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Enterprise Risk Management and Company's Performance: Empirical Evidence from China

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Abstract

This study investigates the relationship between enterprise risk management (ERM) and company performance in the Chinese commercial industry. An ERM index was constructed from a strategic and operational perspective to assess Chinese commercial companies' ERM level. ERM is also an integrated, comprehensive, and strategic management using the Simona-Iulia (2014) approach. The study used 175 listed Chinese commercial companies from 2009 to 2018 and found that the imperfect ERM in the Chinese commercial industry had a negative effect on the performance of companies. It also found that the company's size, financial leverage, and intellectual capital can influence ERM. These results established a strong link between ERM and company performance in the Chinese commercial industry. The results are supported by substantial evidence. This study contributes to the literature by analyzing the impact of ERM when implemented in the industry. Our findings indicate that company performance is linked to its level of ERM.

Keywords: traditional risk management; enterprise risk management; transaction cost; company performance; intellectual capital, Chinese commercial industry.

I. INTRODUCTION

Globalization has made the business environment ever more complex, and many companies face increasingly severe challenges. Some companies are focused not just on making profits but also on risk prevention. Companies facing significant challenges are putting risk management at an increasingly important level. However, risk management continues to evolve through these years. Enterprise risk management (ERM) is separate from traditional risk management. Even though ERM is an extension of traditional risk management, it is not limited to preventing risk. It is also concerned about best utilizing company resources to increase profit (Nocco & Stulz, 2006).

With the increased attention to ERM, many researchers have been exploring ERM's relationship with company performance. Mohammed and Knapkova (2016) found a positive relationship between risk management and company performance in Prague's listed companies. Nocco and Stulz (2006) identified theoretical differences between ERM and traditional risk management. Pagach and Warr (2010) and Bertinetti et al. (2013) found a positive relationship between the company's size and ERM. Bertinetti et al. (2013) pointed out the negative influence of financial leverage on ERM. Mohammed and Knapkova (2016) found a positive relationship between ERM and

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intellectual capital. Pagach and Warr (2010) and Bertinetti et al. (2013) found that ERM positively impacts company performance.

No previous study has explored the relationship between ERM and listed Chinese companies, especially in a specific industry. Prior research has focused on the influence of ERM in listed companies of Prague, Europe, and America to assess the relationship between ERM and company performance (Pagach & Warr, 2010; Bertinetti et al., 2013; and Mohammed & Knapkova, 2016). However, different countries have varying levels of development in terms of ERM. Extending their findings to Chinese companies is difficult. Moreover, various industries in one country have different ways of performing ERM. The country-wide degree of risk management and problems cannot be applied to a single industry. Through analyzing the relationship between ERM and the Chinese commercial industry instead of the Chinese companies as a whole, the effect of ERM can be evaluated, and the challenges of implementing ERM can be highlighted. As such, this study complements and extends previous work that explores the relationship between ERM and company performance.

This study intends to determine the impact of ERM on the Chinese commercial industry. Nowadays, China is developing rapidly and focusing on risk management. However, it faces some challenges in mitigating risks because research on risk management is still at an early stage in the country (Liu et al., 2007). Cultural consideration is one of those challenges (Liu et al., 2007). If China has to improve risk management rapidly, it needs to learn from foreign countries' risk management models. This study offers a quantitative way of measuring the impact of ERM in the Chinese commercial industry.

This study proposes two regression models based on the models developed by Mohammed and Knapkova (2016). The study aims to identify the factors that may influence ERM. The study also intends to examine the relationship between ERM and Chinese commercial companies' performance. Firms that practice ERM have worse company performance than firms that do not. This study also indicates that company size and intellectual capital positively influence ERM in this sector and observe a negative association between financial leverage and ERM.

This study contributes to the literature in many ways. This study is notably the first to examine the relationship between ERM and company performance in the Chinese commercial industry. The results are supported by substantial evidence. The sample mostly represents the commercial industry in China, and the timeline for data collection is sufficient. Furthermore, empirical tests have several control variables to ensure the accuracy of the results. A strong relationship is found between ERM and company performance. The bulk of findings are consistent with the existing literature. Finally, this study contributes to the literature by analyzing the impact of ERM when implemented in the industry. Our findings indicate that company performance is linked to its level of ERM.

The rest of this paper is structured as follows. Section 2 reviews a brief review of relevant literature and proposes some hypotheses. Section 3 comprises of data and research methodology. Section 4 describes the main results of regression models. Section 5 elaborates the reasons for the results. Section 6 consists of the conclusion.

II. LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

2.1. Concept Define

2.1.1. Traditional risk management

The number of companies that put risk management in an imperative position has increased in recent years. The concept of risk management is becoming increasingly evident. Traditional risk management is a managerial process designed to monitor the company's main activities to mitigate unintended failure and reduce risk occurrence potential (Simona-Iulia, 2014). It has four functions: planning, organizing, leading, and controlling, and includes five steps to make a decision. The first step is to define and analyze exposures to unforeseen losses. Knowing the cause and probability of the risk is essential. Managers also need to determine whether a potential risk that cannot be estimated exists. The second step is to examine whether any alternative risk management techniques are effective for these exposures, identifying some suitable ways to deal with exposures. The third step is the selection of the best risk management technique after comparing them. The fourth and fifth steps include implementing the chosen risk management technique and monitoring the results (Simona-Iulia, 2014).

These measures make traditional risk management effective for dealing with absolute risk. However, traditional risk management focuses more on individual risks and assumes no interaction between various risks. Thus managers in different departments must deal with each risk separately, which is not feasible. Therefore, more companies recommend that the risk be dealt with as a whole (Simona-Iulia, 2014). Researchers have also posited that traditional risk management is not sufficient to solve contemporary business issues. Today's business environment has become increasingly complicated because of intense competition, natural disasters, and regulatory requirements (Layton & Wagner, 2007), which is why the latest risk management model called ERM exists.

2.1.2. Enterprise risk management (ERM)

ERM is an extension of traditional risk management. It improves traditional risk management, summarizing it as an integrated, comprehensive, and strategic system (Simona-Iulia, 2014). Once business leaders realize the shortcomings in traditional risk management, they start using ERM to monitor company processes. It is an integrated form of risk management that retains most of the concepts of traditional risk management. It also focuses more on the company's strategic risks and views it as a whole by analyzing it from top to bottom. It also uses an ERM index (ERMI) to identify and estimate the company's risk (Beasley et al., 2005). Therefore, testing the relationship between ERM and company performance can provide some business leaders guidelines to manage companies better.

2.1.3. Commercial industry in China

The commercial industry is one that relies on overall sales. It primarily consists of wholesalers and retailers seeking to sell more products to get more profits. The Chinese commercial industry is highly fragmented and composed of many small retailers (Lu & Zhao, 2010). Around the same time, there are significant disparities among various retailers in China due to large income gaps in different regions of China (Lu & Zhao, 2010). Therefore, it is a challenge for commercial companies to survive in such a competitive market, making it crucial for them to improve ERM. However, most commercial companies are in the early stages of ERM. Given ERM's imperfections, many small retailers have resorted to traditional risk management to minimize costs.

2.1.4. Risk management and company's performance

The performance of companies can be improved by an effective and integrated risk management system. Companies need to invest a lot in risk management to achieve this objective. However, business leaders who want to boost their performance have expectations of gaining more through investment in risk management (Pagach & Warr, 2011). They also need to learn about the assessment of company performance in various aspects.

Effective risk management can help a company increase the possibility of raising capital at a lower required rate of return and reduce the likelihood of bankruptcy (Mohammed & Knapkova, 2016). It can also identify the alternative methods of acquiring capital at lower risk or a lower return rate. Given that risk management keeps companies stable as they earn and reduce capital costs, the average cost of capital may be a reasonable indicator of the company's performance.

2.1.5. Transaction cost

Effective ERM may help companies to have successful relationships with their customers and suppliers. These successful relationships can make transactions smoother and reduce their costs (Blome & Schoenherr, 2011). However, if one company has poor risk management, it will ruin relationships between companies and external parties (customers or suppliers), and some may even lose their customers and suppliers. Companies need to put more money and effort into communicating with the external parties and consider improving risk management to satisfy their customers or suppliers, which is a smart way of creating a win-win scenario for both parties in a single transaction. Thus, transaction costs can be an essential indicator of the relationship between companies and external parties.

2.1.6. Company's stock value and assets

Effective ERM can make a company outstanding in its industry. It can help quicken development and make profit stably (Iswajuni et al., 2018). Companies with good ERM can also grow their assets as a result of development and increased profit. Their stock values can also increase as they attract more investors because of effective ERM. However, poor risk management may cause companies to miss some future opportunities. Therefore, business leaders need to improve risk management for leveraging any potential opportunity and obtain more assets for the company's growth. Thus, the company's stock value and assets can be a measure of its performance.

2.2. Hypothesis Development

Larger companies are more likely to focus on ERM. The larger the companies are, the higher the monitoring and agency costs are. They need to disclose more information to reduce the uncertainty of the company's performance (Zadeh & Eskandari, 2012). Large companies face more risk and have more requirements for risk management. They also have sufficient capital to implement a good risk management plan. Therefore, the ERMI must have a positive relationship with company size.

H_1: ERM has a positive relationship with company size in the Chinese commercial industry.

Effective ERM can make companies more reliable. Companies with good ERM are allowed to borrow more money from others (Bertinetti et al., 2013) because they can disclose exposures better. Thus, companies with higher financial leverage may gain more from effective ERM.

H_2: ERM has a positive relationship with financial leverage in the Chinese commercial industry.

The larger the intellectual capital a company has, the more value it generates (Mohammed & Knapkova, 2016). The reason is the perpetual difference between the market value and the book value of the company. The primary reason for this disparity is the difference in intellectual capital. Given that intellectual capital can also influence the company's performance, a positive relationship may exist between ERM and its intellectual capital.

H_3: ERM has a positive relationship with company intellectual capital in the Chinese commercial industry.

This study focuses on evaluating the relationship between ERM and company performance. A company with competent risk management can efficiently cope with the risk and minimize the losses (Pagach & Warr, 2010; Bertinetti et al., 2013). Therefore, better risk management may boost company performance.

H_4: ERM has a positive relationship with company performance in the Chinese commercial industry.

III. RESEARCH METHODOLOGY

3.1. Data and Sample

This empirical study focused on companies of the Chinese commercial industry listed on the Shanghai stock exchange and the Shenzhen stock exchange from 2009 to 2018. Currently, they have 175 companies listed with them. The annual company reports of the last 10 years were compiled to examine the relationship between these companies' ERM and performance. The market data of these companies were also collected. Following the collection, data were reviewed and filtered, and companies with incomplete records were excluded from the study.

3.2. Empirical Model

The research used two linear regression models based on Mohammed and Knapkova (2016) methods to analyze the data and test the hypotheses. The first regression model is used to assess whether any factors can influence the ERMI. For this model, ERMI is the dependent variable, whereas company size, financial leverage, intellectual capital, and insider are the independent variables.

$$\mathbf{ERMI} = \beta_0 + \beta_1\mathbf{Size} + \beta_2\mathbf{Leverage} + \beta_3\mathbf{Intellectual\ capital} + \beta_4\mathbf{Insider} + \varepsilon \quad \ldots\ldots (1)$$

The second regression model evaluates the impact of ERM and other factors on company performance. In this model, company performance is the dependent variable, whereas ERMI is an independent variable. Intellectual capital is also an independent variable because it may also influence company performance. Insider, company size, financial leverage, future opportunity, and profitability may also have potential effects on companies' performance. Thus, they are the control variables in this study.

$$\mathbf{Performance} = \beta_0 + \beta_1\mathbf{ERMI} + \beta_2\mathbf{Intellectual\ Capital} + \beta_3\mathbf{Insider} + \beta_4\mathbf{Size} + \beta_5\mathbf{Leverage} + \beta_6\mathbf{Future\ Opportunity} + \beta_7\mathbf{Probability} + \varepsilon \quad \ldots\ldots (2)$$

Both regression models are of vital importance. The first model identifies the factors that can influence ERM in Chinese commercial companies. Its results are beneficial for Chinese commercial companies to improve their ERM. The second regression model describes the impact of ERM on the performance of Chinese commercial companies. It is designed to explain the current situation of ERM in Chinese commercial companies and determine ways to improve company performance well. Table 1 defines the regression model variables.

Table 1
Description of Study Variables

Variables	Description	Type	Data Source
Enterprise Risk Management Index (ERMI)	ERMI= strategy+operation	Dependent	CSMAR
Intellectual Capital (INTCAP)	Market value of the outstanding stock over book value of the firm	Independent	CSMAR
Performance (PERF)	Net income (loss) over hareholders' equity (ROE)	Dependent	CSMAR
Insider (INSID)	Proportion of shares held by senior management in total shares	Control	CSMAR
Company Size (COMSIZE)	Natural logarithm of total asset	Control	CSMAR
Financial Leverage (FINLEV)	Long term debt over total equity	Control	CSMAR
Future Opportunity (FUOP)	One-year business growth rate	Control	CSMAR
Profitability (PROF)	Return on assets	Control	CSMAR

The two regression models have eight two independent variables, one dependent variable, and five control variables. ERMI is calculated from strategic and operational aspects (Mohammed & Knapkova, 2016). The strategy index is calculated by subtracting one-year industry average sales from one-year sales volume, divided by the standard deviation of sales of all companies in the same industry (Mohammed & Knapkova, 2016). The operation index is calculated by performing a division of sales by total assets. Intellectual capital, performance, insider, company size, financial leverage, future opportunity, and profitability are calculated using the methods developed by Mohammed and Knapkova (2016).

IV. RESULTS AND DISCUSSIONS

4.1. Descriptive Analysis

After using the China stock market and accounting research database (CSMAR) to collect the data for 175 Chinese commercial companies, some incomplete records were found. Further processing and filtering of data were performed to obtain the descriptive statistics for the research variables. The detailed information of each variable is displayed in Table 2.

Table 2
Results of Descriptive Statistics

Variables	Obs.	Mean	Std. Dev.	Min.	Max.
ERMI	1516	1.365	1.922	-.536	12.887
INTCAP	1516	4.594	14.226	-125.627	348.628
PERF	1516	.069	.34	-4.295	9.498
INSID	1516	.025	.088	0	.63
COMSIZE	1516	22.223	1.264	17.604	26.105
FINLEV	1516	.536	1.211	0	10.956
FUOP	1516	.338	3.268	-.986	87.484
PROF	1516	.037	.099	-.654	2.933

Screening the raw data retains 1516 observations for 175 Chinese commercial company. Table 1 displays eight variables. The variable of ERMI recorded a maximum of 12.887 and a minimum of -0.536. The best performance of selected companies is 9.498, and the worst is -4.295. Some companies' insider index and financial leverage are

0. Intellectual Capital and Future Opportunity record the highest standard deviation among all variables at 14.226 and 3.268, demonstrating a high variability of the selected companies.

4.1.1. Correlation analysis

After describing the data as a whole, we perform a correlation analysis for each variable. Table 3 shows the results.

Table 3
Results of Pairwise Correlations Test

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(1) ERMI	1.000							
(2) INTCAP	-.060**	1.000						
(3) PERF	-.030	-.076***	1.000					
(4) INSID	-.046*	-.009	.008	1.000				
(5) COMSIZE	.443***	-.252***	.057**	-.085***	1.000			
(6) FINLEV	.080***	-.066***	.022	-.078***	.368***	1.000		
(7) FUOP	.025	.122***	.010	.001	.046*	.175***	1.000	
(8) PROF	-.024	.012	.265***	.034	-.051**	-.050*	-.003	1.000

Notes: *** p < .01, ** p < .05, * p < .1.

The results of the Pairwise correlation show the relationships and significance of the variables. In this table, "***" means that p is smaller than 0.01 and significant at 1% level, "**" denotes that p is smaller than 0.05 but larger than 0.01 and significant at 5% level, whereas "*" signifies that p is smaller than 0.1 but larger than 0.05 and significant at 10% level. It also displays some positive and negative relationships. The highest correlation coefficient is 0.443 between ERMI and company size, indicating a strong relationship. It is found significant at the 1% level. The lowest correlation coefficient between insider and future opportunity at 0.001, which was is found to be significant.

4.1.2. Results of the variance inflation factor (VIF) test

The VIF test is performed to detect any problems of multicollinearity and ensure that the two regression models are accurate.

Table 4
VIF of Model 1

	VIF	1/VIF
COMSIZE	1.236	.809
FINLEV	1.16	.862
INTCAP	1.07	.935
INSID	1.011	.989
Mean VIF	1.119	.

Table 4 shows the VIF for model 1. The mean VIF of these four variables is 1.119, which is much smaller value than the benchmark of 10. Therefore, no multicollinearity problem is found in variables of model 1.

Table 5
VIF of Model 2

	VIF	1/VIF
COMSIZE	1.542	.648
ERMI	1.262	.793
FINLEV	1.208	.828
INTCAP	1.094	.914
FUOP	1.052	.951
INSID	1.012	.988
PROF	1.005	.995
Mean VIF	1.168	.

Table 5 displays the VIF for model 2. The mean VIF of these seven variables is a small value of 1.168. The benchmark of 10 is much larger than this test value. Therefore, no problem of multicollinearity is found in variables of model 2.

4.1.3. Hausman test

The Hausman test's probability value can help decide between the fixed effect regression model and the random effect regression model. It can help in knowing which regression model will provide a more accurate result. The null hypothesis in the Hausman test is that the random effect model is acceptable. The alternative hypothesis is that the fixed effect model is appropriate.

Table 6
Hausman (1978) Specification Test of Model 1

	Coefficient
Chi-square test value	5.07
p-value	0.28

The p-value of the Hausman specification test is 0.28, which is much greater than 0.05. Thus, the null hypothesis cannot be rejected. The Hausman specification of the model shows choosing a random effect regression for model 1 is preferable.

Table 7
Hausman (1978) Specification Test of Model 2

	Coefficient
Chi-square test value	14.272
p-value	0.047

The p-value of the Hausman specification test is 0.047, which is close to 0.05. Therefore, choosing either a fixed-effect model or a random-effect model is reasonable. In this study, we chose the random effect regression for model 2.

4.1.4. Results of random effect regression model 1

Model 1 is used to test whether any factors can influence ERMI.

Table 8
Regression Results of the ERMI Factors Model

ERMI	Coef.	Std. Error	t-value	p-value	95% Conf.	Interval	Sig.
COMSIZE	.584	.036	16.04	0	.513	.655	***
FINLEV	−.054	.029	−1.89	.059	−.11	.002	*
INTCAP	.003	.002	1.65	.1	−.001	.007	*
INSID	.294	.526	0.56	.576	−.737	1.325	
Constant	−11.642	.813	−14.32	0	−13.235	−10.048	***
Mean dependent variable			1.365	SD dependent variable		1.922	
Overall R-squared			0.203	Number of observation		1516.000	
Chi-square			276.203	Prob. > chi2		0.000	
R-squared within			0.147	R-squared between		0.217	

Notes: *** p < .01, ** p < .05, * p < .1.

The ERMI factors regression model shows that the overall R-squared is 0.203, which means that 20.3% of the cross-sectional variability in ERMI is accounted for by company size, financial leverage, intellectual capital, and insider. The coefficient between ERMI and company size is 0.584 at a 1% significance level. The coefficient between financial leverage and ERMI is −0.054, and 0.003 between intellectual capital and ERMI. Both coefficients are at a 10% significance level. Furthermore, the relationship between insider and ERMI is significant.

4.1.5. Results of random effect regression model 2

Model 2 is used to test the impact of ERM and other company performance factors.

Table 9
Regression Results of the Company Performance Factors Model

Performance	Coef.	Std. Error	t-Value	p-Value	95% Conf.	Interval	Sig.
ERMI	−.011	.005	−2.30	.021	−.021	−.002	**
INTCAP	−.002	.001	−2.49	.013	−.003	0	**
INSID	.009	.096	0.09	.925	−.179	.197	
COMSIZE	.022	.008	2.64	.008	.006	.038	***
FINLEV	.001	.008	0.16	.877	−.014	.016	
FUOP	.002	.003	0.61	.542	−.004	.007	
PROF	.918	.085	10.85	0	.752	1.083	***
Constant	−.427	.18	−2.37	.018	−.779	−.074	**
Mean dependent variable		0.069		SD dependent variable		0.340	
Overall R-squared		0.083		Number of observation		1516.000	
Chi-square		135.809		Prob > chi2		0.000	
R-squared within		0.049		R-squared between		0.501	

Notes: *** $p < .01$, ** $p < .05$, * $p < .1$.

The findings of the company performance factors model show that the overall R-squared is 0.083. The correlation coefficient between ERMI and company performance is −0.011 at a 5% significance level. The correlation coefficient of −0.002 with intellectual capital is also at a 5% significance level. The coefficients of company size and profitability are at a 1% significance level with values of 0.022 and 0.918, displaying positive relationships.

4.2. Discussion

4.2.1. Main results and explanation

1). ERMI and company size

For hypothesis 1, finding the specific relationship between ERMI and company size is important. As shown in Table 3, the correlation coefficient between ERMI and company size is 0.443 at a 1% significance level. From Table 8, the regression coefficient of 0.584 between ERMI and company size indicates the presence of a strong positive relationship. These two tests' findings imply that hypothesis 1—company size has a positive relationship with ERMI in the Chinese commercial industry—should be accepted. This finding is similar to the previous findings of Bertinetti et al. (2013). Another research by Pagach and Warr (2010) posited that the more prominent companies were more likely to implement ERM. The bigger the company, the higher the probability of it having ERM. The bigger the company, the higher the level of its ERM. The reason is that big companies have sufficient resources to implement ERM.

2). ERMI and financial leverage

For hypothesis 2, the relationship between ERMI and financial leverage can be observed in Tables 3 and 8. In Table 3, the correlation coefficient between ERMI and financial leverage is 0.080 at a 1% significance level. However, after considering other variables, the regression findings in Table 8 indicate a negative relationship between financial leverage and ERMI in Chinese commercial companies. Therefore, hypothesis 2 should be rejected. These results are consistent with the results of Bertinetti et al. (2013), which stated a negative effect of financial leverage on ERM. However, the rejection of hypothesis 2 is unexpected because the larger financial leverage is, the harder it is to implement ERM. As per its definition, a well-implemented ERM can help a company manage risks well, which allows the company to have larger financial leverage for making more profit. However, conversely, a positive relationship does not exist between financial leverage and ERMI. A company with higher financial leverage

also has large debt, putting the company in a higher risk situation, which is difficult for companies to manage (Balasubramaniam, 2021). Therefore, higher financial leverage pushes a company to improve risk management, but most of the companies in the Chinese commercial industry fail to do so. Therefore, financial leverage and ERMI in Chinese commercial companies have a negative relationship.

3). ERMI and intellectual capital

The results for testing hypothesis 3 can be found in Tables 3 and 8. Table 8 shows a high correlation coefficient between ERMI and intellectual capital. The regression results in Table 8 indicate a positive relationship between intellectual capital and ERMI in Chinese commercial companies. Therefore, hypothesis 3 can be accepted. These findings are consistent with those of Mohammed and Knapkova (2016), who found that companies with greater intellectual capital could have better risk management (Mohammed & Knapkova, 2016). Intellectual capital is about the company's goodwill and employees' skills. It can add up the company's value. The higher the number of well-skilled employees in a company, the better it is at ERM. The reason is that such employees could be easily trained to perform effective ERM. Therefore, a company with better goodwill has an effective ERM because strong goodwill could provide a feasible environment for a company to develop its ERM.

4). ERMI and company performance

For hypothesis 4, Table 3 shows a low correlation between company performance and ERMI in Chinese commercial companies. The regression model from Table 9 also indicates a negative relationship between ERM and Chinese commercial companies' performance. Therefore, hypothesis 4 is rejected. However, the results are unexpected and inconsistent with previous studies. The findings of Pagach and Warr (2010), Bertinetti et al. (2013), and Mohammed and Knapkova (2016) posited that ERM and company performance have a positive relationship. Different companies or industries could have varying situations, and ERM can improve a company's performance in some situations. Given that most companies in the Chinese commercial industry focus on reducing costs, they implement traditional risk management only. Some commercial companies are at the early stages of implementing ERM and require a long process to improve ERM. Thus, ERM has not yet been perfected and popularized in the Chinese commercial industry. Some companies implementing ERM may spend more money and increase their transaction costs. As a result, the imperfect ERM in the whole Chinese commercial industry negatively affects company performance.

The regression analysis also illustrates other significant relationships. It indicates a strong positive relationship between company size and company performance. The bigger the company, the better performance it has. Another finding is a strong positive relationship between the company's profitability and performance, making profitability a firm representative of performance.

5). Novelty of the research

No previous study explores the relationship between ERM and listed Chinese companies, especially in a specific industry. Alternatively, to assess the relationship between ERM and company performance, prior research has focused on the influence of ERM in listed companies of Prague, Europe, and America (Pagach & Warr, 2010; Bertinetti et al., 2013; and Mohammed & Knapkova, 2016). However, different countries have varying levels of development in terms of ERM. Extending their findings to Chinese companies is difficult. Furthermore, various industries in one country have different ways of performing ERM. The country-wide degree of risk

management and problems cannot be applied to a single industry. Through analyzing the relationship between ERM and the Chinese commercial industry instead of the Chinese companies as a whole, the effect of ERM can be evaluated, and the challenges of implementing ERM can be highlighted. As such, this study complements and extends previous work that explores the relationship between ERM and company performance.

4.3. Limitation of this Study

This study only focuses on the strategic and operational parts of ERM. ERMI reflects the actual ERM for each company completely and has scope for further improvement. This study chooses only one specific industry in China to analyze the relationship between ERM and company performance. Only the listed Chinese commercial companies are selected in this study to collect complete data. The ERMI factors model and the company performance factors model can add more variables to have a more detailed analysis.

4.4. Reliability and Validity of this Study

The reliability of the results is good. No participant error was observed because an extended period of 10 years to observe each variable of Chinese commercial companies was chosen. Furthermore, no participant bias was observed because the data were collected from CSMAR, and each company's data are independent and accurate. No research error has been found because the same period for data collection was considered along with the same set of variables for each company. Moreover, no research bias has been found because an objective method to collect and analyze the data was used.

This study's construct validity is good because the Hausman test was used to choose the research strategy. The VIF test assisted in checking the accuracy of the study variables. External validity is vital because the scope of this study covers the entire Chinese commercial industry. The sample is also representative of this study to an acceptable level.

4.5. Theoretical Contribution

This study focuses on the relationship between ERM and company performance in the Chinese commercial industry. ERMI and company performance are the critical variables in this analysis. Such focus offers a quantitative way of measuring the effect of ERM on company performance. Furthermore, one particular industry in China is selected for the study. It is comprehensive and rich enough to guide the growth of other industries in China. It considered company strategy to be a measure of ERM. Thus, companies can strengthen their strategy using the results of this study. However, China is at an early stage in the development of risk management, and the business environment of the companies is becoming increasingly complex. Moreover, the study sets a precedent on ERM's significance and how it affects company performance. More information can be obtained from this research, particularly for commercial companies. Finally, a similar study can be conducted in other industries with the help of this study because this study provides some basic information and points that can be addressed in the future, and more extensive work on ERM can also be derived.

V. CONCLUSION AND SUGGESTIONS

This research investigates the connection between ERM and company performance in a sample of 175 Chinese commercial companies listed on the Shanghai Stock Exchange and the Shenzhen Stock Exchange. The first hypothesis, which claims that a strong positive relationship between company size and ERM in Chinese commercial companies, is accepted. Large companies are capable of performing better risk management. The finding is consistent with those of Pagach and Warr (2010) and Bertinetti et al. (2013). Our findings also indicate a negative relationship between financial leverage and ERMI in Chinese commercial companies. Thus, the second hypothesis is rejected. Higher leverage may make Chinese commercial companies have difficulty conducting ERM effectively. This result is consistent with the findings of Bertinetti et al. (2013). The positive relationship between intellectual capital and ERM in Chinese commercial companies is consistent with the expectation. Given that goodwill and skilled employees may provide a suitable environment for a company to improve its ERM, the third hypothesis is accepted. The outcome of Hypothesis 4 was unexpected but met the conditions of the Chinese commercial industry. As a result, ERM and Chinese commercial companies' performance have a negative relationship. Companies that undertook ERM may have lower performance than companies that did not. Chinese commercial companies must boost the entire industry's ERM level to resolve this issue.

This study is relevant to guide the rapid growth of ERM in the Chinese commercial industry and reflect the ERM development challenges in China. This study's limitation is that it is concerned about ERM in the Chinese commercial industry only. The findings cannot be extended across all the companies in China. Furthermore, this study does not include any comprehensive approaches for the Chinese commercial industry to help improve ERM. Further research is needed to focus on ERM in other industries in China and list some concrete ways to enhance ERM in China.

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