"The Characteristics of Firms That Hire Chief Risk Officers"

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Synopsis by Mattie Merriman

Introduction

Enterprise risk management (ERM) has been a hot topic in recent years, with many studies investigating whether or not ERM really adds value to a company. Pagach and Warr utilize Meulbroek's definition of ERM: "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 risk in order to establish an effective risk management strategy."[1] ERM differs from traditional risk management in that it attempts to manage not only hazard and pure risks but also operational, financial, strategic and reputational risks. Furthermore, ERM represents a portfolio approach to the management of risk whereas traditional risk management is more silo-based. A portion of Pagach and Warr's motivation is to gauge whether regulatory pressure has led to the adoption of ERM distinct from ERM as a tool for management to increase firm value. In other words, despite the adoption of ERM by many firms, there is still debate on its value.

The Study

Pagach and Warr hypothesize that ERM does in fact have a direct positive economic impact on a firm and, therefore, is not just used to simply comply with regulatory pressure. Furthermore, the authors look into what types of firms are more likely to have ERM and proxy ERM practice by focusing on whether a firm has a chief risk officer (CRO). The authors presume a positive correlation between firms hiring of a CRO with the implementation of ERM, as firms tend to disclose very little about their risk management program making it difficult to tell whether ERM has been adopted. There is support by many past studies that hiring a CRO and the adoption of ERM are correlated.[2] The purpose of this study is to look at the characteristics of firms that select ERM as a way to integrate and manage their risks, and then use these results to hypothesize what drives ERM adoption. The authors note that their study is related to a Liebenberg and Hoyt study from 2003.[3] The factors, as suggested by past literature, which may influence ERM adoption cover a wide range of variables that measure financial, asset, market, and managerial characteristics, and managerial incentives.[4] The study isolates attributes characteristics for a set of industrial and financial firms as well as some banks.

The study's null hypothesis, "the hypothesis that an observed difference is due to chance alone and not due to a systematic cause," is that firms are implementing ERM only due to regulatory pressure.[5] This means that there should be no difference in the firms that implement ERM and those that do not, other than industry affiliation if the industry is regulated. The study's additional hypothesis is "that sample observations are influenced by some non-random cause",[6] such as firms implementing ERM for economic reasons like increasing shareholder wealth. The authors make a

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[1] Meulbroek, L., 2002.

[2] Economist Intelligence Unit, 2005; Walker, P. L., W. G. Shenkir, and T. L. Barton, 2003; Beasley, M., R. Clune, and D. Hermanson, 2005.

[3] Liebenberg, A., and R. Hoyt, 2003.

[4] Pagach and Warr, 186.

[5] http://www.merriam-webster.com/dictionary/null%20hypothesis

[6] http://stattrek.com/statistics/dictionary.aspx?definition=alternative_hypothesis

common-sense hypothesis that firms that have the potential to gain the greatest economic benefit from ERM use are likely the ones to more readily implement ERM.

Descriptive Statistics

The study consists of 138 firms that hired a CRO between 1992 and 2005.[7] A large portion of the sample group consists of CRO hires between 1999 and 2002 and of firms in the financial and utility industries. The variables used are hypothesized to be either determinants of CRO hire decision or control variables and are defined as financial characteristics, asset characteristics, market characteristics, managerial characteristics or controls.

The authors compared firms that hired CROs to all the other firms. The key findings from the initial analysis are that in nonfinancial industries, the average CRO hiring firm is much larger than the average non-CRO hiring firm.[8] Additionally the larger, CRO hiring firms tend to have more operating segments, more institutional investors, be more levered, have lower cash ratios, lower market-to-book ratios and less volatile stock returns and cash flows. These results are supported by the fact that the firms that hire CROs tend to be more mature corporations; yet, runs counter to the authors hypothesis that younger firms with more growth options will be more likely to use risk management to try and protect those future revenue sources. Similar to firms in nonfinancial industries, firms in financial industries are more likely to hire a CRO the larger they are. Financial, CRO hiring firms also have more institutional ownership, more segments, are more levered, have less volatile cash flows, less stock returns and have lower market-to-book ratios.[9] Additionally, for CRO hiring nonfinancial firms the research shows that compensation to CEOs is more in the form of pure equity, whereas for financial firms option-based compensation is the most common form.

Multivariate Results

Multivariate analysis is the use of "powerful statistical techniques for analyzing data with many variables simultaneously to identify patterns & relationships",[10] and in this study it is used for identifying the relationship between CRO hire, or ERM adoption, and positive economic outcomes. This is done by creating a "hire" dummy variable thus allowing the results from the CRO hiring firms to be compared to the results of the non-CRO hiring firms. The authors employed a hazard model which is a "statistical technique for determining 'hazard functions', or the probability that an individual [firm] will experience an event within a particular time-period, given that the individual [firm] was subject to the risk that the event might occur."[11]

Table 1 Summary

Statistically Significant Variable	Correlation and Strength to CRO Hire
Operating Cash Flow Volatility	Positive, Moderate
Assets	Positive, Strong
Standard Deviation of Returns	Positive, Moderate
Institutional ownership	Positive, Moderate

Notes: Moderate is 95% confident, strong is 99% confident

[7] Pagach and Warr, 191.
[8] Pagach and Warr, 194.
[9] Pagach and Warr, 196-197.
[10] http://www.camo.com/multivariate_analysis.html
[11] http://www.encyclopedia.com/doc/1O88-hazardmodel.html

Table 1 above is comprised of the key components from the authors Table 4[12], which summarizes the relationships between statistically significant variables and their correlation with firms who hire CROs. There were two major results from this model: large firms and firms with more risk are more likely to hire a CRO.[13] The size and riskiness of the firm was measure by assets, cash flow volatility and return volatility. This supported the authors' hypothesis that firms with more risk are likely to benefit greater from implementing ERM.

Using a robustness check, the author's find supporting evidence for the above results as well as gain more insight behind why a CRO hire is negatively correlated with market-to-book.[14] The authors believe that the explanation for the negative correlation between CRO hire and the market-to-book ratio is not risk based but probably due to lower growth firms that are in a more mature stage adopting ERM rather than due to higher risk firms adopting ERM.[15]

The authors' second analysis was centered on a subsample of financial firms. While these firms are all in the same industry, there was a dummy variable added for the major financial sub-industries that the firm's segments operate. Table 2 below is comprised of the key components from the authors Table 5[16], which conveys the industry adjusted Cox proportional hazard model on the determinants of CRO hires for financial firms:

Table 2 Summary

Statistically Significant Variable	Correlation and Strength to CRO Hire
Operating Cash Flow Volatility	Positive, Moderate
Assets	Positive, Strong
Market-to-Book	Negative, Moderate
Number of Operating Segments	Negative, Moderate
Institutional Ownership	Positive, Moderate
Depository Institution	Positive, Strong
Security Brokers	Positive, Strong
Insurance Agents	Positive, Strong

Notes: Moderate is 95% confident, strong is 99% confident

The results show that many variables are significant, including, operating cash flow volatility, size, market-to-book, number of institutions, and number of segments. By segment, depository institutions, brokers and insurance firms are significantly positive. This conveys that across the financial industry, ERM implementation is not uniform, likely due to the regulatory pressures that only affect certain areas of the industry.

Also divided out by industry, the authors look at banking institutions. Among both banking firms and financial firms, cash flow volatility drops out as a significant determinant of hiring a CRO, while size in assets remains as a positive and significant determinant. Table 3 reports the key

[12] Pagach and Warr, 200.

[13] Pagach and Warr, 200.

[14] The market-to-book ratio is used to find the value of a company by comparing the book value of a firm to its market value. Book value is calculated by looking at the firm's historical cost, or accounting value. Market value is determined in the stock market through its market capitalization. See: http://www.investopedia.com/terms/b/booktomarketratio.asp#ixzz3YF6WMGkK

[15] There are criticisms to Pagach's and Warr's method. The main criticism is that the method does not deal with the issue of endogeneity which "occurs when the independent variable is correlated with the error term in a regression model".http://en.wikipedia.org/wiki/Endogeneity_%28econometrics%29

[16] Pagach and Warr, 202.

components from Table 6[17], which reports the significant relationships between independent variables and determinants of CRO hires in banking:

Table 3 Summary

Statistically Significant Variable	Correlation and Strength to CRO Hire
Assets	Positive, Strong
Institutional Ownership	Positive, Moderate
Tier 1	Positive, Weak

Notes: Weak is 90% confident moderate is 95% confident, strong is 99% confident

Finally, the authors investigated the effect of CEO compensation on the CRO hire decision. Firms were adjusted for industry type. The two sensitivity factors used to determine CEO compensation were that of the CEO's compensation to stock volatility and to stock value. Table 4 summarizes the authors Table 7.[18]

Table 4 Summary

Statistically Significant Variable	Correlation and Strength to CRO Hire
Assets	Positive, Strong
Tax Save	Positive, Weak
Sales Growth	Positive, Weak
Standard Deviation of Returns	Positive, Strong
Managerial Risk Taking Incentives	Positive, Weak
Number of Operating Segments	Negative, Weak

Notes: Weak is 90% confident moderate is 95% confident, strong is 99% confident

The authors found that the sensitivity of the CEO's compensation to stock volatility is positive and significant, meaning that the more dependant the CEO's compensation is on stock performance, the more likely the firm is to hire a CRO. The authors note that a CEO should actually embrace the hiring of a CRO because even though the CRO will likely reduce the amount of risk the firm takes on and thereby potentially reducing the amount of compensation a CEO would get, ERM reduces the downside risk without impacting the upside risk.[19]

Overall Key Findings and Conclusion

Pagach and Warr find that firms with a higher likelihood of financial distress, volatile operating cash flows and larger firms are more likely to hire a CRO and thus are likely to have adopted ERM. When it comes to financial firms, depository institutions, brokers and insurance companies have a greater adoption rate of ERM than other financial firm types. Also playing a role in determining the hiring of a CRO is stock volatility and whether or not the CEO has incentives to take a risk via option compensation. Many of the findings support the authors' hypothesis that firms are hiring CROs and implementing ERM for their economic value, not due to regulatory pressure.

[17] Pagach and Warr, 204.
[18] Pagach and Warr, 205.
[19] Pagach and Warr, 204-205

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