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**Proposing a conceptual framework to measure the performance of
Enterprise Risk Management from an empirical study of four major
European insurers**

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Abstract

Risk is inherent to all functions of a business. Enterprise Risk Management is about the measurement and the management of all significant risks of the business holistically irrespective of type and sources. Consequently, selection of an appropriate performance measure of Enterprise Risk Management is complex and critical. Several types of performance measurement systems of various disciplines have been compared from the literature and evaluated with the requirements of Enterprise Risk Management. It is found that a single numerical performance measure is impracticable for ERM because of the mixture qualitative and quantitative nature of data. The paper proposes a conceptual framework of measuring the performance of Enterprise Risk Management. In addition, it offers significant advances in the current debate on measuring the benefits of Enterprise Risk Management.

Keywords: Enterprise Risk Management, Performance Measurement, Economic Capital, Economic Value Added, Balanced Scorecard, Shareholder Value, Stakeholder Value

1. Introduction

In recent days practitioners and academics have put growing interest on Enterprise Risk Management (hereinafter referred as “ERM”). A plenty of works/study have been done to define and design ERM. However, the effectiveness of ERM still remains untested because of the lack of suitable tools or mechanisms. The objective of this study is to determine (i) key characteristics of a performance measure suitable for ERM and then (ii) propose a conceptual framework² of measuring the performance of ERM.

In order to achieve the objectives, the study investigates the (i) characteristic of an ERM; (ii) available performance measures in the literature; (iii) reliability of the available performance measures for ERM; (iv) linkage of different performance measures; and (v) the adoptability for ERM performance measure with the performance of the organisation itself.

The paper is divided into five sections. The first section discusses conceptual foundation of ERM taking insights from theory and practice. The second section explains the research design used for the study including the empirical results obtained from the case studies. The next section explores the requirements of a performance measurement system. Section four proposes a conceptual framework of measuring the performance of ERM and evaluates their relevance with the framework proposed in the previous section. Finally, the direction of future research on the topic and conclusion was drawn.

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² the framework is defined here as an open structure that gives shape and support to something [i.e., measuring the performance of ERM]

Section 1: An Overview of ERM

The following paragraphs describe the definition of ERM, its origin, objectives, key issues and a review of the current practice of ERM in the insurance³ industry.

1. Defining Enterprise Risk

In practice, corporate functions of an insurance company include the process of underwriting including reinsurance and claims settlement, marketing, finance including investment, accounting and human resources. Indeed, risk is an inherent to all of these functions and, therefore, the portfolio of all such risks attached to them can be defined as insurers “enterprise risk”. In general, enterprise risk is a set of organisation’s all risk whatever the sources or nature. Dickinson (2001) defines *enterprise risk* as “a measure of the degree to which the outcomes from the strategy may differ from (or fail to meet) the objectives”. CAS⁴ (2003) defines *enterprise risk* as the combination of hazard, financial, operational and strategic risks⁵, whereas COSO⁶’s definition includes four risk categories i.e., strategic, operations, reporting, and compliance⁷. These definitions suggest that ERM essentially needs an integrated view across all risk types and all segments. The financial industry, in particular, insurance and banking has observed a great movement in risk management development in recent years, which, in essence, reshaped their business models. Ideally, risk management is an integral part of insurers’ business strategy. In fact, risk affects the organisation holistically suggesting that all risks are somehow interrelated to each other. Since it is complex to identify all risks of an organisation mostly because of its attachment with human perception and subjectivity, the recent effort of insurance companies concentrates on identification and management of *emerging risks*⁸. However, it is believed that they [emerging risks] present more business opportunities than other types of risk.

In reality, the segments of the stakeholder group holds inconsistent understanding about the nature of enterprise risk. For example, the capital management perspective focus clearly on the deployment of more capital on emerging risk (often termed as ‘strategic risk’) and minimize capital require to cover non-strategic risks in order to capture the opportunity. This is quite different from the perception of underwriting people within the organisation. However, it is important to reach into a common definition of *enterprise risk*; it requires a best practice and education of key stakeholders⁹ in the insurance industry.

Reviewing the various views and opinions in practice, the following definition of enterprise risk has been adopted for the purpose of the study.

The ‘enterprise risk’ is a collection of all significant risks that an organisation holds at any specific period of time during its operation and irrespective of the type (i.e., both financial and non-financial) and sources (i.e., both internal and external).

2. Defining ERM

Insurance companies are seen as a bearer of risk; therefore, risk management is the key function of an insurance business. In addition to the risk of policyholders (e.g., underwriting good or bad risk), which itself is risky, more risks are created during the operation of business (e.g., investment), using tolls and techniques (e.g., re/retro insurance) and strategic decision makings (e.g., territorial expansion) and meeting stakeholders’ expectations (i.e., compliance of regulations). Alternatively speaking, in managing the core

³ For the purpose of this article ‘insurance’ includes both insurance and reinsurance companies

⁴ Causality Actuarial Society

⁵ The general criticism of CAS approach is that it narrowly views risk and overlooks organizational issues that drive the outcome of risk.

⁶ The Committee of Sponsoring Organizations of the Treadway Commission

⁷ The general criticism of COSO approach is that it overly emphasis on the process rather than the outcome (or fact).

⁸ Emerging risks (i.e., Climate Change, Tropical Cyclones) are developing or changing risks which are difficult to quantify and may have a major impact on insurers’ book of business.

⁹ A ‘stakeholder’ is defined here as any individual, group or organization that may affect, be affected by, or perceive itself to be affected by the functions of an organization.

underwriting risk, insurers create new risks (Bernstein 1996). Consequently, a successful insurer must be a specialist in managing its *enterprise risk*. From this perspective enterprise risk can be defined as –

The management of enterprise risk, which includes early identification of significant (or material) risks, modelling and measuring their effect upon considering their correlations, determining organisation's risk appetite¹⁰, selecting optimal risk transferring/financing strategies, and calculating economic capital to bear the residual risks.

3. The Practice of ERM in Insurance

It is evident from the above discussion that insurers are specialist in risk management. However, risk is often managed in silos (or fragmentally) without taking their holistic affect into consideration. Consequently, traditional risk management proved inadequate for the survival of the organisation during unexpected events (e.g., market downturn, large natural and man-made catastrophes). Nevertheless, the organisations have to take more and more risk to make profit and value even in the volatile and uncertain¹¹ business environment. In such circumstances, large insurers, those are highly exposed to *emerging risks* focus in managing them (those are catastrophic in nature) in a holistic framework. Primarily, the effort was limited to modelling and measuring their degree of consequences in terms of frequency and severity and managing those using statistical techniques (i.e., asset-liability management, dynamic-financial analysis, etc.). Gradually, the concept of internal control and corporate governance were added with this effort and the drivers of risk were broaden from insurance to financial, operational and strategic risks (Dickinson 2001). The results of some destructive events (e.g., man-made catastrophic event in 11 September¹², rising number of natural catastrophes in USA, etc.), growing public awareness on the potential implication of pandemic influenza were the key drivers of ERM¹³. In addition, the initiatives of regulators in the area of measuring insurers' solvency and new rating criterion inspired the insurance companies to design and adopt ERM.

A recent study of Acharyya (2006) discovered that the practice of ERM in the insurance industry is uneven. Moreover, there appears a lack of convergence among accounting and regulatory regimes and the increasing interest in ERM and economic capital modelling by rating agencies. The CRO Assembly in 2006 noted that (i) rather than solely a control and a compliance activity, ERM is a management function, which needs the support of a company's board of management. In addition, the insurance industry still needs to work to change its risk culture¹⁴. While the insurance industry has been working hard at a qualitative approach to risk management, the most challenging issue in the future will be to enhance development of quantitative modelling (Bomhard 2006). Indeed, risks themselves can not be eliminated. However, taking risks intelligently and controlling their exposures efficiently offers opportunities (Meulbroek 2001). Nevertheless, the ultimate objective of ERM is to bring and retain a balance in the business to maximize returns while meeting the expectation of stakeholders' (i.e., creating sustainable

¹⁰ The level of risk that an organization is willing to accept during the operation of its business. Ideally, this provides a boundary on organizations' affordability of taking risks. However, what makes the boundary is still a largely unknown area. In practice, this is interchangeably used with the term "risk tolerance".

¹¹ For the purpose of the article "uncertainty" is being used as an umbrella term to indicate the situation where the implication is unknown. Whereas, "risk" refers an extracted part of "uncertainty", where the implication of an event associated with the situation (either gain or loss) can be estimated. It is important to note that the difference between "risk" and "uncertainty" [also "vulnerability" is an unsolved issue and interested readers are referred to the works of Knight (1921) Knight, F. H. (1921). *Risk, Uncertainty, and Profit*. Boston, Houghton Mifflin Company, Hardy, C. O. (1923). "Risk and the Management of Capital." *The University Journal of Business* 1(2): 205-220, Pfeffer, I. (1956). *Insurance and Economic Theory*. Illinois, Richard D. Irwin, Inc, Rennie, R. A. (1961). "The Measurement of Risk " *The Journal of Insurance* 28(1): 83-91 , Wood, O. G. J. (1964). "Evolution of the concept of risk." *The Journal of Risk and Insurance* 31(1): 83-91, Henderson, H. (1978). "Risk, Uncertainty and Economic Futures." *The Geneva Papers on Risk and Insurance: Issues & Practice*(9): 3-17.

¹² The attack in twine-tower in New York, which causes approximately 40 billion USD insurance loss

¹³ Interested readers may read the works of D'Arcy (2001), Dickinson (2001), Lee (2003), Shiller (2003), Bernster (1998) for further details on the evolution of risk management.

¹⁴ It entails (i) a consistent perception of risk within the organization in terms of achieving the corporate objectives; (ii) the attitude of holding risk ownership – not for 'them' but for 'us'; (ii) seeking opportunities out of risk in addition to its downside implications; and (iii) a open dialogue by various parts across the organization.

value) for a longer term horizon. Indeed, this is much broader than purely silo thinking, for instance, the financial goal of risk management¹⁵.

4. A Conceptual framework of ERM

A number of *academics* (D'Arcy 2001; Dickinson 2001; Harrington 2002; Harrington 2003; Liebenberg 2003; Power 2004; Aabo 2005; Beasley 2005; Dickinson 2005; Mikes 2005; O'Donnell 2005; Acharyya 2006; Nocco 2006) and *practitioners* (Miccolis 2001; Miccolis 2001; CAS 2003; COSO 2003; PriceWaterHouseCoopers 2004; Shimpi 2005; Ingram 2006) proposed a conceptual framework of ERM. In summary, the framework consists of (i) identification and profiling of significant risks (i.e., financial, operational and insurance risks); (ii) modelling of risks; (iii) measuring of risk; (iv) determining firms' risk appetite; (v) transferring/financing/hedging risk; (vi) deploying (allocating) [economic] capital; and (vii) measuring of performance (i.e., economic profit) including the benefit of risk diversification; and monitoring the execution of the entire process (PriceWaterHouseCoopers 2004). In order to implement this ERM framework, management needs to employ both quantitative and qualitative techniques because all risks are not numerically quantifiable¹⁶. Moreover, this process involves people and organisation, where the intangible issues, i.e., mentality/psychology of the actors; cultural of the organisation; market economics; play a dominant role. Alternatively, for building and executing an ERM framework needs the convergence at least *five* academic disciplines i.e., (i) economics, (ii) finance & accounting, (iii) [strategic] management, (iv) psychology, and (v) sociology (Acharyya 2006).

Section 2: Research Methodology

The paper is one of the outputs of an intensive case study research conducted by the author on four large European insurers¹⁷ (hereinafter referred as 'Cases') in 2006. The original study was designed to explore the motivation, understanding, design, challenges for implementation, and performance of ERM in insurance. The four Cases were analyzed holistically and historically and proceed inductively to drive a theoretical framework of ERM. The data (mostly qualitative) was collected through interviews and structured questionnaire surveys with 60 insurance and risk management professionals of the Cases. They were analyzed by using comparative analysis method (Ragin 1987; Ragin 2000). In continuation of the original study, this article follows an inductive approach under naturalistic paradigm to attain the objectives. The empirical results in relevant to the performance of ERM are discussed below.

1. Empirical Results from the Original Study

While globalization offers more opportunity to the business but it creates more risks, in particular, strategic risks¹⁸ (Slywotzky 2005). However, alignment of risk management with the objectives of business is challenging. The respondents found confident on their ERM initiatives believing on the fact that the investors' community is keen to pay premium for their effort. The study revealed the fact that in practice the ERM is designed to protect insurers' capital-base and to support *value creation* by making superior risk management decisions. This argument is found similar to the perspective of finance literature, where the ultimate concern of risk management is to stabilize the future cash flow within the targeted limit.

¹⁵ Froot (1994) suggests, "A risk-management program, therefore, should have a single overarching goal: to ensure that a company has the cash available to make value-enhancing investments".

¹⁶ It is assumed that statistical techniques can project risks much better than using subjective approximations mostly because they are based on a structure that can demonstrate the underlying variables at least numerically. However, it is true that some risks can not be measured by statistical due to the inadequacy of appropriate data, where the human intervention (i.e., abstract ideas) remains as the only way to handle them. Interestingly, no approach (either quantitative or qualitative) is sufficient alone to measure and manage risks that insurers' face. Importantly, the two approaches are mutually inclusive. Consequently, the best option is to use both approaches, where appropriate, and preferably in a combined framework, which is really challenging. Interestingly, there always remains an unknown gap (i.e., residual risk), which can not be measurable in either mean is termed 'uncertainty'. Incidentally, an ERM process is to transfer the uncertainty to risk as much as possible and manage them intelligibly as much as possible.

¹⁷ Their identifications remain anonymous to maintain confidentiality.

¹⁸ Strategic risk (an issue for top-level policy/decision-makers), the destruction of which effect is visible in longer term

In the empirical study, ERM is seen as a management function, not merely a control and compliance function. The financial managers believe that compliance is a necessary but it is not sufficient part of risk management because it is not value driven. The respondents believe that risks must be identified, assessed, quantified, mitigated and managed at all appropriate levels. Although ERM is conceptually seen a simple idea, its implementation is challenging (Nocco 2006). Ideally, risk is dynamic by nature (Wang 2006) and their degree of severity is often unknown, in particular, at any future point of time. Consequently, identification and modeling of risk, in particular, the *emerging risks* is extremely difficult¹⁹. Moreover, the quantitative analysis is found solely inadequate to analyze insurers ERM activities. It is revealed that a holistic perspective for analyzing risks of the enterprise must understood in the subjective context of each element of risk in terms of its relationship to the people and organizations that execute the process (O'Donnell 2005).

It was also found from the views of the respondents that the perception of risk changes across the management hierarchy at the strategic, operational and tactical levels. However, this hierarchy is based on the time horizon for activities and the authority of taking risk and making decisions on risk (Rushton 2001). Ideally, the strategic level measures influence of the top level management decisions, very often reflecting investigation of broad based policies, corporate financial plans, competitiveness and level of association to organisational goals. The tactical level deals with resource allocation and measuring performance against targets to be met in order to achieve results specified at the strategic level. In fact, measurement of performance at the tactical level provides valuable feedback on mid-level management decisions. However, it is argued that at the operational level, the measurement metrics require accurate data and access the results of decisions of lower level managers. Nevertheless, the achievement of operational objectives lead to the achievement of tactical objectives (Gunasekaran 2004). This discussion illustrates the complexities associated with organisational management process, in particular, from the risk management perspective.

Although, the majority of respondents believe that ERM should be linked to the performance measurement and management processes of the organization, the technique or knowledge of such alignment has yet to evolve in the insurance industry. Moreover, the method of creating and measuring value by insurers' ERM still remains untested to the shareholders (Bomhard 2006).

2. Benefits of ERM

The survey reported a number of benefits of ERM. First, the firms who have implemented an ERM program enjoy a long-run competitive advantage over those that manage and monitor risks departmentally. This argument is in line with respondents' believe on the fact that by measuring and managing risks consistently and systematically, and ensuring the timely communication of risk related information across the enterprise in a transparent manner the business managers can optimize the tradeoff between risk and return. However, such initiatives ultimately strengthens the ability of an organization to carry out its strategic plan (Nocco 2006).

In summary, ERM is an ongoing process because the context in which the organisation operates constantly provides new risks with respect to time. Consequently, new strategies need to be developed to prioritise (i.e., risk profiling or landscaping) and manage them. ERM is believed as an effective management system with *four* broad characteristics as suggested by Shank (1995). First, it sets specific achievable targets in line with organization's risk appetite based on which its performance can be measured. Second, it provides the design of an operational strategy in achieving the target in terms of organizations' culture within the multidisciplinary environment through meaningful communications, which are believed as the drivers of the ultimate outcome. Third, it focuses proactively²⁰ on the understanding of root causes of risk rather than the implication of risk. Finally, the design of ERM rewards good decision-making, which ultimately ensures good results. In essence, ERM gains the attention in the insurance industry as a corporate strategy²¹ to increase *shareholder value* in addition to protecting against

¹⁹ The study finds emerging risks are, by fact, the biggest challenge for the insurance industry. However, the managers believe that early identification of emerging risks also provides business opportunities.

²⁰ Proactively means the enterprise risk can be identified in advance and resolved quickly.

²¹ A road-map that indicates the way of achieving corporate objectives

financial failure. Despite the recent advancements, the field of ERM still suffers from the lack of theoretical development, which is necessary to guide its multidimensional applications. Indeed, the ERM literature severely lacking of demonstrating and quantifying its performance.

3. ERM and Value Creation

It is further revealed that the growth of ERM is currently passing a transactional period. In reality, while one group of stakeholders (i.e., regulators and rating agencies) are interested the ERM process, in particular, the quantitative analysis of the internal risk models, the investors (i.e., shareholders) are interested the value created out of the process (i.e., the ultimate outcome). Consequently, the respondents' are seen confident about the capability of an ERM system in optimizing shareholder return and increasing the value of an organization. Essentially, ERM creates value at both macro (and enterprise – wide) and micro (i.e., business – unit) levels. At the macro level, ERM creates value by enabling senior management to quantify and manage the risk-return tradeoff that faces the entire firm while maintaining access to the capital markets and other resources necessary to implement its strategy and business plan (Nocco 2006). The execution of ERM requires the introduction of Value Based Management, which instills a mind-set where people within the organization learn to prioritize decisions based on their understanding on the way those decisions contribute to corporate value (Young 2000). However, it is important to remember that the generation of a high volume of profit does not guarantee value creation for shareholders²² (Knight 1997).

Section 3: Performance Measurement – a review of the literature

The following paragraphs explores the issues in relevant to the structure of a performance measurement system.

It is understood that the primary goal of performance measurement is to assess the progress of achieving corporate objectives (both financial and non-financial). In addition, the output is utilized to allocate resources appropriately throughout the organisation (Christopher 2003). However, there remain differences across disciplines in measuring the performance of an organisation. Hansen (1989) suggests two major streams of researcher within the business policy literature in determining firms' performance. In this context, one thought emphasises on the economic factors focusing on the external market from financial context. Whereas, the other thought emphasises on the organisational factors approaching from psychological and sociological perspectives. The following paragraphs describe these two approaches.

1. Financial Management

The literature of firms' financial performance measures often focuses either of four categories, for instant, income (profit and loss)²³, cash flow, return on investment, and value²⁴. Knight (1997) argues that “each category is related to and builds on the proceeding categories”. In financial management such measurements refer to the performance of the firm (Capon 1990; Cummins 1998; Cummins 1998; Otley 1999). This understanding is built on the perception that the primary task of management is to maximize returns to shareholders (Bartram 2000; Black 2000; Doherty 2000; Fatemi 2002). However, the criticism is that such measurement on the basis of purely financial outcome and excludes strategic, operational and ethical issues including firms' social and environmental responsibilities (Carroll 1979; Cornell 1987; Clarkson 1995; Feurer 1995; Hillman 2001; Orlitzky 2003).

2. Strategic Management

²² According to Rappaport (1998) a Company creates shareholder value only when it earns a rate of return on new investment greater than the rate that investors can expect to earn by in alternative but equally risky securities.

²³ The traditional accounting measurers (i.e., EPS, ROI, ROE) as standards of measuring business performance were criticized for their shortcomings of ignoring changes in the economic value of an organization (as they attempt to match cost against revenues which virtually has no control over future cash flows.

²⁴ Economic Value Added (the economic value of an investment is the discounted values of the anticipated cash flows after adjustment with risk and inflation), Shareholder Value Added, Economic Profit.

Theoretically, the concept of business performance is at the centre of strategic management²⁵ (Venkatraman 1986), which is viewed from the perspective of economics, psychology and sociology. It is argued that most management theories (e.g., decision theories) either implicitly or explicitly address the area of performance implication because performance is seen as the true test of any strategy (Bourne 2002). However, the criticism is that they emphasis on subjective issues (i.e., customer preference, employee satisfaction rather than firms' financial outcome). In essence, both approaches are correct but they are too narrow (Kirchhoff 1977; Capon 1990).

Although the importance of both financial and non-financial (i.e., operational) performance measure is well understood in the literature. However, the challenge is the alignment of these two theoretical understandings in a common framework. Nevertheless, this inequality provides an unclear picture of organisational performance (Gunasekaran 2004). It is important to understand that while financial performance measurements are important for strategic decisions and external reporting, the control of day to day operations and functions is often better understood with non-financial measurers (Maskell 1991).

Consequently, for effective performance measurement and improvement, the goals must align with the organisational goals and metrics. This is to reflect a balance between financial and non-financial measures that can be related to strategic, tactical and operational levels of decision making and control (Gunasekaran 2004). Knight (1997) argues, "*Performance measurers are helpful in managing the business when they accurately capture the [multidimensional] issues influencing the decisions that managers are being asked to make*".

Beamon (1996) suggests four characteristics of an effective performance measurement system (hereinafter referred as 'PMS'), which can be used in evaluating its strength. They are inclusiveness, universality, measurability, and consistency. In this view a performance measurement technique should have the ability to measure all relevant aspects of the system. In addition, the result should be tested under various conditions. Moreover, the robustness of a PMS depends on the quality of the required data, which should be measurable and consistent with organisation goals.

Commenting on the structure Feurer (1995) suggests that a PMS should include components of evaluating the internal and external environments of an organisation. In addition, it should consist of devices to identify the driving forces of the existing situation including their correlations. Moreover, projecting the future trend of the business including their implications to the organisation is vital issue for a PMS. Furthermore, the output of a PMS should guide the senior management to decide organisation's future goals including indications of achieving them. Besides these requirements, a PMS should provide inputs of developing a system of rewarding achievements within the organisation, which, in fact, acts as a vehicle for promoting risk aware culture across the organisation. Clearly, such a structure of PMS can only be designed by aligning the goals of individuals and divisions with that of the organisation (Kerr 2005). However, the key challenges are to identify the elements (both in strategic and operational terms) of the PMS²⁶ (Christopher 2003). Moreover, the time²⁷ of measurement is an important issue because they (i.e., the elements) are dynamic in line with the changing economic environment (Neely 2002).

The development of a PMS for ERM must be developed that addresses these issues. However, the ultimate complexity arises due to the lack of a common scale of measurement. The next step, then, is to develop a framework for measuring the performance of ERM while considering the above arguments.

Section 4: A Conceptual Framework of Measuring the Performance of ERM

It is clear that the type of performance measures required for ERM should directly be related to organisations' strategic goals (i.e., corporate objectives). Moreover, the outcomes of ERM should provide

²⁵ A process for senior management to ensure their firms' long term sustainability in the corporate environment

²⁶ In reality, some elements of a PMS generate knowledge which can be utilized in the process of formulating strategy. However, others provide instant feedback on the implementation of strategies.

²⁷ Which, in turn, associated with the argument of the 'time value of money'.

information in determining corporate objectives and formulation of appropriate corporate strategies. Since ERM is a management system, the performance of ERM should also provide feedback for the cognitive and behavioural learning processes of the organisation in addition to delivering tangible value for the organisation (Feurer 1995).

Clearly, a single performance measurement system (i.e., financial or operating) seems inadequate since it is not inclusive, and ignores the interactions among the ERM characteristics. Moreover, it ignores critical aspects of organisational strategic goals. In addition, it is difficult for a single measure to provide a clear performance target on the critical areas of business (Kaplan 1992). Clearly, the challenge is to link the financial components to the operational components within this single framework. In essence, an ERM performance measurement framework should utilize relevant literature from a number of fields including finance, accounting, operations management, marketing, strategy and organizational behavior (Neely 2002).

Indeed, currently existed financial measurers do not support the change process, and an integrated set of performance measures for ERM from interdisciplinary perspectives is necessary. In essence, the performance of ERM is seen as the information system, which enables the organisation and the associated parties, in particular, the regulators and rating agencies, to measure the strength of the entire business. In addition, the performance of ERM, which considers all significant risks of the business partly depends on how do the risk related information (objectives) is amplified or communicated or deployed from top to bottom (across the organisational hierarchy) throughout the organisation.

Unfortunately, the literature review reveals no model, in particular to insurance that have above characteristics. However, the current initiatives of regulators and rating agencies in assessing insurers' solvency and financial benefits may guide to develop such a multidisciplinary model. The following paragraphs discuss them briefly.

1. Relevant Models in Insurance – Initiative of Regulators and Rating Agencies

As described earlier, the literature on measuring insurers' performance focuses mostly from financial perspective. However, the empirical study reveals a change in insurers' risk management practices due to the recent movement of regulators [and rating agencies] towards providing risk-based regulations [risk concentrated rating methodologies]. Indeed, this is an issue of changing organisational culture in the way it perceives risk and managing the business as a whole. The recent movement of regulators and rating agencies in assessing insurers' solvency and financial strength respectively introduced a paradigm change in insurers risk management practice. In essence, most rating agencies are in the process of developing their approach to ERM as a rating criteria or concept and its implementation is to follow in next couple of years. The four major rating agencies (i.e., S&P, A.M. Best, Fitch, and Moody's) have published documents which explain their methodology in assessing the strength of ERM of insurance companies in their process to arrive their credit ratings decisions. For instance, the criteria used by S&P to assess the credit quality of an insurance company is traditionally based on eight elements, namely, industry risk, business position, management and corporate strategy, operating performance, capitalization, investments, liquidity, financial flexibility. However, S&P recently added ERM as the ninth element on the list of criteria (Ingram 2006). Its focus to look at how does an insurance company define its loss tolerance of the entire firm and the strength of the process in place to manage risk so that that the consequences of risk remains within this predefined loss tolerance level (Ingram 2005). They have classified their ERM quality definitions into four categories, namely, "excellent", "strong", "adequate", and "weak" ERM (Ingram 2006; Standard&Poors 2006; Standard&Poors 2006). It is important to mention here that S&P declared five areas (e.g., *risk management culture, risk controls, extreme risk management, risk and economic capital models, and strategic risk management*), which are analyzed to evaluate the strength of an insurer's ERM (Ingram 2005) capabilities. The results of this evaluation are utilized to determine the specific category of ERM for any insurance company.

In summary, the above initiative of S&P towards measuring insurers' financial strength focuses on three key issues – loss/profit; investment performance and management capability. Ideally, the loss/profit,

which comes under income stream risk, is a general managerial consideration. On the other hand the investment performance is associated with stock-market risk and directly related to the concern of shareholders. Finally, the management capability, which provides direct input in strategic decision making, is a source of strategic risk of the organisation (Miller 1990). However, the strategic risk is also a concern of multiple external stakeholders, in particular, regulators, rating agencies, financial analysts. S&P believes that the real opportunity (e.g., diversification benefit) of ERM depends on insurer's capability in managing its strategic risk. In essence, the S&P criteria, which itself is multidisciplinary²⁸, provide a solid ground of measuring the performance of insurers ERM program.

In the regulatory side, insurance regulators in EU²⁹, USA³⁰ and Australia³¹ have adopted a risk based approach (McCarthy 2006) to the assessment of insurer solvency. The Financial Services Authority (FSA) in the UK has introduced Individual Capital Adequacy Standards (ICAS) in line with Solvency II proposals (Tiner 2006). Following the EU Switzerland has introduced solvency test for Swiss insurers³². In addition, International Association of Insurance Supervisors³³ (IAIS) is now working on a major project to formulate a consistent, reliable and transparent approach to the assessment of insurer solvency. The key focus of all such initiatives is on capital requirements and supervisory review at insurers individual legal entities. Clearly, emergence of a globally consistent approach for solvency regulation suffers a number of difficulties in terms of technical, economic and financial matter (Schmeiser 2004; SwissRe 2006; Trainar 2006). In summary, the regulators recognized that a good risk management can increase insurers' business efficiency and profitability at the group level (Bies 2006; Wilson 2006).

The framework should consider these ongoing market developments. In view of the understanding derived from the above discussion, the following conceptual framework of ERM is proposed.

²⁸ Involving thoughts of various academic disciplines (i.e., economics, finance, psychology, and sociology) and different stakeholders.

²⁹ See http://ec.europa.eu/internal_market/insurance/solvency2/consultation_en.htm

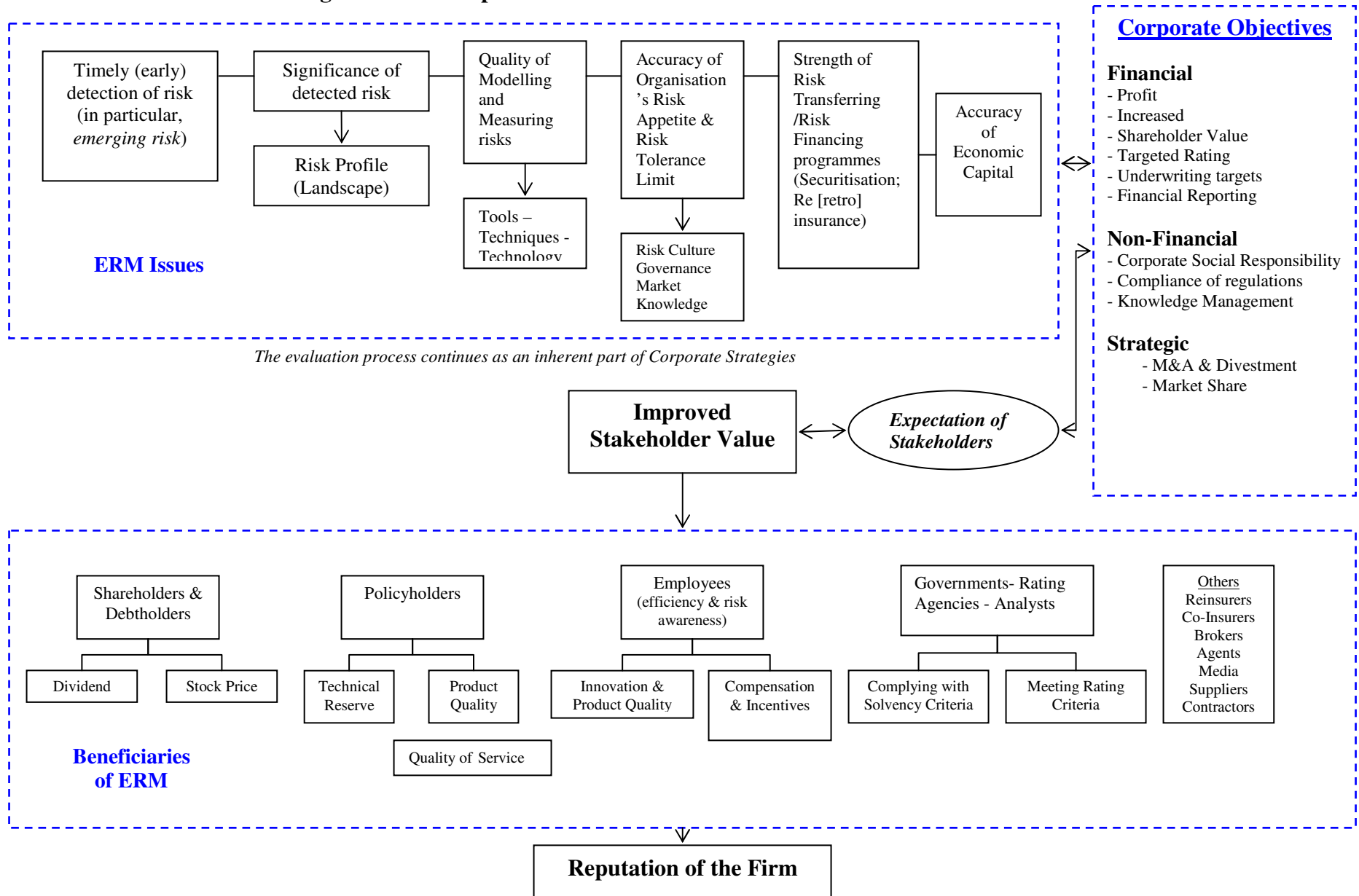
³⁰ See www.naic.org/committees_e_capad.htm

³¹ See www.apra.gov.au

³² See <http://www.bpv.admin.ch>

³³ See www.iaisweb.org

Figure 1: A Conceptual Framework to Measure the Performance of ERM



2. Description of the Framework

The framework as shown in Figure 1 provides three key areas where the performance of ERM needs to be concentrated. The first area illustrates the operational activities of an ERM program in association with an ERM framework as proposed by Acharyya (2006). The second area emphasises on the corporate objectives (financial, operational and strategic) of the firm. And the third area is related to the expectation of the stakeholder group, which is delivered by the firm ensuring the achievement of the corporate objectives. In general, the second and third areas are linked to the evaluation of firm's performance. However, the first area is specific to ERM issues. In short, the effectiveness (or performance) of insurers' ERM should be measured on insurers ability to manage its risks, which is reflected in the success or failure of achieving corporate objectives. However, the insurers' risk management ability will be determined on various issues i.e., early detection of emerging risk and their potential consequences for the organisation; the accuracy of the amount of risk that an insurer can realistically absorb given its business model with respect to the market; and the strength of its risk offloading capabilities through insurance contacts or outsourcings. Finally, the justification of capital that the insurer should hold to absorb the risk (i.e., economic capital) when the incident actually occur is suggested as the ultimate test of the ERM framework.

The key emphasis of the framework is the fulfilment of stakeholders' expectations. The assumption is based on the conclusion drawn from the arguments discussed earlier. It is argued that because ERM takes a holistic view of risk, which involves multiple stakeholders, the key beneficiaries of ERM are policyholders, employees and government & rating agencies in addition to shareholders. Although the assumption is theoretically seems logical, its implementation is definitely complex. This is because different stakeholder, as seen at the bottom of the figure, has heterogenous interest on the performance of the organisation. Moreover, their interests, in some occasion, are conflicting. For instance, the shareholders will be much happy if the organisation runs with zero capital. In contrast, the policyholders want to see as a substantial amount of technical reserve on insurers' book of business³⁴. Nevertheless, the current practice in the market, in particular, the initiatives of regulars and rating agencies, support this conception. Finally, the framework illustrates a single item, the "reputation", which can be used as a proxy of insurers' performance. Indeed, the reputation goes up and down with the same direction of firms' overall performance in the market (at least in long term).

3. Discussion

It is understood that the argument suggesting "creating shareholder value is the ultimate [only] goal of ERM" is based on the assumption that there are no other stakeholders in the firm, except the shareholders (i.e., stockholders). However, such statement is based on the assumption that all markets are perfectly competitive, which is itself controversial in the literature of financial economics. In reality, the interests of the members of stakeholder are uneven and economic theories suggest market irrationality (inefficiency). Consequently, a single measure of the performance of ERM is unsuitable.

In essence, the objective of the performance measurement is organisational control. The objective of ERM is that an organisation takes risk intelligently in a controlled (or balanced) manner so that the business is viable for a longer term while meeting the expectation of the stakeholders (i.e., shareholders, customers/policyholders, employees, regulators, rating agencies, suppliers, etc). Consequently, ERM is a controlled system (Otley 1980). Consequently, the performance of ERM can be evaluated with a set of objectives proposed in the multidimensional concept of Corporate Social Performance³⁵ (hereinafter referred as "CSP"), which is built on four essential components (Carroll 1979; Hillman 2001; Page 2005) –

- (i) Economic responsibility to investors and customers;
- (ii) Legal responsibly to the government or the law;
- (iii) Ethical responsibility to the society; and
- (iv) Discretionary responsibility to the community

³⁴ This argument leads to the fact that neither approach (i.e., policyholders' satisfaction or shareholders satisfaction) does not automatically subsidize the creation of value of their counterpart.

³⁵ It is argued that operating legally and integrity financial firms can perform their social liabilities (Rappaport, 1998)

Nevertheless, the idea of CSP is closely linked with Corporate Financial Performance (Orlitzky 2003). Moreover, Stakeholder management leads to improved shareholder value (Hillman 2001). Indeed, balancing the claims of various stakeholders is a sign of strong management culture of proactive organisations (Barnard 1938; Chakravarthy 1986).

It is important to realize that the above framework (Figure 1) only illustrates the requirements but it does not provide any tool or techniques to meet stakeholders' expectations. Unfortunately, the traditional measures of performance in the literature do not provide any solution for it. In order to propose a holistic measure the following paragraphs reviews the existing tools and techniques to measure performance in the literature.

Section 5: A review of tools and techniques of measuring the performance

In the following paragraphs four techniques i.e., Economic Value Added (hereinafter referred as "EVA"), Balanced Scorecard (hereinafter referred as "BSC"), Benchmarking, and Total Quality Management (hereinafter referred as "TQM") have been discussed including their comparison. Thereafter, the ERM performance measurement framework is linked to them.

The literature of performance measurement is broad and suggests a range of tools and techniques. As discussed earlier, most of them have one dimensional focus (i.e., either financial or non-financial). However, some intend to bridge the gap by taking an integrated or holistic view.

1. EVA

EVA is an accounting-based corporate financial performance measure (Ehrbar 1999) intended to focus managers' minds on the delivery of shareholder value by measuring the difference between the return on a company's capital and the cost of that capital. Alternatively, EVA makes a balance between the extremes of a cash flow (objective, but historic) measure of profit and a net present value (subjective, but future-oriented) measure (O'Hanlon J. 1998). Consequently, EVA is an analysis tool rather than a management practice (Young 1997; O'Byrne 1999).

The criticism of an EVA approach is that *stakeholders* other than *shareholders* are not explicitly considered in the EVA framework. It is argued that in EVA, the stakeholders (excluding shareholders) are seen in an instrumental element while increasing shareholder value. However, it is argued that an EVA takes a more historic view and only uses accounting hence managers can benefit from or be penalized by the past history of the organisation. Rappaport (2006) argues that because EVA is based entirely on cash flows, it gives a clear advantage over traditional measures without introducing accounting distortions. Moreover, the correlation of EVA with firm's Market Value Added (hereinafter referred as "MVA")³⁶ is found insignificant (Kyriazis 2007). Nevertheless, the EVA approach pays particular attention to the setting of appropriate financial targets at the corporate level (Ehrbar 1999). Despite these criticisms, the EVA approach significantly focuses on reward structure within the organisation in adding shareholder value through encouraging risk taking (Garvin 1993).

2. BSC

BSC is a management system that provides a framework to translate company's vision and mission into a coherent set of performance measures (Kaplan 1996). It is regarded as a multi-dimensional approach to performance measurement and management having link specifically to organisational strategy. BSC defines four areas of performance (i.e., *financial*, *customer*, *internal business* and *innovation & learning*) and level them in a holistic framework by considering their interrelations (Marr 2003). In addition, linking organisation's performance measures with business unit strategy is viewed as a major strength of the balanced scorecard approach. It is argued that the BSC put strategy rather than control at the centre (Kaplan

³⁶ Market Value Added is the difference between the market value and the book value of the firm that is calculated by using the accounting data. Theoretically, the sum of all future streams of EVA represents the MVA (Knight, 1997).

1992). The advantage of BSC over other performance measurers is that it presents many disparate elements of a company’s agenda in a single report (Ahmed 1998).

However, the criticism is that at the first sight the BSC would appear to be a stakeholder approach. However, with the development of further stages shareholders are still recognized as the dominant group over the remaining members of the stakeholder group (Shank 1995; Rickards 2003). However, the balanced scorecard should clearly be a stakeholder approach combining both financial and non-financial variables, which represents one of its major advantages.

It is understood that although BSC was initially developed as a tool for performance measurement, it gradually turned into a strategic management system (i.e., translating the vision; communicating and linking; business planning; feedback and learning). The incorporation of the concept of ‘strategy map’ shaped BSC as an universal framework of organisational change by linking and flowing a series of strategic objectives of the organisation to the financial objectives as the final goal (Kaplan 1996; Kaplan 2004; Kaplan 2007).

3. Benchmarking

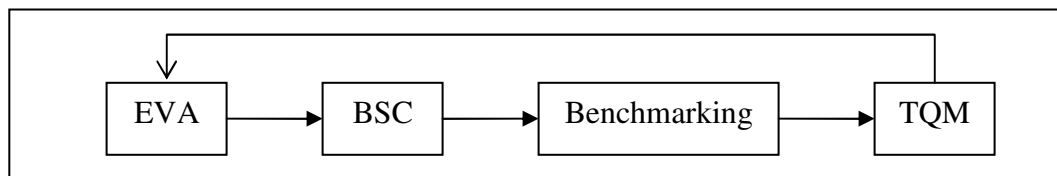
In addition to analyzing the [performance] measurers based on their effectiveness, benchmarking is another important method that is used compare the measured performance between organisations or divisions (Yasin 2002). It is argued that as an strategic management tool, the benchmarking can be useful of identifying improvement opportunities (Camp 1989) to learn how to improve business processes to increase competitiveness (Watson, 2007). In addition, by comparing the performance of one organisation to another, benchmarking can determine the relative positions of competitors (peers) as well as highlighting the areas of improvement of the system³⁷ (Theaker 1998; Kyrö 2003). However, the criticism is that the benchmarking is incapable to provide the ways of improvement (Bhutta 1999).

4. TQM

TQM as Ross (1999) defines, “is the integration of all functions and processes within an organisation in order to achieve continuous improvement of the quality of goods and services”. TQM produces value through managerial innovations and provides improved customer satisfaction, improved communication, offer better knowledge and understanding in managing the business (Powel 1995). Easton (1998) showed that TQM improves firms’ performance.

It is argued that EVA, which measures the financial performance after the fact, includes the lagging indicator (e.g., quality of the process and the product). In contrast, the balanced scorecard considers both the lagging indicator and the leading indicator (e.g., customer satisfaction) including their interrelationships (Young 2000). Wood (2007) shows several overlaps between ERM and BSC in terms of their basic philosophies, organisational breadth and scope of using them as a control and performance measurement tools. It is understood that the BSC can be utilized for benchmarking analysis within and between various business units of an insurer for improvement of ERM performance from a multidimensional systems perspective (Zhu 2002). Moreover, benchmarking can be utilized as essential factor (element) of TQM (Powel 1995; Yasin 2002).

Figure 2: Techniques and their linkage to measure the performance of ERM



³⁷ Commonly known as “best practice”, a reorganisation as the best within the area

5. Linking the management models with ERM

The four operational steps (i.e., centralization, harmonisation, standardization, and integration), which is core to take a holistic view as similar to ERM (Acharyya 2006), perfectly fits with the above model (Figure 2). As discussed earlier the EVA takes an isolated (only financial) but centralized view (top-down) focusing on shareholder value creation. The BSC harmonizes the financial and organisational issues into a common framework. Then benchmarking offers standardization between scattered issues with similar goals. Finally, the TQM, which is a process, integrates everything in a framework, including the results obtained from EVA. Interestingly, it is evident that each technique is related to and comes under the proceeding techniques.

Concluding Remarks

1. Direction of Further Research

This article has just triggered the discussion in developing a conceptual framework of measuring the performance of ERM. Indeed, the idea and concept propose here remain at the very primary level. In essence, the concept of ERM is still premature and there remain ample debate on its structure and ways of implementation. Consequently, there are many avenues to carry forward this research. The followings are few of them.

1.1. Management of Performance

Although measurement is critically important but it is not management - it is merely an element in a modern performance-focused management system (Shank 1995). This paper looks solely on the measurement of performance of ERM. However, the management of performance goes beyond measurement (Otley 1999), which could be one way to continue with the output of this study.

1.2. Linking ERM Performance to Firm's Performance

The link (or interaction) between the strategic performance management of the firm and the management of the performance of the Enterprise Risk Management team is not yet clear. Further research in this area needs to be undertaken in the light of organizational change and management development literature. Moreover, the performance of ERM can be linked to measure the organizational effectiveness (Venkatraman 1986) seeing its multidisciplinary nature.

1.3. Reputation

The reputational index can be used as a single measure of ERM (see figure 1). Indeed, the damage of reputation is a key risk to the organisation, which is itself holistic by nature. Ideally, the recovering any loss (or damage) of reputation is difficult, which could be a major cause of organisational failure. Consequently, the performance of ERM of any insurer could probably be linked to the scale of gaining or loosing its reputation by obtaining the insights of the works of (Gray 1998 ; Argent 2005; Drzik 2005; Jalilvand 2005; Schwamm 2005; Scott 2005; Coombs 2006; Darlapa 2006; Firestein 2006; Zboron 2006; Eccles 2007).

1.4. Theory of ERM

Rather than trying to develop a well-articulated theory at the first instance, the article takes a more inductive approach drawing upon the previous ideas or concepts articulated by different authors of various disciplines and sectors in relevant to the topic. However, the proposed framework of evaluating the performance of ERM can be utilized to develop theories of ERM in a multidimensional perspective.

Conclusion

The study aims to (i) identify the key characteristics of a performance measure suitable for ERM and (ii) then proposing a conceptual framework of measuring the performance of ERM. It is found that ERM is embedded in executing [insurers'] corporate strategies (Simons 1999). The study suggests that ERM encompasses at least two functions. First, the identification of risk signals including their propensity, which is often undertaken by quantitative studies (i.e., modeling and measuring risks). Second,

understanding of firms' (managers') reactions (response) to these pre-identified signals, which is an area of study, comes under the strategic management³⁸. In essence, any performance measurement system for ERM should include a tool of measuring the quality of both functions. Consequently, the performance of ERM can not be measured purely on financial terms. However, it is clear that those organizations will win in the long run who invest more in producing talent to create a knowledge-based risk culture across the organization (Martin 2003). It was found that a little attempt was taken to include the non-financial issues, e.g., customer [policyholder] loyalty, employee satisfaction, influence of organisation's risk culture, etc. in measuring the performance of ERM. Indeed, the happening of insurers' failure is calculated on the result of financial variables. However, it is important to realize that the non-financial factors operate behind financial factors and missing this fact causes a loss of significant opportunity cost (Christopher 2003). The four performance measurement techniques have discussed very briefly in the article. It is revealed that conceptual framework of measuring the performance of ERM should utilize the insights of four techniques (i.e., SVA, BSC, Benchmarking, and TQM) in the sequence. However, this area needs to broaden further by segmenting their operational process in particular attention of the requirements of ERM. In addition, the effect of systemic risk may date the performance of ERM during financial crisis (e.g., economic downturn).

³⁸ this essentially reflects the culture of the organisation

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