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## Enterprise risk management and firm performance

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### Abstract

Increased volatility in the business world has exposed the inadequacy of traditional but fragmented approaches to risk management. This has led to an integrated approach to measuring and managing risks known as enterprise risk management (ERM). While past studies of ERM disclosures have examined it within the context of corporate governance and internal control, its relationship to firm performance has received little attention. While business performance changed radically between 2008 and 2009 during the financial crisis and economic recession, only minor increases in risk exposure, risk consequence or risk management strategies were found from 2007 to 2008. ERM information did not predict or have any appreciable effect on business performance.

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### 1. Introduction

The objective of this paper is to examine the relationship between Enterprise Risk Management (ERM) information content and firm performance. We examine the non-financial companies listed on the Standard & Poor's (S&P) Toronto Stock Exchange (TSX) Composite Index for 2007 and 2008 through a content analysis of their annual reports. To examine firm performance, we collected a variety of market, operational and accounting performance measures for 2006-2009, using the Compustat Research Insight database. *We hypothesize that ERM information is predictive of firm performance.*

ERM is a management process that requires a firm's management to identify and assess the collective risks that affect firm value and apply an enterprise wide strategy to manage those risks in order to establish an effective risk management strategy (Meulbroek, 2002). The primary goal of risk management is to maximize shareholder value (CAS, 2003; COSO, 2004; Beasley et al, 2008; Pagach and Warr, 2011; Hoyt and Liebenberg, 2011). Recently, risk management has evolved from a narrow view that focuses on evaluating risk from a "silo" perspective to a holistic all-encompassing view. Managing each risk class in a separate silo creates inefficiencies due to lack of coordination between the various risk management departments.

A series of company failures, corporate scandals, and fraud are among the reasons for companies to effectively implement risk management programs. These companies' failures are caused by poor risk management and

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corporate governance. Corporate governance and risk management are interrelated and interdependent. The stability and improvement of the company's performance are highly dependent on the effective role of both components (Sobel and Reding, 2004; Manab et al, 2010).

## **2. The nature and objective of enterprise risk management**

Organizations long have practised what is now enterprise risk management (ERM). Treating risks by transferring it through insurance or other financial products has also been common practice (CAS, 2003; Nocco and Stulz, 2006). In recent years, however, corporate risk management has expanded well beyond insurance and hedging of financial exposures to include other kinds of risks – operational risk, reputational risk and most recently strategic risk (Nocco and Stulz, 2006). Now the risk management function is directed often by a senior executive with the title of Chief Risk Officer (CRO). He reports to the Chief Financial Officer (CFO) or Chief Executive Officer (CEO), and in some companies, the CRO reports directly to the board of directors (Lam, 2000).

The major objective of ERM is to increase shareholder value (Sobel and Reding, 2004; Lajili and Zeghal, 2005). Firstly, it achieves this by improving capital efficiency through the provision of an objective basis for allocating corporate resources. It is able to do this by reducing expenditures on immaterial risks and exploiting natural hedges. Secondly, ERM can support informed decision-making by exposing areas of high risk and suggesting risk-based advances. Thirdly, ERM will help build investor confidence by establishing a process which, by its activities, can stabilize financial results and demonstrate to all stakeholders that the organization practises sound risk stewardship.

## **3. ERM and firm performance: a literature review**

Smithson and Simkins (2005) provide an excellent review of the literature examining the value relevance of risk management. The review focuses on the relationship between the use of risk management and the value of the firm. Of the ten studies, five consider interest rate and foreign exchange (FX) risk management by industrial corporations, one looks at interest rate and FX risk management by financial institutions, three study commodity risk management by commodity producers, and one considers commodity price risk management by commodity users. Nine of the ten studies use Tobin's Q as a proxy for the firm's value.

We found three other empirical papers on ERM and its effect on shareholder value. Beasley, Pagach and Warr (2008) find that the univariate average two-day market response is not significant. However, their multiple regression analysis finds statistically significant relationships between the magnitude of equity market returns and certain firm specific characteristics. Pagach and Warr (2011) examine the characteristics of firms that adopt ERM, finding that firms adopt ERM for direct economic benefit rather than merely to comply with regulatory pressure. Hoyt and Liebenberg (2011) find a positive relationship between the use of ERM and firm value, and estimate an ERM premium of roughly 20 percent that is both statistically and economically significant.

## **3. Study objective and research methodology**

The objective of this paper is to explore the relationship between Enterprise Risk Management and firm performance for 156 non-financial firms on the Standard & Poor's Toronto Stock Exchange (TSX) Composite Index during 2007 and 2008. This period was chosen primarily because of the 2008 financial crisis and the economic recession that followed. The extent of ERM reported by firms is examined using content analysis of their annual reports, particularly the Management Discussion and Analysis (MD&A) and the Notes to the Financial Statements. Fourteen different types of risks were examined under the general headings of financial, business and operational risks. For each type of risk reported, the level of exposure to risk, the consequences of such risk and the strategies for managing that risk were identified. While one might have expected many more risk disclosures and major changes in risk levels as a result of the 2008 financial crisis, there were only minor increases in the number of risk

assessments and almost negligible changes in either the overall levels of risk exposure and consequences or the strategies for managing risks from 2007 to 2008. In this paper, the focus is on economic and market risks; these ranked behind only foreign exchange risk for the level of risk exposure and among the top five for risk consequences. Thus, economic and market risks were the risks reported by companies as both most likely to occur and potentially having serious consequences. We do not focus on the strategies for risk management.

This paper looks at whether the average levels of risk exposure and consequences in 2007 and 2008 were predictive of firm performance changes from 2007 to 2008 or from 2008 to 2009. While previous studies have focused on firm value, we have taken a more balanced and comprehensive look at firm performance by examining operational, accounting and financial market performance. More specifically, we look at sales changes, changes in earnings before interest and taxes (EBIT) margins, and changes in Tobin's Q, respectively.

#### **4. Results and analysis**

This section compares the average levels of risk assessment<sup>2</sup> for companies with different operational, accounting and market performances in 2007-08 and in 2008-09. The 2008 financial crisis had either immediate or delayed impacts on firm performance in 2007-08 and 2008-09, depending on whether performance was measured using sales, EBIT margins or Tobin's Q.

##### *4.1 Changes in Operational Performances (as measured by changes in sales)*

The 2008 financial crisis had no immediate impact on changes in sales in 2007-08, but a delayed effect on changes in sales in 2008-09. While most companies increased their sales from 2007 to 2008, most companies had decreased sales from 2008 to 2009.

Of companies reporting market risk exposures in 2008, 95 had positive and only 12 had negative sales changes from 2007 to 2008. However, from 2008 to 2009, only 38 had positive and 70 had negative sales changes. Moreover, all the companies with negative sales changes in either period reported that risk exposure levels were "certain" in their 2008 annual reports. Somewhat unexpectedly, the companies with positive sales changes in the same periods reported a slightly lower average level of market risk exposures; however, the differences are not statistically significant.

Of companies reporting economic risk exposures in 2008, 113 had positive and only 15 had negative sales changes from 2007 to 2008, while only 38 had positive and 92 had negative sales changes from 2008 to 2009 (More companies reported the level of economic risk exposure than those reporting the level of market risk exposure). While the average economic risk exposure levels reported by the 113 companies with positive sales changes in 2007-08 is unexpectedly higher than the average level reported by the 15 companies with negative sales changes in 2007-08, this difference is not statistically significant. However, the average economic risk exposure level of 4.92 reported by the 92 companies with negative sales changes in 2008-09 is statistically significantly higher than the average level of 4.71 reported by the 38 companies with positive sales changes in 2008-09 (p-value = 0.009 for the two-tailed test). Thus the average level of economic risk exposure is predictive of sales changes from 2008 to 2009, with higher economic risk exposure associated with negative sales changes.

Companies with positive sales changes from 2007 to 2008 tend to have higher levels of economic and market risk consequences than companies with negative sales changes in the same period. This is the opposite of what one might expect. However, companies with positive sales changes in 2008 to 2009 tend to have lower levels of both

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<sup>2</sup> Statistical summaries in tabular format are available upon request.

economic and market risk consequences than companies with negative sales changes in the same period. This is more in line with what one might expect. However, neither of the two apparent differences is statistically significant.

Of the eight comparisons above, only one comparison between firms with different operational performances (in 2008-09) yielded a statistically significant difference (in economic risk exposure).

#### *4.2 Changes in Accounting Performances (as measured by changes in EBIT margins)*

The effect of the 2008 financial crisis on EBIT margins was more pronounced in 2008-09 than in 2007-08. While most companies had higher EBIT margins in 2008 compared to 2007, most companies had lower EBIT margins in 2009 compared to 2008.

All companies with lower EBIT margins in 2008 than in 2007 reported that market risk was “certain”, while companies with higher EBIT margins reported that market risk was slightly lower than “certain”. On the other hand, companies with lower EBIT margins in 2008 than in 2007 had a lower level of economic risk exposure than companies with higher EBIT margins in the same period. Neither difference is statistically significantly non-zero. Companies with higher versus lower EBIT margins from 2008 to 2009 do not appear to have any difference in the average levels of market or economic risk exposure.

Companies with higher EBIT margins from 2007 to 2008 had a higher average level of market risk consequences than companies with lower EBIT margins; however, companies with higher EBIT margins from 2007 to 2008 disclose a lower average level of economic risk consequences than companies with lower EBIT margins. These differences are not statistically significant. Companies with higher EBIT margins in 2008-09 have a slightly lower average level of market and economic risk consequences than companies with lower EBIT margins. Again, the differences are not statistically significant.

With respect to this measure of accounting performance, none of the eight comparisons of companies with higher versus lower EBIT margins revealed any statistically significant difference in risk assessments.

#### *4.3 Companies with different financial market performance (as measured by Tobin's Q)*

The 2008 financial crisis had an immediate negative effect on Tobin's Q (and on similar measures such as the one-year market return) from 2007 to 2008. Remarkably, the financial market bounced back from 2008 to 2009.

Of companies reporting market risk exposures in 2008, only 5 had higher Tobin's Q in 2008 than in 2007 and 106 had lower Tobin's Q during the same period. However, from 2008 to 2009, the relationship was markedly different, with only 23 having lower Tobin's Q and 88 having higher Tobin's Q. For each time period, companies with a higher Tobin's Q reported a lower average level of market risk exposure than companies with lower Tobin's Q. However, these differences are not statistically significant. For 2008-09, companies with higher Tobin's Q reported a higher average level of economic risk exposure than companies with lower Tobin's Q. This is the opposite of what one might expect but the difference is not practically or statistically significant. For 2007-08, there was no difference in the average level of economic risk exposure, whether Tobin's went up or down.

For both time periods, companies with lower Tobin's Q had a higher average level of risk consequences than companies with higher Tobin's Q. For 2008-09, this difference is statistically significant ( $p = .032$ ). Companies with higher Tobin's Q had a lower average level of economic risk consequences than companies with lower Tobin's Q in 2007-08. This difference is not statistically significant. However, from 2008 to 2009, companies with higher

Tobin's Q reported a statistically significantly higher level of economic risk consequences than companies with a lower Tobin's Q. This is the opposite of what was expected.

Of the eight comparisons of companies with higher or lower Tobin's Q, only two revealed statistically significant differences in risk assessments. However, while the market risk consequences are higher for companies with lower Tobin's Q, the economic risk consequences are higher for companies with higher Tobin's Q.

## 5. Conclusions

During and after the 2008 financial crisis, companies experienced radical shifts in operational, accounting and financial market performance. While the financial crisis had an immediate effect on financial market performance, it had more of a delayed effect on operational and accounting performance as the economic recession unfolded. However, companies with such different performances generally did not report average levels of economic or market risk exposure or consequences that are statistically significantly different.

While there were differences in the observed average levels of risk assessments, they were not statistically significant, with three exceptions. Of these, only two were consistent with the hypothesis that higher reported risks are predictive of lower firm performance. However, two statistically significant differences supporting the research hypothesis out of 24 comparisons, is just slightly more than what one might expect with a .05 level of significance, assuming no association between risk assessment and firm performance. Therefore, one cannot conclude that the assessed levels of economic or market risk exposure or consequences are related to firm performance.

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