ~~that~~ proposed in Chapter 3, Figure 3-1. This framework was validated through case studies and ~~was~~ revised in Chapter 7, Figure 7-1, based on empirical findings (Chapter 5 and 6). The aligning framework provides clear insight ~~of regarding the~~ regarding the interaction of environmental factors and organisational initiatives influencing organisations in the context of their ERM and its alignment with performance management.

In addition, to the knowledge of the Researcher, there is no literature providing practical guidance of ERM alignment with performance management in the automotive industry. Therefore, the novelty of this research and its main contribution to the body of knowledge ~~lies onis in~~ lies in developing a framework for the effective alignment of ERM and performance management in the context of the automotive industry.

–Furthermore, this research contributes to the existing literature by investigating the role of strategic planning and senior management support in effective ERM implementation and its alignment with performance management. In addition, this research contributes to a better understanding of the significant influence of this alignment in the automotive industry’s long-term sustainability and enhanced performance.

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This research also highlights the key benefits and challenges of ERM’s implementation and its alignment with performance management, ~~that~~ identified through the theoretical and empirical exploration of this research. As discussed through literature evaluation in Chapter 3, there is a lack researches offering practical guidance in aligning ERM with performance management in practice. This research’s contributes in providing guidelines for practitioners and senior managers in Iran’s automotive industry in how to implement this alignment effectively.

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### 8.5.2 Contributions to methodology

The key contribution of this research to research methodology is the adoption of a method for empirical data collection and analysis ~~which that~~ has ~~not rarely~~ been applied ~~often~~ into organisational researches on enterprise risk management. Existing researches on organisations’ risk management and especially those which considering ERM implementation, usually rely on quantitative surveys that is associated with some limitations. Survey-based researches on ERM mostly rely on simple proxies to identify the organisational components and their maturity, and neglect the significance of social descriptions and

cultural contexts offered by qualitative research. Moreover, survey-based researches often rely on the views of employees, which are measured on simple scales, depending on their level of familiarity with the subject. This is not sufficient for the investigation of the complexities and organisational embeddedness of ERM. Having recognised the methodological limitations of existing researches in ERM, the Researcher adopted multiple methods of data collection. This enabled a more holistic investigation in this research and provided a better understanding of the structure, nature and maturity of ERM and its alignment with performance management in Iran's automotive industry.

### **8.6 Recommendations and implications for future research**

This research provided new and valuable insights regarding ERM and its alignment with performance management. However, the findings and limitations of this research provide avenues for further researches in this field. As aligning ERM with performance management in the automotive industry is a new research area, there are several issues that are worthy of consideration in future researches.

An in-depth review of the literature reveals a dearth of existing researches on ERM's alignment with performance management. The literature review confirms that those published researches regarding ERM's alignment with performance management have mostly addressed this alignment from a theoretical point of view, with limited empirical supports (Cokins, 2010; Wisutteewong and Rompho, 2015). For instance: previous studies that discuss the potential value of ERM's alignment with performance management do not provide any empirical evidence on whether this alignment creates value for shareholders, drives competitive advantage and long-term sustainability, or enhances organisational performance. The exploratory nature of this research's findings offers a starting point for future studies and investigations in different subject matters and themes relevant to ERM and performance management within or beyond the automotive industry.

The Researcher recommends:

- The further development and implementation of the aligning framework in organisations in other countries, sectors and industries. This would reveal differences in the aligning framework's implementation among other organisations and industries, and would provide data about particular organisational elements and their level of impact on the effective implementation of this alignment in different contexts.
- Future studies in this area could also adopt a more quantitative methodology, associated with a wider sample, enabling the achievement of more generalisable outcomes. This research further recommends further investigation on intangible organisational factors (such as: ERM culture) critical in the effective alignment of ERM with performance management.
- As the ERM field is growing quickly, future studies should continue to identify newly emerging elements and significant factors and correlate them into the current framework.
- It is, moreover, recommended to future researchers to attempt to measure and quantify the value and benefits as well as the shortcomings and weaknesses associated with the implementation of the aligning framework, enabling senior management within organisations to improve the framework's advantage, and to attempt to overcome its limitations.
- Further researches might select to explore some specific factors influencing the alignment framework, in order to gain good understanding of the effects that individual factors could have on the implementation of this alignment.

## 8.7 Final conclusions

This section discusses the conclusions drawn from this research. According to the existing literature, the implementation of ERM and its alignment with organisations' managerial functions has been under investigation during recent years; however, limited researches have been performed exploring ERM's alignment with performance management.

An in-depth literature review indicates that defining ERM and its alignment with organisations' other management functions is a challenging issue for organisations. Boards and senior managers seek to understand ERM's benefits and how to achieve an effective ERM implementation and its integration with other existing management functions (such as: performance management). While managers claim that ERM is understood and implemented in their organisations, a silo mind-set is still embedded in their behaviour in managing their organisational risk issues. Therefore, it is emphasised that organisations first need to break down their silos and incorporate key risk processes into their business before starting their journey towards ERM's alignment with other organisational initiatives.

To the Researcher's knowledge, the alignment of ERM and performance management has been discussed by a small number of studies, and there is a little evidence and guidance on how this alignment can be performed effectively. Also, there is no literature exploring the alignment of ERM with performance management in the automotive industry. While considering the effective implementation of ERM and performance management alignment, it is critical to tackle the identification of potential risks based on the organisational strategic setting and environmental factors. This enables senior management to better understand their organisation's risk context, and to establish an effective ERM and performance management alignment by embedding other elements that have been added to the alignment framework (such as: resources and capabilities, risk communication and central data systems, ERM infrastructure, senior managers' support, and value demonstration to shareholders).

The Researcher acknowledges the complexity and volatility associated with organisations' internal and external factors that might influence the effective implementation of ERM and performance management alignment. Therefore, it is emphasised that organisations' managers must continue identifying and analysing any emerging challenges and direct their concentration towards overcoming and mitigating the main issues in a timely manner.

The Researcher realises that organisations' ability regarding integration of ERM with organisational strategic planning has been also poor. Moreover, research outcomes show that organisations find it difficult to aggregate their risk data properly. Insufficient and fragmented data quality leads to unprofitable risk reporting to senior management. To overcome this challenge, organisations should appoint risk experts and champions in order to promote the ERM initiative. In addition, boards and senior managers have to define risk responsibility and risk tolerance among all organisation levels. Moreover, having established an appropriate risk structure enables organisations to define their most effective approach to ERM and its alignment with performance management. Senior managers should appreciate the significant role of risk committees and CRO in effective ERM implementation. ERM needs to be embedded continuously into an organisation's existing structure rather than relying on periodic risks reporting.

Organisations also admit the shortage of in-house ERM capabilities and expertise. This forces organisations to rely on risk managers and consultants who may have inadequate ERM knowledge. There is also a lack of adequate resources in organisations, which limits their ability in performing effective ERM and impacts ERM alignment with organisational management functions.

Iranian automaker organisations have tried to improve their enterprise risk management after the recent global financial crisis. However, this improvement has not been sufficiently strong to result in the necessary changes in these organisations. ERM in this context is in its early stages and requires further improvement. This research concludes that, there is a need for the establishment of a consistent enterprise risk infrastructure that supports the continuous improvement of ERM. Boards and senior managers should strongly encourage various organisation layers to break down the reluctance of sharing bad news. The ERM mind-set should be improved across the organisation and staff should be encouraged to share and communicate critical organisational risks with their managers.

Lastly, this research shows that senior managers' support of ERM and its alignment with organisational initiatives is insufficient across the automotive industry. The Researcher

concludes that a lack of senior management involvement results in difficulties in ERM awareness and leads to a lack of clarity in the scope of risk management responsibilities among an organisation's layers. This affects the ability of organisations in benefiting from ERM and its alignment with performance management. The Researcher further concludes that effective ERM implementation and its alignment with performance management is contingent on continuous training, learning and improving the knowledge on the ERM field, along with the existence of a stable organisational infrastructure and the strong involvement of senior managers.



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## Appendix

### Appendix A

### Interview Sample

Brunel Business School  
Participant Information Sheet

**Research Title:** Alignment of ERM with Performance Management: The Case Study of Automotive Industry

**Researcher:** Seyedeh Mandana Matin, PhD candidate at Brunel Business School, Brunel University, London UK.

**Contact Email:** [seyedehmandana.matin@brunel.ac.uk](mailto:seyedehmandana.matin@brunel.ac.uk)

**Research purpose:** This research aims to investigate the subject of enterprise risk management and its alignment with Performance Management.

**What is involved:** This research involves semi-structured interviews which takes around 30-45 minutes. The participants will be asked 12 questions about Enterprise Risk Management and its Alignment with Performance Management in interviewees' organisation.

**Voluntary and confidentiality:** All collected information from participants remains anonymous and confidential. However the Research might only reveal the positions held by the interviewees within mentioning their name. The confidential data will be accessible to the

university. Participating in the research is voluntary and interviewees have right to terminate their involvement at any time or reject to answer any questions that they feel uncomfortable with. Participants could ask any questions they might have regarding the research.

### **Alignment of ERM with Performance Management: The case study of Automotive Industry**

Date: 26<sup>th</sup> Dec 2015

Time: 09:15 AM

Location: In the organisation, the interviewees' office

Code of the Interviewee: R7

#### **Section A: Descriptive profile**

1- How many years of experience do you have on ERM?

2- What is your seniority level in the organisation you work?

3- In which organisational area are working at the moment?

\*As explained in Chapter 5 Subsection 5.6.2.2, the above three questions were asked from the interview candidates before selecting them to participate in this research. Therefore, in the date of interview, the questions started from section B.

#### **Section B: ERM**

1- What is the difference between traditional risk management and Enterprise risk management? Could silo risk management be transferred to ERM effectively? How?

TRM is a silo approach of individual risk management which has massive shortcomings in today's businesses. ERM however, is a holistic risk management approach which gathers all potential risks of a business under one umbrella and manages them in an ongoing process and constant process. If an organisation wishes to remain sustainable, it has no option rather than adjust itself with continual changes and volatilities. An effective way of this aim is adopting and implementing ERM. However, deciding to move from silo risk management to holistic risk management approach is not something that could be done on one day and through taking some steps. There are actually many requirements that an organisation must consider in order to be able to move towards this aim. Imaging different departments in an organisation used to deal with some specific risks related only to their tasks without sharing it with other departments. So, the first thing is the need for establishing a clear structure of ERM in the organisation and setting up a committee with professional members who have accurate control on organisation's risky matters in all layers and departments. Another important matter is introducing the new concept to the members and making them aware of the benefits and peruses of the new structure in the organisation. This provides the medium of starting the changes in organisation's risk management along with high cooperation of all members. Senior management play the most significant role in supporting the adoption and implementation of this process. It is important to note that ERM is not a process that could be adopted and implemented individually. Indeed, it must be integrated with the existing process of organisation. I mean, ERM should be aligned and perform based on organisational aims and objective. This process is a time consuming process and sometimes costly as it needs change in current structure of the organisation.

2- How did Iran automotive industry change its risk management approach after GFC?

What need to be done in order to improve automotive industry's risk management?

The global financial crisis was a big hint to senior managers. They actually realized that the approach they were following was not enough anymore with the increasing volatility

around the world. They realized that they were many things that they were not paying attention to. In my opinion global financial crisis was a big sign of organisations' weak risk management. In our organisation also it's the same story. Financial crisis pushed us to consider our risk management more carefully and seek to find a way for better management of things that could have massive harms in our sustainability. Since 2007, we have taken important steps toward enterprise risk management. Automotive industry and its subsidiaries have established specific risk management departments and committees with the purpose to improve their risk management knowledge and generate a powerful risk management structure. They have been seeking to employ professional members who have good knowledge in ERM area. Our organisation is trying to improve its risk management day by day but we admit that we still have long way to go in order to claim that we have effective ERM implemented in our organisation.

3- Has your organisation implemented ERM? What is the maturity level of your ERM?

Yes, in recent years. organisation's CEO's formed a specific risk committee consisting of all senior managers of different departments plus capable consultants with related knowledge and risk experience. This committee is now working for more than 7 years and I am also a member of this committee. This committee has done comprehensive research on ERM and has developed an organisational ERM framework which is used to manage the organisational risks effectively. But as explained in your first question, this is a time consuming process and needs time to settle properly. ERM in our organisation is currently passing its early stage.

4- What are the reasons of ERM immaturity in your organisation?

ERM is relatively a new concept and requires a lot of study and research to be understood well. As organisations have structured based on silo risk management, it is not very easy to change the structure of such a big organisation within a few years. First the organisations need to allocate appropriate resources and capabilities such as: investment for ERM knowledge improvement among senior managers and hiring knowledgeable people. Changing the whole structure of the organisation is also costly. I

think we have not yet allocated needed resources and capabilities for this purpose. Another important thing is to change silo mind-set of senior management. It is not enough to install a new system in an organisation. In fact, if a new process or function is being applied in the organisation, that function's culture also needs to be integrated along with the process itself. Moreover, in last few years, we have been involved with some external disaster (sanction) that has disturbed all our organisational functions and ERM is not exceptional.

5- Does your organisation apply any common universal framework of ERM? Please explain.

I cannot say that we have exactly adopted and copying one of the universal frameworks. When our risk management committee established, for several months our risk management members' job was to study and compare the available universal ERM frameworks. The outcome of all researches was developing an ERM framework which meets our organisation's need. It more or less have all critical aspects of an ERM framework with little differences.

6- What are the challenges of ERM implementation in your organisation? To what extend the below factors considered as challenges of ERM implementation?

- Senior managers' weak understanding of ERM concepts and its benefits
- Insufficient risk history existing in your organisation
- Reluctance and resistant towards changes
- Lack of risk communications
- Lack of stable risk management structure

They are number of challenges that have prevented our fast progress in effective ERM implementation. They are many factors that are involved and considered as the challenges of ERM implementation. As discussed, senior management play the most significant role in effective implementation of ERM. This is true, senior managers show that they are supporting ERM implementation but in reality they still follow the passive risk management approach in many cases. Having access to organisation's risk history is

one of the requirements of ERM success; however, this is truly a problem in our organisations. We indeed have no recorded history of our risks and this and this pushes us back to keep repeating some mistakes again and again. Members resistant towards change also exist as a challenge in our organisation. I believe that if we do not have ability to make our staff and members aware of the benefits of the changes we can't get their highest cooperation. We need to remember that our employees play an important role in our organisation's success, so, it is very critical to make them follow the organisation's structure properly.

### **Section C: Aligning ERM with Performance Management**

1- Do you believe that aligning ERM with organisation's performance management would result to enhanced performance? Why?

Of course, I think aligning ERM with organisation's performance management is necessary in having successful business. If an organisation has its performance management without consideration of the risks associated with organisational objectives, it cannot be successful and survive for long term. Aligning ERM with performance management helps the organisation to take the right action towards its aims and objectives and expect the achievement of its goal to the maximum level. Organisations that seeking increased performance and looking for long-term sustainability need to align their risk management function with their aims and objectives and performance management. If these three are not aligned always something will go wrong. Because these three managerial functions are all attempting to reach the same aim, and that aim is organisations increase profitability and sustainability.

2- What are the benefits of ERM and performance management alignment? Does this alignment result to organisation's long-term sustainability, competitive advantage, shareholder value creating, and enhanced performance?

Organisations are vulnerable with the external and internal events that might affect their aim achievement. It does not matter how much you plan for your organisation's prosperity, it is important to have appropriate tools to reach your plans. Its every organisation's aim to gain long term sustainability and competitive advantage but why many organisations fall down after few or several years? this is because of choosing and following the wrong managerial functions. Leaving organisational threats and not paying attention to them in time and in suitable manner results to heavy compensations for organisations. It is critical to apply the right management when you aim to reach shareholders value, competitive advantage and so on. When organisation's ERM and performance management and strategic objectives are moveing towards a same direction, the organisation is able to manage the risks that jeopardize its performance management. Aligning ERM and performance management enables the organisation's sustainability, competitive advantage and consequently will results to enhanced performance.

3- What is the status of ERM and performance management alignment in your organisation?

Do you have your ERM and performance management aligned? If yes, how?

Not really, our organisation does not have a structured and organised process aligning ERM with performance management. It is better to explain it this way that for any project that we plan to do, we consider both the matters and align that projects' risk management with its performance management. But we do not have or follow any established form of aligning ERM and performance management. Indeed, for each project we individually align the risk management with performance management. we definitely asses and measure the risks of any action before taking it but not in a formal manner.

4- How important is senior managers' support in aligning ERM with organisational performance management?

Of course senior managers 'support and involvement is the most important thing that is needed for any decision and action made in organisation. Without senior management approval nothing can be processed. For sure for such an important process (aligning ERM

with performance management) a strong support of senior management is critical. Its senior management involvement which provides the suitable medium or awareness of benefits that this alignment could have. Indeed, senior management establishes the appropriate structure for understanding the concept and the requirements of its implementation in the organisation.

5- How important is the role of strategic planning in effective alignment of ERM and performance management?

Strategic planning identifies the direction that a business should follow. Indeed, this is strategic planning's job to determine the aims and objective of an organisation. This will enable the managers to know which they are seeking to achieve and identify the probable risks that might prevent them in achieving their aims. So, we can explain that this is strategic planning that guides an organisation's managers to identify the risks based on their objectives set for the organisation. After identifying the potential risk through the ERM process, then the performance management plans which tasks, by who, and how should be done in order to move the organisation toward objective achievement. Therefore, integrating ERM with organisational strategic objective is a must. Without integrating ERM into strategic planning, managers can not realize the identify the critical risks related to their objective and this might harm the organisation and wasting the time and resources in focusing on the risks which are not important and ignoring those which are critical for organisation's sustainability.

6- How significant is the role of internal and external environment analysis as well as role of risk communication in effective ERM and performance management alignment?

In order to get the right awareness of what is happening around a continuous internal and external analysis is necessary. Organisations need to have well understanding of what is going on internally and externally in order to identify any events that could be a threat or an opportunity for them. An ERM could not function properly, unless it's got a clear image of organisations environment. Having a good awareness of external an internal environment enables the better management of risks and effective movement towards objective achievement.



Regarding risk communication, this is a pre requirement of an ERM process. ERM is all about sharing and communicating the risks among whole organisation. ERM means breaking the silos and gathering all risk experiences together in order to solve them more effectively. Without communicating the risk experiences, organisations will not be able to identify and manage the risks successfully. Not being able to identify the critical risks will affect the organisation's performance management.

#### 7- How important resource and capabilities are in effective alignment of ERM and PM?

There is a need for specific resources and capabilities, for establishing and implementing any process in an organisation. Of course for such an important and critical process of aligning ERM with performance management, organisation need to allocate particular resources such as: appropriate time and budget for training and improving ERM and performance knowledge, employing capable and professional members who are expert in this area, time and cost of changing the existing structure (if is needed) and many more. These all are needed in order to have a successful and effective implementation. For example in our organisation, we need to reform our organisational structure to be able to adopt this alignment. This process takes time and needs several resources which I explained to get the process accomplished. Without allocating suitable resources and hiring expert and knowable people this process will not gain the desirable result.

**Appendix B****Qualitative data analysis****Section A: Descriptive Profile (Interview)**

| <b>Appendix B</b>  |                        |                  |                   |
|--------------------|------------------------|------------------|-------------------|
| <b>Table B - 1</b> |                        |                  |                   |
| <b>No</b>          | <b>ERM experience</b>  | <b>Frequency</b> | <b>Percentage</b> |
| 1                  | Between 10 to 15 years | 24               | 80%               |
| 2                  | Between 5 to 10 years  | 6                | 20%               |
| Total              |                        | 30               | 100%              |

| <b>Appendix B</b>  |                                 |                  |                   |
|--------------------|---------------------------------|------------------|-------------------|
| <b>Table B - 2</b> |                                 |                  |                   |
| <b>No</b>          | <b>Organisational seniority</b> | <b>Frequency</b> | <b>Percentage</b> |
| 1                  | Senior Manager                  | 18               | 60%               |
| 2                  | C-suite Manager                 | 10               | 33%               |
| 3                  | Middle Manger                   | 2                | 7%                |
| Total              |                                 | 30               | 100%              |

| <b>Appendix B</b>  |                            |                  |                   |
|--------------------|----------------------------|------------------|-------------------|
| <b>Table B - 3</b> |                            |                  |                   |
| <b>No</b>          | <b>Organisational area</b> | <b>Frequency</b> | <b>Percentage</b> |
| 1                  | Direct ERM experience      | 26               | 86%               |
| 2                  | Indirect ERM experience    | 4                | 14%               |

|       |    |      |
|-------|----|------|
| Total | 30 | 100% |
|-------|----|------|

**Section B: ERM (Interview)**

| <b>Appendix B</b>    |                                         |           |            |
|----------------------|-----------------------------------------|-----------|------------|
| <b>Table B - 4.1</b> |                                         |           |            |
| No                   | Possibility of RM transformation to ERM | Frequency | Percentage |
| 1                    | Yes                                     | 16        | 56%        |
| 2                    | Partially                               | 10        | 30%        |
| 3                    | No                                      | 4         | 14%        |
| Total                |                                         | 30        | 100%       |

| <b>Appendix B</b>    |                                               |           |            |
|----------------------|-----------------------------------------------|-----------|------------|
| <b>Table B - 4.2</b> |                                               |           |            |
| No                   | Effective transformation from RM to ERM       | Frequency | Percentage |
| 1                    | Senior managers' involvement and support      | 22        | 73%        |
| 2                    | Clear ERM structure and guidance              | 21        | 70%        |
| 3                    | ERM knowledge and culture                     | 20        | 67%        |
| 4                    | Development of ERM committee                  | 18        | 60%        |
| 5                    | Appropriate resources and capabilities        | 16        | 53%        |
| 6                    | ERM alignment in to core management functions | 12        | 40%        |

**Appendix B**

| <b>Table B - 5</b> |                                                                  |                  |                   |
|--------------------|------------------------------------------------------------------|------------------|-------------------|
| <b>No</b>          | <b>Influence of GFC on automotive industry's risk management</b> | <b>Frequency</b> | <b>Percentage</b> |
| 1                  | Yes                                                              | 5                | 16%               |
| 2                  | Partially                                                        | 22               | 74%               |
| 3                  | No                                                               | 3                | 10%               |
| Total              |                                                                  | 30               | 100%              |

| <b>Appendix B</b>    |                                                          |                  |                   |
|----------------------|----------------------------------------------------------|------------------|-------------------|
| <b>Table B – 6.1</b> |                                                          |                  |                   |
| <b>No</b>            | <b>ERM implementation in automotive industry of Iran</b> | <b>Frequency</b> | <b>Percentage</b> |
| 1                    | Yes                                                      | 8                | 27%               |
| 2                    | Partially                                                | 20               | 67%               |
| 3                    | No                                                       | 2                | 6%                |
| Total                |                                                          | 30               | 100%              |

| <b>Appendix B</b>    |                                                    |                  |                   |
|----------------------|----------------------------------------------------|------------------|-------------------|
| <b>Table B – 6.2</b> |                                                    |                  |                   |
| <b>No</b>            | <b>ERM maturity in automotive industry of Iran</b> | <b>Frequency</b> | <b>Percentage</b> |
| 1                    | Mature ERM                                         | 7                | 23%               |
| 2                    | Immature ERM                                       | 23               | 77%               |
| Total                |                                                    | 30               | 100%              |

| <b>Appendix B</b>  |                                                         |                  |                   |
|--------------------|---------------------------------------------------------|------------------|-------------------|
| <b>Table B - 7</b> |                                                         |                  |                   |
| <b>No</b>          | <b>Reasons of ERM immaturity in automotive industry</b> | <b>Frequency</b> | <b>Percentage</b> |

|   |                                                                 |    |     |
|---|-----------------------------------------------------------------|----|-----|
| 1 | Time consuming process for huge organisations                   | 18 | 60% |
| 2 | Lack of ERM culture                                             | 19 | 63% |
| 3 | Need for sufficient financial resources                         | 21 | 70% |
| 4 | Senior management support                                       | 21 | 70% |
| 5 | Need for more study and awareness on ERM concept implementation | 22 | 75% |
| 6 | Sanction problem for over two years and half                    | 23 | 77% |

| <b>Appendix B</b>  |                                                              |                  |                   |
|--------------------|--------------------------------------------------------------|------------------|-------------------|
| <b>Table B - 8</b> |                                                              |                  |                   |
| <b>No</b>          | <b>ERM challenges in automotive industry of Iran</b>         | <b>Frequency</b> | <b>Percentage</b> |
| 1                  | Senior managers poor support of effective ERM implementation | 22               | 73%               |
| 2                  | Sufficient organizational risk history                       | 19               | 64%               |
| 3                  | Reluctance and resistant to move towards changes             | 7                | 24%               |
| 4                  | Lack of organizational risk communication                    | 23               | 76%               |
| 5                  | Absence of an stable risk structure                          | 14               | 46%               |

**Section C: Development of ERM and performance management alignment framework**

**(Interview)**

| <b>Appendix B</b>  |                                            |                  |                   |
|--------------------|--------------------------------------------|------------------|-------------------|
| <b>Table B - 9</b> |                                            |                  |                   |
| <b>No</b>          | <b>Importance of ERM alignment with PM</b> | <b>Frequency</b> | <b>Percentage</b> |
| 1                  | Critical                                   | 10               | 35%               |
| 2                  | Very Important                             | 11               | 37%               |
| 3                  | Important                                  | 6                | 20%               |
| 4                  | Slightly important                         | 3                | 8%                |
| Total              |                                            | 30               | 100%              |

| <b>Appendix B</b>   |                                             |                  |                   |
|---------------------|---------------------------------------------|------------------|-------------------|
| <b>Table B - 10</b> |                                             |                  |                   |
| <b>No</b>           | <b>Benefits of ERM &amp; PM alignment</b>   | <b>Frequency</b> | <b>Percentage</b> |
| 1                   | Shareholder Value and competitive advantage | 16               | 54%               |
| 2                   | Risk adjusted decision making               | 18               | 60%               |
| 3                   | Well preparation for future volatilise.     | 19               | 64%               |
| 4                   | Long-term sustainability                    | 19               | 64%               |
| 5                   | Enhanced performance                        | 25               | 84%               |
| 6                   | Aim and objective achievement               | 26               | 87%               |

| <b>Appendix B</b>   |                                                                    |                  |                   |
|---------------------|--------------------------------------------------------------------|------------------|-------------------|
| <b>Table B - 11</b> |                                                                    |                  |                   |
| <b>No</b>           | <b>ERM &amp; PM alignment state in automotive industry of Iran</b> | <b>Frequency</b> | <b>Percentage</b> |
| 1                   | Yes                                                                | 1                | 3%                |
| 2                   | No                                                                 | 29               | 97%               |
| Total               |                                                                    | 30               | 100%              |

| <b>Appendix B</b>   |                                                                        |                  |                   |
|---------------------|------------------------------------------------------------------------|------------------|-------------------|
| <b>Table B - 12</b> |                                                                        |                  |                   |
| <b>No</b>           | <b>Importance of senior management support on ERM&amp;PM alignment</b> | <b>Frequency</b> | <b>Percentage</b> |
| 1                   | Critical                                                               | 24               | 80%               |
| 2                   | Very Important                                                         | 4                | 14%               |
| 3                   | Important                                                              | 2                | 6%                |
| Total               |                                                                        | 30               | 100%              |

| <b>Appendix B</b>   |  |
|---------------------|--|
| <b>Table B - 13</b> |  |

| No    | Level of Strategic Planning importance on ERM&PM alignment | Frequency | Percentage |
|-------|------------------------------------------------------------|-----------|------------|
| 1     | Critical                                                   | 26        | 87%        |
| 2     | Very Important                                             | 4         | 13%        |
| Total |                                                            | 30        | 100%       |

| <b>Appendix B</b>     |                                                            |           |            |
|-----------------------|------------------------------------------------------------|-----------|------------|
| <b>Table B – 14.1</b> |                                                            |           |            |
| No                    | Level of Risk Communication importance on ERM&PM alignment | Frequency | Percentage |
| 1                     | Critical                                                   | 8         | 27%        |
| 2                     | Very Important                                             | 16        | 53%        |
| 3                     | Important                                                  | 3         | 10%        |
| 4                     | Slightly important                                         | 3         | 10%        |
| Total                 |                                                            | 30        | 100%       |

| <b>Appendix B</b>     |                                                                                    |           |            |
|-----------------------|------------------------------------------------------------------------------------|-----------|------------|
| <b>Table B – 14.2</b> |                                                                                    |           |            |
| No                    | Level of Internal and External environment analysis importance on ERM&PM alignment | Frequency | Percentage |
| 1                     | Critical                                                                           | 30        | 100%       |
| 2                     | Very Important                                                                     | 0         | 0          |
| 3                     | Important                                                                          | 0         | 0          |
| 4                     | Slightly important                                                                 | 0         | 0          |
| Total                 |                                                                                    | 30        | 100%       |

| <b>Appendix B</b>   |                                                                                |                  |                   |
|---------------------|--------------------------------------------------------------------------------|------------------|-------------------|
| <b>Table B – 15</b> |                                                                                |                  |                   |
| <b>No</b>           | <b>Level of Resource &amp; Capabilities importance on ERM&amp;PM alignment</b> | <b>Frequency</b> | <b>Percentage</b> |
| 1                   | Critical                                                                       | 30               | 100%              |
| 2                   | Very Important                                                                 | 0                | 0                 |
| 3                   | Important                                                                      | 0                | 0                 |
| 4                   | Slightly important                                                             | 0                | 0                 |
| Total               |                                                                                | 30               | 100%              |

## Appendix C

## Research Questionnaire Survey

Brunel Business School

Participant Information Sheet

**Research Title:** Alignment of ERM with Performance Management: The Case Study of Automotive Industry

**Researcher:** Seyedeh Mandana Matin, PhD candidate at Brunel Business School, Brunel University, London UK.

**Contact Email:** seyedehmandana.matin@brunel.ac.uk

**Research purpose:** This research aims to investigate the subject of Enterprise Risk Management and the key organisational factors enabling ERM alignment with Performance Management.

**What is involved:** This research involves quantitative survey questionnaires including 26 questions focusing on risk management, Enterprise Risk Management and Performance Management. Answering this survey takes 10 to 20 minutes.

**Voluntary and confidentiality:** All collected information from participants remains anonymous and confidential. However the Research might only reveal the positions held by the interviewees within mentioning their name. The confidential data will be accessible to the university. Participating in this research survey is voluntary and respondents have right to



terminate their involvement at any time or reject to answer any questions that they feel uncomfortable with.

Please fill the question below

I have read and understood the above information. I agree to participate in this research and for the collected data to be used by the Researcher as specified.

- Yes, I agree (continue to fill the questionnaire)
- No, I do not agree (Stop and return the form)

**Section A: Descriptive profile (Survey)**

1- For how long have you been involved in enterprise risk management?

- No experience in ERM
- Less than 5 years
- Between 5 to 10 years
- More than 10 years

2- What is your organisational position?

- Risk Manager
- ERM Manager
- C-Suite
- Accounting and Finance manager

- Business Manager
- Consultant
- Other, *Please specify:* .....

3- Which level of seniority applies to you?

- Top Management
- Middle Management
- Senior Management
- Operation Management
- Entry Level
- Other, *Please specify*.....

**Section B: ERM (Survey)**

4- Are you Familiar with ERM concept?

- Yes
- No, *Please skip to Q. 15*

5- Please rate the level of your ERM knowledge

- Excellent
- Very Good
- Good
- Fair
- Poor *Please skip to Q. 15*

6- Has your origination implemented ERM?

- Yes
- No *Please skip to Q. 11*

7- Are you directly involved in the process of ERM? In which section?

- Monitoring Stage
- Validation Stage
- Identification and Specification
- Development Stage
- Planning and Design Stage
- Implementation Stage
- All Stages
- No Direct Involvement
- Other, *Please specify:* .....

8- What is current state of ERM in your organisation?

- Undeveloped
- Currently developing the ERM concept and application, not finalize yet
- Informal ERM in place, it needs more study and investigation
- Partial ERM implementation in place, it needs more progress
- Developed formal ERM in place
- No ERM in place

9- Which scope of risks does your organisation's ERM cover?

- Strategic Risks                       IT Risks                       Operational Risks
- Market Risks                       Regulatory Risks                       All mentioned
- Other, *Please specify*: .....

10- What is the maturity level of your organisation's ERM?

- Undeveloped                       Formalised
- Established                       Strategic
- Optimized                       No ERM in place

\*Undeveloped –no ERM structured approach in place  
Formalized –ERM framework in place but partially implemented among the organisation  
Established – A formal ERM framework in place  
Optimised – A structured ERM framework in place along with continual improvement  
Strategic - A well-defined ERM aligned with strategic and other functions

11- Please rate the level of your organisation's senior management's support of ERM.

- Excellent                       Very good                       Good
- Fair                       Poor

12- Please rate the importance of below factors in effective ERM implementation.

|                                   | Critical                 | Very Important           | Important                | Slightly Important       | Unimportant              |
|-----------------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| Senior management support         | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| ERM framework                     | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Risk management knowledge         | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Resource and capabilities         | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Reforming management structure    | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Risk communication                | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| INT& EXT environmental monitoring | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Strategic planning                | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

- Please indicate which of the above factors are implemented in your organisation's ERM process?

- |                                                            |                                                    |
|------------------------------------------------------------|----------------------------------------------------|
| <input type="checkbox"/> Senior management support         | <input type="checkbox"/> ERM framework             |
| <input type="checkbox"/> Risk management knowledge         | <input type="checkbox"/> Resource and capabilities |
| <input type="checkbox"/> Reforming management structure    | <input type="checkbox"/> Risk communication        |
| <input type="checkbox"/> INT& EXT environmental monitoring | <input type="checkbox"/> Strategic planning        |
| <input type="checkbox"/> All above                         |                                                    |

13- What are the advantages of effective ERM implementation?

- Optimised business cost
- Improve business performance

- Better preparation for future volatility
- Enabling aim and objective achievement
- Increased shareholders value& competitive advantages
- Risk adjusted decision making
- Long term success and sustainability
- All above

14- In which area ERM is most likely to create value for your organisation?

|                                                    | Definitely occur         | Very likely to occur     | likely to occur          | might occur              | will not occur           |
|----------------------------------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| Better regulatory compliance                       | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Improved control on unexpected issues              | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Cost reduction and competitive advantage           | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Strategic view of organisational risks             | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Increased ability of seniors to solve risky issues | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

**Section C: Traditional Risk Management (Survey)**

15- What is the definition of risk management in your organisation?

- Identification and managing internal and external risks that might have negative or positive effect on origination's aims and objectives
- Some risk terms are applied but not communicated clearly among the organisation

Other, please explain: .....

16- Does your organisation apply any risk framework?

- A risk management framework has been designed by organisation's risk management team and it in place
- Each department has got its own risk management framework
- Free form risk management approach is in place
- Other, please explain: .....

17- Please choose all that applied in your organisation.

- Risk committee and chief risk officer oversight
- Senior management support and involvement in risk management
- Aligned risk management with performance management
- Constant monitoring of internal and external environment and considering them in organizational strategic planning
- All above
- Other, please explain: .....

18- Which of the below actions you organisation took after Global Financial Crisis in order to improve its risk management?

- Establishment of risk management committee
- Employment of expert and skilled members in board and risk management committee
- Improved risk reporting to boards and senior management

Reformed risk management structure of organisation

Other, *please explain:* .....

19- What are the reasons of not implementing ERM in your organisation?

Lack of accurate understating of ERM advantage

Lack of appropriate support and involvement of senior managers

Lack of enough allocated time and resource

Organisation's Members' resistance agenised changes

Other, *please explain:* .....

**Section D: Developing a framework of aligning ERM with performance management**

**(Survey)**

20- Are your organisation's ERM and performance management aligned?

No

Yes, completely

It's in the basic stages of alignment

It's under investigation

There is informal alignment under process

Other, *please explain:* .....

21- What are the benefits of aligning ERM with performance management?

Enabling organisation's objective achievement

- Risk adjusted decision making
- Organisational long term success and sustainability
- Well preparation for future volatility
- Competitive advantage and increased shareholder value
- Enhanced business performance
- All above
- Other, *please explain:* .....

22- Please rate the importance of each above potential benefits for your organisation.

|                                                       | Critical                 | Very Impotent            | Important                | Slightly Importan        | Not Important            |
|-------------------------------------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| Risk adjusted decision making                         | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Competitive advantage and increased shareholder value | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Enhanced business performance                         | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Well preparation for future volatility                | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Organizational objective achievement                  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Organizational long term success and sustainability   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

23- What are the main challenges of ERM alignment with performance management in you organisation? (*Please select all applicable*).

- Lack of appropriate alignment instruction
- Lack of senior management support
- Lack of understanding the benefits of this alignment



- Lack of risk and performance communication
- Lack of enough time allocated for this process
- Lack of suitable resources and capabilities
- Other, *please explain:* .....

24- Which of the following factors are critical in developing an effective alignment between ERM and performance management? (*Please select all applicable*).

- Senior management support
- Appropriate resources and capabilities
- Effective alignment Framework
- ERM and Performance Management integration with strategic objectives
- Risk and performance management communication among the organisation
- Constant internal and external environment monitoring
- Consolidate enterprise risk management infrastructure
- All above
- Other, *please explain:* .....

25- Please rate the importance of above factors in developing an effective alignment between ERM and performance management.

Critical    Very impotent    Important    Slightly important    Not important

|                                  |                          |                          |                          |                          |                          |
|----------------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| Effective alignment<br>Framework | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
|----------------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|

|                                                                      |                          |                          |                          |                          |                          |
|----------------------------------------------------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| Senior management support                                            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Appropriate resources And Capabilities                               | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| ERM and Performance Management integration with strategic objectives | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Risk and performance management communication among the organisation | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Constant internal and external environment monitoring                | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Consolidate enterprise risk and performance infrastructure           | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| All of the mentioned factors                                         | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

26- Which benefits do you expect from an effective Alignment Framework implementation in your organisation?

- Enhanced business performance and effectiveness
- Enabling long term success & sustainable profitability for organisation
- Optimized risk and performance cost
- Organisation's aim and objective achievement
- Shareholder value creation& competitive advantage
- All above

Other, please explain: .....

**Appendix D**

**Quantitative data analysis**

|             |                                    |                  |                   |
|-------------|------------------------------------|------------------|-------------------|
| Appendix D  |                                    |                  |                   |
| Table D - 1 |                                    |                  |                   |
|             | <b>ERMEXP-1</b>                    |                  |                   |
| <b>No</b>   | <b>Respondents' ERM experience</b> | <b>Frequency</b> | <b>Percentage</b> |
| 1           | No experience in ERM               | 2                | 2%                |
| 2           | Less than 5 years                  | 8                | 8%                |
| 3           | Between 5 to 10 years              | 24               | 24%               |
| 4           | More than 10 years                 | 67               | 66%               |
| Total       |                                    | 101              | 100%              |

|             |                                             |                  |                   |
|-------------|---------------------------------------------|------------------|-------------------|
| Appendix D  |                                             |                  |                   |
| Table D - 2 |                                             |                  |                   |
|             | <b>ERMPOS</b>                               |                  |                   |
| <b>No</b>   | <b>Respondents' organisational position</b> | <b>Frequency</b> | <b>Percentage</b> |
| 1           | Risk Manager                                | 33               | 33%               |
| 2           | C-Suite                                     | 19               | 19%               |
| 3           | Business Manager                            | 3                | 3%                |
| 4           | Accounting and Finance manager              | 3                | 3%                |
| 5           | Consultant                                  | 12               | 11%               |
| 6           | ERM Manager                                 | 31               | 31%               |
| Total       |                                             | 101              | 100%              |

|             |               |  |  |
|-------------|---------------|--|--|
| Appendix D  |               |  |  |
| Table D - 3 |               |  |  |
|             | <b>ERMSEN</b> |  |  |

| No    | Respondents' level of seniority | Frequency | Percentage |
|-------|---------------------------------|-----------|------------|
| 1     | Senior Management               | 24        | 24%        |
| 2     | Top Management                  | 37        | 36%        |
| 4     | Middle Management               | 28        | 28%        |
| 4     | Operation Management            | 5         | 5%         |
| 5     | Entry Level                     | 2         | 2%         |
| 6     | Other                           | 5         | 5%         |
| Total |                                 | 101       | 100%       |

| Appendix D    |                              |           |            |
|---------------|------------------------------|-----------|------------|
| Table D - 4   |                              |           |            |
| <b>ERMFAM</b> |                              |           |            |
| No            | Respondents' ERM familiarity | Frequency | Percentage |
| 1             | Yes                          | 94        | 93%        |
| 2             | No                           | 7         | 7%         |
| Total         |                              | 101       | 100%       |

| Appendix D     |                            |           |            |
|----------------|----------------------------|-----------|------------|
| Table D - 5    |                            |           |            |
| <b>ERMKNOW</b> |                            |           |            |
| No             | Respondents' ERM knowledge | Frequency | Percentage |
| 1              | Excellent                  | 25        | 25%        |
| 2              | Very good                  | 20        | 20%        |
| 3              | Good                       | 33        | 33%        |
| 4              | Fair                       | 12        | 11%        |
| 5              | Poor                       | 4         | 4%         |
| 6              | Not familiar               | 7         | 7%         |
| Total          |                            | 101       | 100%       |

|               |  |  |  |
|---------------|--|--|--|
| Appendix D    |  |  |  |
| Table D - 6   |  |  |  |
| <b>ERMIMP</b> |  |  |  |

| No    | Has your organisation implemented ERM? | Frequency | Percentage |
|-------|----------------------------------------|-----------|------------|
| 1     | Yes                                    | 84        | 83%        |
| 2     | No                                     | 6         | 6%         |
| 3     | Not familiar                           | 11        | 11%        |
| Total |                                        | 101       | 100%       |

| Appendix D  |                                                        |           |            |
|-------------|--------------------------------------------------------|-----------|------------|
| Table D - 7 |                                                        |           |            |
| ERMEXP-2    |                                                        |           |            |
| No          | Have you got any experience of direct ERM involvement? | Frequency | Percentage |
| 1           | Identification and Specification                       | 6         | 6%         |
| 2           | Planning and Design Stage                              | 10        | 10%        |
| 3           | Implementation Stage                                   | 21        | 21%        |
| 4           | Monitoring Stage                                       | 5         | 4%         |
| 5           | Development Stage                                      | 8         | 8%         |
| 6           | Validation Stage                                       | 5         | 5%         |
| 7           | No Direct Involvement                                  | 16        | 16%        |
| 8           | All stages                                             | 30        | 30%        |
| Total       |                                                        | 101       | 100%       |

| Appendix D  |                                                                         |           |            |
|-------------|-------------------------------------------------------------------------|-----------|------------|
| Table D - 8 |                                                                         |           |            |
| ERMSTS      |                                                                         |           |            |
| No          | What is the current state of ERM in your organisation?                  | Frequency | Percentage |
| 1           | Undeveloped                                                             | 4         | 4%         |
| 2           | Currently developing the ERM concept and application, not finalized yet | 0         | 0%         |
| 3           | Informal ERM in place, it needs more study and investigation            | 8         | 7%         |

|       |                                                             |     |      |
|-------|-------------------------------------------------------------|-----|------|
| 4     | Partial ERM implementation in place, it needs more progress | 73  | 73%  |
| 5     | Developed formal ERM in place                               | 3   | 3%   |
| 6     | No ERM in place                                             | 2   | 2%   |
| 7     | Not familiar with ERM                                       | 11  | 11%  |
| Total |                                                             | 101 | 100% |

|                |                                                                 |                  |                   |
|----------------|-----------------------------------------------------------------|------------------|-------------------|
| Appendix D     |                                                                 |                  |                   |
| Table D - 9    |                                                                 |                  |                   |
| <b>ERMSCOP</b> |                                                                 |                  |                   |
| <b>No</b>      | <b>Which scope of risks does your organisation's ERM cover?</b> | <b>Frequency</b> | <b>Percentage</b> |
| 1              | Strategic Risks                                                 | 8                | 8%                |
| 2              | Operational Risks                                               | 40               | 40%               |
| 3              | Market Risks                                                    | 47               | 47%               |
| 4              | Regulatory Risks                                                | 48               | 48%               |
| 5              | IT Risks                                                        | 28               | 28%               |
| 6              | All mentioned                                                   | 19               | 19%               |
| 7              | Other                                                           | 2                | 2%                |

|                 |                                                               |                  |                   |
|-----------------|---------------------------------------------------------------|------------------|-------------------|
| Appendix D      |                                                               |                  |                   |
| Table D - 10    |                                                               |                  |                   |
| <b>ERMMATUR</b> |                                                               |                  |                   |
| <b>No</b>       | <b>What is the level of your organisation's ERM maturity?</b> | <b>Frequency</b> | <b>Percentage</b> |
| 1               | Undeveloped                                                   | 5                | 5%                |
| 2               | Formalised                                                    | 51               | 50%               |
| 3               | Strategic                                                     | 0                | 0%                |
| 4               | Established                                                   | 31               | 31%               |
| 5               | Optimized                                                     | 1                | 1%                |
| 6               | No ERM in place                                               | 2                | 2%                |
| 7               | Not familiar with ERM                                         | 11               | 11%               |
| Total           |                                                               | 101              | 100%              |

|            |  |  |  |
|------------|--|--|--|
| Appendix D |  |  |  |
|------------|--|--|--|

|              |                                                                   |                  |                   |
|--------------|-------------------------------------------------------------------|------------------|-------------------|
| Table D - 11 |                                                                   |                  |                   |
|              | <b>ERMSSENSUP</b>                                                 |                  |                   |
| <b>No</b>    | <b>How your organisation's senior management support the ERM?</b> | <b>Frequency</b> | <b>Percentage</b> |
| 1            | Excellent                                                         | 0                | 0%                |
| 2            | Very good                                                         | 7                | 7%                |
| 3            | Good                                                              | 41               | 41%               |
| 4            | Fair                                                              | 35               | 34%               |
| 5            | Poor                                                              | 5                | 5%                |
| 6            | No ERM in place                                                   | 2                | 2%                |
| 7            | Not familiar with ERM                                             | 11               | 11%               |
| Total        |                                                                   | 101              | 100%              |

Appendix D  
Table D - 12.1

|           |                                                                            |                  |                   |
|-----------|----------------------------------------------------------------------------|------------------|-------------------|
|           | <b>ERMFACT-1</b>                                                           |                  |                   |
| <b>No</b> | <b>Critical and very important organisational factors in effective ERM</b> | <b>Frequency</b> | <b>Percentage</b> |
| 1         | Senior management support                                                  | 86               | 85%               |
| 2         | ERM framework                                                              | 89               | 89%               |
| 3         | Risk management knowledge and technique                                    | 88               | 88%               |
| 4         | Resource and capabilities                                                  | 72               | 72%               |
| 5         | Stable ERM structure                                                       | 76               | 76%               |
| 6         | Risk communication                                                         | 57               | 57%               |
| 7         | INT& EXT environmental monitoring                                          | 89               | 89%               |
| 8         | Strategic planning                                                         | 89               | 89%               |

Appendix D  
Table D - 12.2

|           |                                                              |                  |                   |
|-----------|--------------------------------------------------------------|------------------|-------------------|
|           | <b>ERMFACT-2</b>                                             |                  |                   |
| <b>No</b> | <b>Which of those factors applied to your organisation's</b> | <b>Frequency</b> | <b>Percentage</b> |

|   | <b>ERM?</b>                             |    |     |
|---|-----------------------------------------|----|-----|
| 1 | Senior management support               | 27 | 27% |
| 2 | ERM framework                           | 72 | 72% |
| 3 | Risk management knowledge and technique | 40 | 40% |
| 4 | Resource and capabilities               | 22 | 22% |
| 5 | Stable ERM structure                    | 7  | 6%  |
| 6 | Risk communication                      | 15 | 15% |
| 7 | INT& EXT environmental monitoring       | 11 | 11% |
| 8 | Strategic planning                      | 14 | 14% |
| 9 | All above                               | 7  | 7%  |

Appendix D  
Table D - 13

|           | <b>ERMADVTG</b>                                                 |                  |                   |
|-----------|-----------------------------------------------------------------|------------------|-------------------|
| <b>No</b> | <b>What are the advantages of effective ERM implementation?</b> | <b>Frequency</b> | <b>Percentage</b> |
| 1         | Optimised business cost                                         | 51               | 51%               |
| 2         | Improve business performance                                    | 59               | 58%               |
| 3         | Better preparation for future volatility                        | 47               | 47%               |
| 4         | Enabling aim and objective achievement                          | 62               | 62%               |
| 5         | Risk adjusted decision making                                   | 69               | 69%               |
| 6         | Increased shareholders value& competitive advantages            | 60               | 60%               |
| 7         | Long term success and sustainability                            | 78               | 78%               |
| 8         | All above                                                       | 24               | 24%               |

Appendix D  
Table D - 20

|           | <b>ERMALPMSTS</b>                                                     |                       |                   |
|-----------|-----------------------------------------------------------------------|-----------------------|-------------------|
| <b>No</b> | <b>Has your organisation Aligned ERM with Performance Management?</b> | <b>Frequenc<br/>y</b> | <b>Percentage</b> |
| 1         | No                                                                    | 33                    | 33%               |
| 2         | Yes, completely                                                       | 2                     | 2%                |
| 3         | It's in the basic stages of alignment                                 | 3                     | 3%                |



|       |                                           |     |      |
|-------|-------------------------------------------|-----|------|
| 4     | It's under investigation                  | 16  | 15%  |
| 5     | There is informal alignment under process | 36  | 36%  |
| 6     | Other                                     | 11  | 11%  |
| Total |                                           | 101 | 100% |

Appendix D  
Table D - 21

| <b>ERMPMBEN-1</b> |                                                                            |                       |                   |
|-------------------|----------------------------------------------------------------------------|-----------------------|-------------------|
| <b>No</b>         | <b>What are the benefits of ERM alignment with performance management?</b> | <b>Frequenc<br/>y</b> | <b>Percentage</b> |
| 1                 | Enabling organisation's objective achievement                              | 66                    | 66%               |
| 2                 | Risk adjusted decision making                                              | 80                    | 65%               |
| 3                 | Organisational long term success and sustainability                        | 65                    | 80%               |
| 4                 | Well preparation for future volatility                                     | 69                    | 69%               |
| 5                 | Competitive advantage and increased shareholder value                      | 73                    | 73%               |
| 6                 | Enhanced business performance                                              | 71                    | 70%               |
| 7                 | All above                                                                  | 38                    | 38%               |

| Variables of Table D-21                               |      |
|-------------------------------------------------------|------|
| Organisational long term success and sustainability   | BEN1 |
| Competitive advantage and increased shareholder value | BEN2 |
| Enhanced business performance                         | BEN3 |
| Well preparation for future volatility                | BEN4 |
| Enabling organisation's objective achievement         | BEN5 |
| Risk adjusted decision making                         | BEN6 |

| Appendix D       |                                                                          |           |            |
|------------------|--------------------------------------------------------------------------|-----------|------------|
| Table D - 23     |                                                                          |           |            |
| <b>ERMPMCHAL</b> |                                                                          |           |            |
| No               | What are the key challenges of aligning ERM with performance management? | Frequency | Percentage |
| 1                | Lack of appropriate alignment instruction                                | 82        | 82%        |
| 2                | Lack of senior management support                                        | 64        | 64%        |
| 3                | Lack of understanding the benefits of this alignment                     | 27        | 27%        |
| 4                | Lack of risk communication                                               | 64        | 63%        |
| 5                | Lack of enough time allocated for this process                           | 80        | 80%        |
| 6                | Lack of suitable resources and capabilities                              | 45        | 45%        |
| 7                | Other                                                                    | 25        | 25%        |

| Appendix D         |                                                                                               |           |            |
|--------------------|-----------------------------------------------------------------------------------------------|-----------|------------|
| Table D - 24       |                                                                                               |           |            |
| <b>ERMPMFACT-1</b> |                                                                                               |           |            |
| No                 | What are the critical factors in developing alignment between ERM and performance management? | Frequency | Percentage |
| 1                  | Senior management support                                                                     | 86        | 86%        |
| 2                  | Appropriate resources and capabilities                                                        | 84        | 84%        |
| 3                  | Effective alignment Framework                                                                 | 81        | 81%        |
| 4                  | ERM and performance management integration with strategic objectives                          | 74        | 73%        |
| 7                  | Consolidate enterprise risk management infrastructure                                         | 68        | 68%        |
| 5                  | Risk and performance management communication among the organisation                          | 66        | 66%        |
| 6                  | Constant internal and external environment monitoring                                         | 48        | 48%        |
| 8                  | All above                                                                                     | 12        | 12%        |

| Appendix D         |                                                               |           |            |
|--------------------|---------------------------------------------------------------|-----------|------------|
| Table D - 25       |                                                               |           |            |
| <b>ERMPMFACT-2</b> |                                                               |           |            |
| No                 | Which of the above factors are most critical in developing an | Frequency | Percentage |

|   | <b>effective alignment of ERM and performance management?</b>        |    |     |
|---|----------------------------------------------------------------------|----|-----|
| 1 | Senior management support                                            | 84 | 84% |
| 2 | Appropriate resources and capabilities                               | 83 | 83% |
| 3 | Effective alignment Framework                                        | 80 | 80% |
| 4 | Consolidate enterprise risk management infrastructure                | 72 | 71% |
| 5 | ERM and Performance Management integration with strategic objectives | 62 | 62% |
| 6 | Risk and performance management communication among the organisation | 59 | 59% |
| 7 | Constant internal and external environment monitoring                | 42 | 42% |
| 8 | All above                                                            | 12 | 12% |

| Appendix D   |                                                                                                |                  |                   |
|--------------|------------------------------------------------------------------------------------------------|------------------|-------------------|
| Table D - 26 |                                                                                                |                  |                   |
|              | <b>ERM PM BEN-3</b>                                                                            |                  |                   |
| <b>No</b>    | <b>Which benefits do you expect from an effective Alignment Framework in you organisation?</b> | <b>Frequency</b> | <b>Percentage</b> |
| 1            | Enhanced business performance and effectiveness                                                | 70               | 69%               |
| 2            | Enabling long term success & sustainable profitability for organisation                        | 71               | 71%               |
| 3            | Optimized risk and performance cost                                                            | 54               | 54%               |
| 4            | Organisation's aim and objective achievement                                                   | 68               | 68%               |
| 5            | Shareholder value creation & competitive advantage                                             | 57               | 57%               |
| 6            | All above                                                                                      | 12               | 12%               |

Table D-27

Section A: Descriptive Profile (Survey)

| <i>ERMEXP-1</i>             |              |
|-----------------------------|--------------|
| Respondents' ERM experience |              |
| Mean                        | 1.869532156  |
| Standard Error              | 0.938320939  |
| Median                      | 2            |
| Mode                        | 1            |
| Standard Deviation          | 1.347373     |
| Sample Variance             | 1.680543     |
| Kurtosis                    | -1.261840509 |
| Skewness                    | 0.802809593  |
| Range                       | 6            |
| Minimum                     | 2            |
| Maximum                     | 7            |
| Sum                         | 202          |
| Count                       | 101          |

| <i>ERMPOS</i>                        |             |
|--------------------------------------|-------------|
| Respondents' organisational position |             |
| Mean                                 | 2.857145464 |
| Standard Error                       | 0.858994576 |
| Median                               | 2           |
| Mode                                 | 3           |
| Standard Deviation                   | 1.021701757 |
| Sample Variance                      | 1.476190476 |
| Kurtosis                             | 4.378242898 |
| Skewness                             | 1.98633896  |
| Range                                | 5           |
| Minimum                              | 3           |
| Maximum                              | 6           |
| Sum                                  | 334         |
| Count                                | 101         |

| <i>ERMSEN</i>                   |             |
|---------------------------------|-------------|
| Respondents' level of seniority |             |
| Mean                            | 2.857142857 |
| Standard Error                  | 0.051963128 |
| Median                          | 4           |
| Mode                            | 5           |
| Standard Deviation              | 1.532248558 |
| Sample Variance                 | 2.476190476 |
| Kurtosis                        | 3.874562412 |
| Skewness                        | 1.866317134 |
| Range                           | 6           |
| Minimum                         | 1           |
| Maximum                         | 7           |
| Sum                             | 302         |
| Count                           | 101         |

Table D-28

Section B: ERM (Survey)

| <i>ERMFAM</i>                |              |
|------------------------------|--------------|
| Respondents' ERM familiarity |              |
| Mean                         | 3.602896541  |
| Standard Error               | 0.234270474  |
| Median                       | 2            |
| Mode                         | 2            |
| Standard Deviation           | 1.367292591  |
| Sample Variance              | 1.258690791  |
| Kurtosis                     | 3.5029865    |
| Skewness                     | -1.697298867 |
| Range                        | 5            |
| Minimum                      | 1            |
| Maximum                      | 6            |
| Sum                          | 223          |
| Count                        | 101          |

| <i>ERMKNOW</i>             |             |
|----------------------------|-------------|
| Respondents' ERM knowledge |             |
| Mean                       | 2.857142857 |
| Standard Error             | 0.625425163 |
| Median                     | 4           |
| Mode                       | 5           |
| Standard Deviation         | 1.403735178 |
| Sample Variance            | 3.810952381 |
| Kurtosis                   | 5.01454144  |
| Skewness                   | 2.154792166 |
| Range                      | 2           |
| Minimum                    | 1           |
| Maximum                    | 3           |
| Sum                        | 375         |
| Count                      | 101         |

| <i>ERMIMP</i>                          |             |
|----------------------------------------|-------------|
| Has your organisation implemented ERM? |             |
| Mean                                   | 1.565984198 |
| Standard Error                         | 0.517000904 |
| Median                                 | 4           |
| Mode                                   | 5           |
| Standard Deviation                     | 1.034001808 |
| Sample Variance                        | 1.396985961 |
| Kurtosis                               | -5.35871368 |
| Skewness                               | 0.09405052  |
| Range                                  | 1           |
| Minimum                                | 1           |
| Maximum                                | 2           |
| Sum                                    | 284         |
| Count                                  | 101         |

| <i>ERMEXP-2</i>                                        |             |
|--------------------------------------------------------|-------------|
| Have you got any experience of direct ERM involvement? |             |
| Mean                                                   | 2.440187956 |
| Standard Error                                         | 0.215879675 |
| Median                                                 | 2           |
| Mode                                                   | 1           |
| Standard Deviation                                     | 1.647639025 |
| Sample Variance                                        | 2.277769504 |
| Kurtosis                                               | 7.090744731 |
| Skewness                                               | 2.595624536 |
| Range                                                  | 5           |
| Minimum                                                | 1           |
| Maximum                                                | 6           |
| Sum                                                    | 270         |
| Count                                                  | 101         |

| <i>ERMSTS</i>                                          |             |
|--------------------------------------------------------|-------------|
| What is the current state of ERM in your organisation? |             |
| Mean                                                   | 2.2568952   |
| Standard Error                                         | 0.786315679 |
| Median                                                 | 4           |
| Mode                                                   | 2           |
| Standard Deviation                                     | 1.993589217 |
| Sample Variance                                        | 1.532569845 |
| Kurtosis                                               | 0.943233697 |
| Skewness                                               | 1.562069507 |
| Range                                                  | 5           |
| Minimum                                                | 1           |
| Maximum                                                | 6           |
| Sum                                                    | 288         |
| Count                                                  | 101         |

| <i>ERMSCOP</i>                                           |              |
|----------------------------------------------------------|--------------|
| Which scope of risks does your organisation's ERM cover? |              |
| Mean                                                     | 2.428571429  |
| Standard Error                                           | 0.286181124  |
| Median                                                   | 19           |
| Mode                                                     | 1            |
| Standard Deviation                                       | 1.277423262  |
| Sample Variance                                          | 1.619047619  |
| Kurtosis                                                 | -1.672858049 |
| Skewness                                                 | 0.48418845   |
| Range                                                    | 1            |
| Minimum                                                  | 1            |
| Maximum                                                  | 3            |
| Sum                                                      | 157          |
| Count                                                    | 101          |

| <i>ERMMATUR</i>                                        |             |
|--------------------------------------------------------|-------------|
| What is the level of your organisation's ERM maturity? |             |
| Mean                                                   | 4.052698132 |
| Standard Error                                         | 0.545275149 |
| Median                                                 | 2           |
| Mode                                                   | 1           |
| Standard Deviation                                     | 1.48339652  |
| Sample Variance                                        | 3.071428571 |
| Kurtosis                                               | 2.587547097 |
| Skewness                                               | 1.696006318 |
| Range                                                  | 4           |
| Minimum                                                | 1           |
| Maximum                                                | 5           |
| Sum                                                    | 406         |
| Count                                                  | 101         |

| <i>ERMSENSUP</i>                                           |             |
|------------------------------------------------------------|-------------|
| How your organisation's senior management support the ERM? |             |
| Mean                                                       | 2.93910453  |
| Standard Error                                             | 0.104824894 |
| Median                                                     | 4           |
| Mode                                                       | 6           |
| Standard Deviation                                         | 3.23761507  |
| Sample Variance                                            | 1.214285714 |
| Kurtosis                                                   | 3.587287848 |
| Skewness                                                   | 1.867797642 |
| Range                                                      | 4           |
| Minimum                                                    | 1           |
| Maximum                                                    | 5           |
| Sum                                                        | 310         |
| Count                                                      | 101         |

| <i>ERMFACT-1</i>                                 |              |
|--------------------------------------------------|--------------|
| Critical organisational factors in effective ERM |              |
| Mean                                             | 1.021560289  |
| Standard Error                                   | 0.113349348  |
| Median                                           | 5            |
| Mode                                             | 6            |
| Standard Deviation                               | 1.634308869  |
| Sample Variance                                  | 3.357142857  |
| Kurtosis                                         | 1.499158374  |
| Skewness                                         | -1.446998587 |
| Range                                            | 6            |
| Minimum                                          | 1            |
| Maximum                                          | 7            |
| Sum                                              | 217          |
| Count                                            | 101          |

| <i>ERMFACT-2</i>                                           |              |
|------------------------------------------------------------|--------------|
| Which of those factors applied to your organisation's ERM? |              |
| Mean                                                       | 2.32269625   |
| Standard Error                                             | 0.737564192  |
| Median                                                     | 2            |
| Mode                                                       | 2            |
| Standard Deviation                                         | 1.228282191  |
| Sample Variance                                            | 2.357142857  |
| Kurtosis                                                   | 1.730903226  |
| Skewness                                                   | -0.973933134 |
| Range                                                      | 5            |
| Minimum                                                    | 1            |
| Maximum                                                    | 6            |
| Sum                                                        | 450          |
| Count                                                      | 101          |

| <i>ERMADVGT</i>                                          |              |
|----------------------------------------------------------|--------------|
| What are the advantages of effective ERM implementation? |              |
| Mean                                                     | 4.023150225  |
| Standard Error                                           | 0.737564192  |
| Median                                                   | 5            |
| Mode                                                     | 2            |
| Standard Deviation                                       | 1.228282191  |
| Sample Variance                                          | 4.357142857  |
| Kurtosis                                                 | 1.730903226  |
| Skewness                                                 | -0.973933134 |
| Range                                                    | 5            |
| Minimum                                                  | 1            |
| Maximum                                                  | 6            |
| Sum                                                      | 318          |
| Count                                                    | 101          |

| <i>ERMVALU</i>                                    |             |
|---------------------------------------------------|-------------|
| In which area ERM is most likely to create value? |             |
| Mean                                              | 2.023150225 |
| Standard Error                                    | 0.807564192 |
| Median                                            | 5           |
| Mode                                              | 4           |
| Standard Deviation                                | 1.228661291 |
| Sample Variance                                   | 4.357142857 |
| Kurtosis                                          | 1.759003226 |
| Skewness                                          | 0.873934225 |
| Range                                             | 2           |
| Minimum                                           | 1           |
| Maximum                                           | 3           |
| Sum                                               | 286         |
| Count                                             | 101         |

Table D-29 Section D: Developing ERM and PM alignment framework (Survey)

| <i>ERMALPMSTS</i>                                      |             |
|--------------------------------------------------------|-------------|
| your organsiation Aligned ERM with Perfomance Manegeme |             |
| Mean                                                   | 2.857142857 |
| Standard Error                                         | 1.044664247 |
| Median                                                 | 5           |
| Mode                                                   | 6           |
| Standard Deviation                                     | 2.512937533 |
| Sample Variance                                        | 5.142857143 |
| Kurtosis                                               | 3.87102246  |
| Skewness                                               | 1.881147165 |
| Range                                                  | 1           |
| Minimum                                                | 1           |
| Maximum                                                | 2           |
| Sum                                                    | 524         |
| Count                                                  | 101         |

| <i>ERMPMBEN-1</i>                                        |              |
|----------------------------------------------------------|--------------|
| are the benefits of ERM Aligmnet with Performance Manage |              |
| Mean                                                     | 2.0254615    |
| Standard Error                                           | 0.033222957  |
| Median                                                   | 2            |
| Mode                                                     | 1            |
| Standard Deviation                                       | 1.316656237  |
| Sample Variance                                          | 3.07703253   |
| Kurtosis                                                 | 4.337534626  |
| Skewness                                                 | -1.849089124 |
| Range                                                    | 2            |
| Minimum                                                  | 1            |
| Maximum                                                  | 3            |
| Sum                                                      | 287          |
| Count                                                    | 101          |

| <i>ERMPMBEN-2</i>                            |              |
|----------------------------------------------|--------------|
| Rate the importance of each potential beneit |              |
| Mean                                         | 2.86439852   |
| Standard Error                               | 1.027553103  |
| Median                                       | 2            |
| Mode                                         | 2            |
| Standard Deviation                           | 2.249823196  |
| Sample Variance                              | 637.5535714  |
| Kurtosis                                     | 0.110778385  |
| Skewness                                     | -0.718894064 |
| Range                                        | 1            |
| Minimum                                      | 1            |
| Maximum                                      | 2            |
| Sum                                          | 316          |
| Count                                        | 101          |

| <i>ERMPMCHAL</i>                                        |              |
|---------------------------------------------------------|--------------|
| ey challenges of Aligning ERM with Perfomance Managemer |              |
| Mean                                                    | 5.285714286  |
| Standard Error                                          | 0.863285121  |
| Median                                                  | 4            |
| Mode                                                    | 5            |
| Standard Deviation                                      | 23.45004823  |
| Sample Variance                                         | 549.9047619  |
| Kurtosis                                                | -1.717025601 |
| Skewness                                                | -0.289769072 |
| Range                                                   | 5            |
| Minimum                                                 | 1            |
| Maximum                                                 | 6            |
| Sum                                                     | 387          |
| Count                                                   | 101          |



| <i>ERMPMFACT-1</i>                                     |              |
|--------------------------------------------------------|--------------|
| Critical factors in developing the Alignmnet Framework |              |
| Mean                                                   | 2.04228569   |
| Standard Error                                         | 0.164131627  |
| Median                                                 | 2            |
| Mode                                                   | 1            |
| Standard Deviation                                     | 1.637235755  |
| Sample Variance                                        | 1.267857143  |
| Kurtosis                                               | 0.703908654  |
| Skewness                                               | -1.116004466 |
| Range                                                  | 5            |
| Minimum                                                | 1            |
| Maximum                                                | 6            |
| Sum                                                    | 506          |
| Count                                                  | 101          |

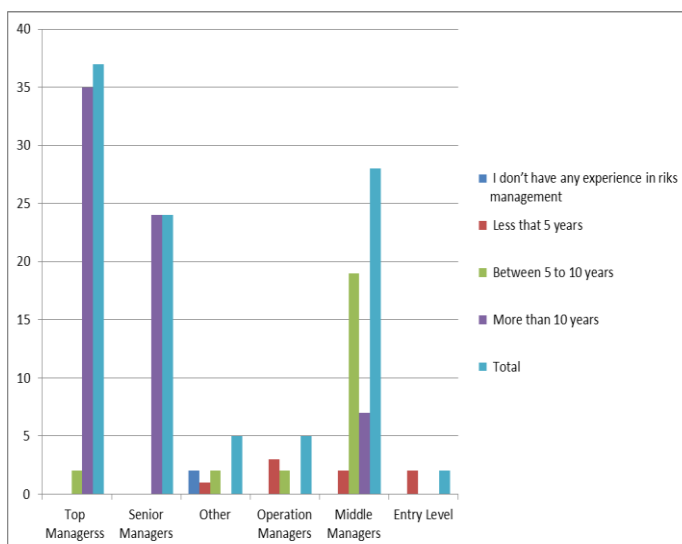
| <i>ERMPMFAC-2</i>                                             |              |
|---------------------------------------------------------------|--------------|
| above factors are most critical in developing the Alignmnet f |              |
| Mean                                                          | 2.87507852   |
| Standard Error                                                | 0.127160603  |
| Median                                                        | 2            |
| Mode                                                          | 2            |
| Standard Deviation                                            | 2.249823196  |
| Sample Variance                                               | 637.5535714  |
| Kurtosis                                                      | -0.110808385 |
| Skewness                                                      | -0.718894064 |
| Range                                                         | 5            |
| Minimum                                                       | 1            |
| Maximum                                                       | 6            |
| Sum                                                           | 316          |
| Count                                                         | 101          |

| <i>ERMPMBEN-3</i>                                          |             |
|------------------------------------------------------------|-------------|
| do you expect from an effective alignmnet framework in you |             |
| Mean                                                       | 2.49546325  |
| Standard Error                                             | 0.144793071 |
| Median                                                     | 2           |
| Mode                                                       | 1           |
| Standard Deviation                                         | 1.375581929 |
| Sample Variance                                            | 2.666666667 |
| Kurtosis                                                   | 3.966030734 |
| Skewness                                                   | -1.93709116 |
| Range                                                      | 5           |
| Minimum                                                    | 1           |
| Maximum                                                    | 6           |
| Sum                                                        | 288         |
| Count                                                      | 101         |



| Appendix E         |             |                                                |                   |                       |                    |
|--------------------|-------------|------------------------------------------------|-------------------|-----------------------|--------------------|
| Table E-4          |             |                                                |                   |                       |                    |
| O-E squered        | ERMSEN      | I don't have any experience in riks management | ERMEXP-1          |                       |                    |
|                    |             |                                                | Less that 5 years | Between 5 to 10 years | More than 10 years |
| Top Managers       | 0.536810117 |                                                | 8.588961866       | 51.24291736           | 117.1109695        |
| Senior Managers    | 0.22586021  |                                                | 3.613763357       | 35.29065778           | 69.16968925        |
| Other              | 3.613763357 |                                                | 0.36476816        | 0.581217528           | 10.67542398        |
| Operation Managers | 0.00980296  |                                                | 6.780609744       | 0.581217528           | 10.67542398        |
| Middle Managers    | 0.307420841 |                                                | 0.047446329       | 145.6681698           | 127.6228801        |
| Entry Level        | 0.001568474 |                                                | 3.391432213       | 0.245074012           | 1.708067836        |

| Appendix E                             |             |                                                |                                                                                                                                           |                       |                                            |
|----------------------------------------|-------------|------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|--------------------------------------------|
| Table E-5                              |             |                                                |                                                                                                                                           |                       |                                            |
| O-E squered/E                          | ERMSEN      | I don't have any experience in riks management | ERMEXP-1                                                                                                                                  |                       |                                            |
|                                        |             |                                                | Less that 5 years                                                                                                                         | Between 5 to 10 years | More than 10 years                         |
| Top Managers                           | 0.732673267 |                                                | 2.930693069                                                                                                                               | 5.595172598           | 4.843655987                                |
| Senior Managers                        | 0.475247525 |                                                | 1.900990099                                                                                                                               | 5.940594059           | 4.410441044                                |
| Other                                  | 36.4990099  |                                                | 0.921039604                                                                                                                               | 0.469623762           | 3.267326733                                |
| Operation Managers                     | 0.099009901 |                                                | 17.1210396                                                                                                                                | 0.469623762           | 3.267326733                                |
| Middle Managers                        | 0.554455446 |                                                | 0.021393211                                                                                                                               | 21.01783593           | 6.975060006                                |
| Entry Level                            | 0.03960396  |                                                | 21.40841584                                                                                                                               | 0.495049505           | 1.306930693                                |
| <b>chi square</b>                      |             | 140.7622122                                    | <b>P:</b> -1.62787E-22                                                                                                                    |                       | <b>Degree of Freedom</b> row-1*Column-1 15 |
| <b>Probability</b>                     |             | <b>P-Value is &lt; 0.00001</b>                 | <a href="http://www.socscistatistics.com/pvalues/chiidistribution.aspx">http://www.socscistatistics.com/pvalues/chiidistribution.aspx</a> |                       |                                            |
| <b>Chi Square Value from the table</b> |             | <b>24.996</b>                                  |                                                                                                                                           |                       |                                            |



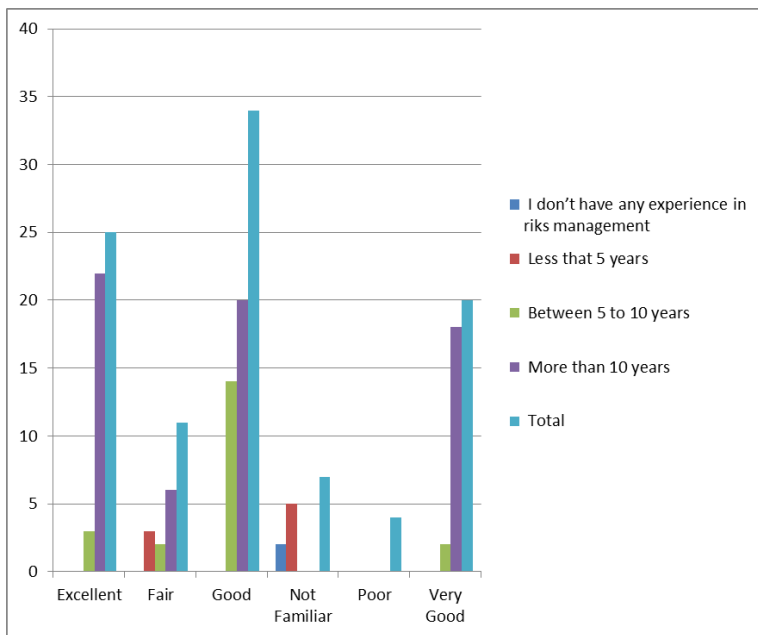
| Chi-dquare computation between two variables ERMEXP-1 and ERMKNOW |                                                |                   |                       |                    |            |
|-------------------------------------------------------------------|------------------------------------------------|-------------------|-----------------------|--------------------|------------|
| Appendix E                                                        |                                                |                   |                       |                    |            |
| Table E-6                                                         |                                                |                   |                       |                    |            |
| Observed Value                                                    | Pivot Table                                    | ERMEXP-1          |                       |                    | Total      |
| ERMKNOW                                                           | I don't have any experience in riks management | Less that 5 years | Between 5 to 10 years | More than 10 years | Total      |
| Excellent                                                         | 0                                              | 0                 | 3                     | 22                 | 25         |
| Fair                                                              | 0                                              | 3                 | 2                     | 6                  | 11         |
| Good                                                              | 0                                              | 0                 | 14                    | 20                 | 34         |
| Not Familiar                                                      | 2                                              | 5                 | 0                     | 0                  | 7          |
| Poor                                                              | 0                                              | 0                 | 0                     | 0                  | 4          |
| Very Good                                                         | 0                                              | 0                 | 2                     | 18                 | 20         |
| <b>Grand Total</b>                                                | <b>2</b>                                       | <b>8</b>          | <b>21</b>             | <b>66</b>          | <b>101</b> |

| Appendix E                                              |                                                |                   |                       |                    |            |
|---------------------------------------------------------|------------------------------------------------|-------------------|-----------------------|--------------------|------------|
| Table E-7                                               |                                                |                   |                       |                    |            |
| Expected Value                                          | ERMEXP-1                                       |                   |                       | Total              |            |
| ERMKNOW                                                 | I don't have any experience in riks management | Less that 5 years | Between 5 to 10 years | More than 10 years | Total      |
| Excellent                                               | 0.495049505                                    | 1.98019802        | 5.198019802           | 16.33663366        | 25         |
| Fair                                                    | 0.217821782                                    | 0.871287129       | 2.287128713           | 7.188118812        | 11         |
| Good                                                    | 0.673267327                                    | 2.693069307       | 7.069306931           | 22.21782178        | 34         |
| Not Familiar                                            | 0.138613861                                    | 0.554455446       | 1.455445545           | 4.574257426        | 7          |
| Poor                                                    | 0.079207921                                    | 0.316831683       | 0.831683168           | 2.613861386        | 4          |
| Very Good                                               | 0.396039604                                    | 1.584158416       | 4.158415842           | 13.06930693        | 20         |
| <b>Grand Total</b>                                      | <b>2</b>                                       | <b>8</b>          | <b>21</b>             | <b>66</b>          | <b>101</b> |
| <b>Prabability (degree of independence)</b> 5.09122E-14 |                                                |                   |                       |                    |            |

| Appendix E         |                                                |                   |                       |                    |            |
|--------------------|------------------------------------------------|-------------------|-----------------------|--------------------|------------|
| Table E-8          |                                                |                   |                       |                    |            |
| Observed-Expected  | ERMEXP-1                                       |                   |                       | Total              |            |
| ERMKNOW            | I don't have any experience in riks management | Less that 5 years | Between 5 to 10 years | More than 10 years | Total      |
| Excellent          | -0.495049505                                   | -1.98019802       | -2.198019802          | 5.663366337        | 25         |
| Fair               | -0.217821782                                   | 2.128712871       | -0.287128713          | -1.188118812       | 11         |
| Good               | -0.673267327                                   | -2.693069307      | 6.930693069           | -2.217821782       | 34         |
| Not Familiar       | 1.861386139                                    | 4.445544554       | -1.455445545          | -4.574257426       | 7          |
| Poor               | -0.079207921                                   | -0.316831683      | -0.831683168          | -2.613861386       | 4          |
| Very Good          | -0.396039604                                   | -1.584158416      | -2.158415842          | 4.930693069        | 20         |
| <b>Grand Total</b> | <b>2</b>                                       | <b>8</b>          | <b>21</b>             | <b>66</b>          | <b>101</b> |

| Appendix E   |                                                |                   |                       |                    |
|--------------|------------------------------------------------|-------------------|-----------------------|--------------------|
| Table E-9    |                                                |                   |                       |                    |
| O-E squared  |                                                | ERMEXP-1          |                       |                    |
| ERMKNOW      | I don't have any experience in riks management | Less that 5 years | Between 5 to 10 years | More than 10 years |
| Excellent    | 0.245074012                                    | 3.921184198       | 4.83129105            | 32.07371826        |
| Fair         | 0.047446329                                    | 4.531418488       | 0.082442898           | 1.411626311        |
| Good         | 0.453288893                                    | 7.252622292       | 48.03450642           | 4.918733458        |
| Not Familiar | 3.464758357                                    | 19.76286639       | 2.118321733           | 20.923831          |
| Poor         | 0.006273895                                    | 0.100382315       | 0.691696892           | 6.832271346        |
| Very Good    | 0.156847368                                    | 2.509557886       | 4.658758945           | 24.31173414        |

| Appendix E                             |                                                |                   |                                                                                                                                       |                    |                   |
|----------------------------------------|------------------------------------------------|-------------------|---------------------------------------------------------------------------------------------------------------------------------------|--------------------|-------------------|
| Table E-10                             |                                                |                   |                                                                                                                                       |                    |                   |
| O-E squared/E                          |                                                | ERMEXP-1          |                                                                                                                                       |                    |                   |
| ERMKNOW                                | I don't have any experience in riks management | Less that 5 years | Between 5 to 10 years                                                                                                                 | More than 10 years |                   |
| Excellent                              | 0.495049505                                    | 1.98019802        | 0.929448373                                                                                                                           | 1.96330033         |                   |
| Fair                                   | 0.217821782                                    | 5.200832583       | 0.036046462                                                                                                                           | 0.196383275        |                   |
| Good                                   | 0.673267327                                    | 2.693069307       | 6.794797127                                                                                                                           | 0.221386845        |                   |
| Not Familiar                           | 24.99575672                                    | 35.64374116       | 1.455445545                                                                                                                           | 4.574257426        |                   |
| Poor                                   | 0.079207921                                    | 0.316831683       | 0.831683168                                                                                                                           | 2.613861386        |                   |
| Very Good                              | 0.396039604                                    | 1.584158416       | 1.120320603                                                                                                                           | 1.860216022        |                   |
|                                        |                                                |                   |                                                                                                                                       |                    |                   |
|                                        |                                                |                   |                                                                                                                                       |                    |                   |
|                                        |                                                |                   |                                                                                                                                       |                    |                   |
| chi square                             | 96.87312059                                    | P:                | 5.09122E-14                                                                                                                           | Degree of Freedom  | row-1*Column-1 15 |
| Probability                            | <a href="#">P-Value is &lt; 0.00001</a>        |                   | <a href="http://www.socscistatistics.com/pvalues/chiistribution.aspx">http://www.socscistatistics.com/pvalues/chiistribution.aspx</a> |                    |                   |
| Chi Square Value from the table 24.996 |                                                |                   |                                                                                                                                       |                    |                   |



## Appendix F

## Correlation Matrices

| Correlation Matrix for variable ERMFACT |            |            |             |            |            |              |            |              |            |
|-----------------------------------------|------------|------------|-------------|------------|------------|--------------|------------|--------------|------------|
| Appendix F                              |            |            |             |            |            |              |            |              |            |
| Table F-1                               |            |            |             |            |            |              |            |              |            |
|                                         | ERMFAM     | ERMMATUR   | ERMPMSENSUP | ERMPMFRMWK | ERMPMSTRC  | ERMPMRES&CAP | ERMPMCOMM  | ERMPMINT&EXT | ERMPMSTOBJ |
| ERMFAM                                  | 1          |            |             |            |            |              |            |              |            |
| ERMMATUR                                | N/A        | 1          |             |            |            |              |            |              |            |
| ERMPMSENSUP                             | 0.80236418 | 0.82269985 | 1           |            |            |              |            |              |            |
| ERMPMFRMWK                              | 0.76163055 | 0.39602681 | 0.48653215  | 1          |            |              |            |              |            |
| ERMPMSTRC                               | 0.80034169 | 0.31256482 | 0.50656523  | 0.76342475 | 1          |              |            |              |            |
| ERMPMRES&CAP                            | 0.74398344 | 0.27514632 | 0.48523621  | 0.78291003 | 0.8019014  | 1            |            |              |            |
| ERMPMCOMM                               | 0.76254136 | 0.36119458 | 0.51236988  | 0.81653125 | 0.8122023  | 0.88156432   | 1          |              |            |
| ERMPMINT&EXT                            | 0.63654219 | 0.25361005 | 0.50259337  | 0.76258101 | 0.75220141 | 0.79365212   | 0.81254569 | 1            |            |
| ERMPMSTOBJ                              | 0.75889656 | 0.25329144 | 0.50835419  | 0.80212157 | 0.78289136 | 0.80541236   | 0.79124595 | 0.80578126   | 1          |

| Appendix F |            |             |             |             | ERMPMBEN-1 |             |      |
|------------|------------|-------------|-------------|-------------|------------|-------------|------|
| Table F-2  |            |             |             |             |            |             |      |
|            | ERMFAM     | BEN1        | BEN2        | BEN3        | BEN4       | BEN5        | BEN6 |
| ERMFAM     | 1          |             |             |             |            |             |      |
| BEN1       | N/A        | 1           |             |             |            |             |      |
| BEN2       | 0.76538418 | 0.886599852 | 1           |             |            |             |      |
| BEN3       | 0.78123055 | 0.999026845 | 0.865566853 | 1           |            |             |      |
| BEN4       | 0.71805491 | 0.097913307 | 0.896173595 | 0.975654898 | 1          |             |      |
| BEN5       | 0.79036469 | 0.987269312 | 0.802833772 | 0.993308757 | 0.95962995 | 1           |      |
| BEN6       | 0.56397904 | 0.707258511 | 0.942407695 | 0.676344773 | 0.76542346 | 0.591300401 | 1    |

## Appendix H

## Risk Assessment techniques

Appendix H, Table H-1: examples of risk assessment tools for qualitative researches

| <b>Risk assessment tools for qualitative researches</b>                                                                                                                                                                                                                                                    |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><u>Risk probability and impact assessment</u></p> <p>Requires investigating the likelihood that each specific risk will occur and the potential effect on a project objective such as schedule, cost, quality or performance (negative effects for threats and positive effects for opportunities);</p> |
| <p><u>Risk urgency assessment</u></p> <p>It could be combined with the risk ranking determined from the probability and impact matrix to give a final risk sensitivity rating;</p>                                                                                                                         |
| <p><u>Probability and impact matrix</u></p> <p>It can rate the risks for further quantitative analysis using a probability and impact matrix;</p>                                                                                                                                                          |
| <p><u>Risk categorisation</u></p> <p>It can group the risks by common root causes develop effective risk responses;</p>                                                                                                                                                                                    |
| <p><u>Expert judgement</u></p> <p>The judgement of individuals who have experience with similar projects can be used through interviews or risk facilitation workshops.</p>                                                                                                                                |

Appendix H, Table H-2: examples of risk assessment tools for quantitative researches

| <b>Risk assessment tools for quantitative researches</b>                                                                                                                                                  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><u>Quantitative risk analysis and modelling techniques</u></p> <ul style="list-style-type: none"> <li>• sensitivity analysis can highlight risks of largest potential impact on the project</li> </ul> |



- Expected Monetary Value analysis (EMV) can help to calculate the average outcome of scenarios that may or may not happen that can be used in a decision tree analysis
- Modelling and simulation can translate detailed uncertainties into a potential impact on the objectives (e.g. Monte Carlo)

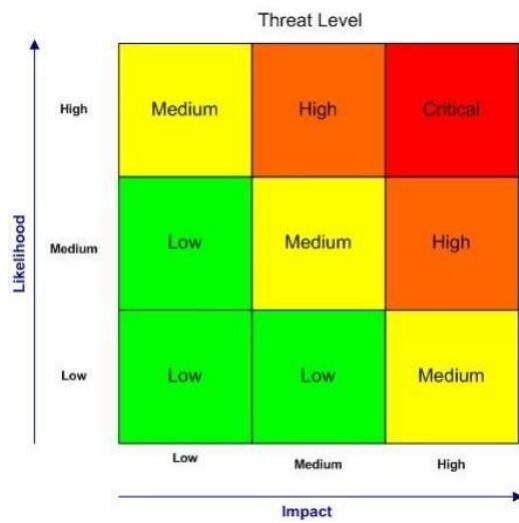
Cost risk analysis

It can calculate total cost based on cost estimates inputs;

Schedule risk analysis

It can verify the probability of completing the project by a certain date or within a certain cost constrain;

Appendix H, Table H-3 Risk impact matrix



Source: Neil (2005)