AN ACCOUNTING STUDY OF PERFORMANCE AND RISK FOR FINANCIAL FIRMS DURING THE CREDIT CRISIS

by

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An Accounting Study of Performance and Risk for Financials Firms During the Current Credit Crisis

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This dissertation provides some insights into explaining differential performance among financial firms during the 2005-2007 credit crisis by exploring two risk related firm characteristics. The first essay studies stock incentives of CEOs and directors of financial firms and explores how this affects the firms' performance. Moral hazard theory suggests that stock incentives may motivate a manager to take on more risk as options are more valuable the riskier a firm is. Contracting theory suggests that stock incentives may motivate managers to take a long run performance enhancing actions. The dissertation explores differences in stock incentives and performance during the credit crisis to discriminate between the theories. The second essay looks at management accounting system risk factor analysis and the fit with the firm's level of centralized structure. Prior research has demonstrated that performance depends on the complementarities between management accounting system and the level of decentralization. The fit between management accounting system and firm structure will affect a firm's ability to handle risk and therefore affect performance. The following two sections outline the two separate essays.

Essay 1

The late 2000's have been turbulent times for financial markets. A financial crisis originated in the US, ignited by sub-prime lending, and spread to encompass the world credit market. Popular press suggests deregulation for banks in the 1990s allowed management too much freedom in making risk choices. Academics note that deregulation has coincided with an increase in stock incentives. Contracting theory suggests that increased stock incentives will induce better stock performance; moral hazard theory suggests that stock incentives will motivate managers to undertake high risk projects and make banks too risky. Does the use of option incentives or stock ownership explain short-term performance, as measured by earnings or returns, or long-term performance, as measured by market value, consistent with contracting theory or moral hazard theory? This study finds that, after controlling for endogeneity, CEO options are associated with short-term negative performance in the period 2005-2007, supporting moral hazard theory; stock ownership is associated positively with short-term performance as measured by earnings, supporting contracting theory. Director options are associated positively with long-run performance but there is no significant short run effect or effect for stock ownership. The study also finds that these results are concentrated in "Trading" financial firms; these consist of security and commodity brokers and dealers, trusts and holding offices and investment bankers. These results are of interest to investors as they evaluate financial firms' incentive structures, regulators as they consider new regulation in light of the credit crisis, bank management as they try to convince the market of the safety and security of their financial institutions and products, and lastly, academics as they evaluate the

contracting and moral hazard theory as they relate to financial firms' incentives and performance.

Essay 2

Risk management is critical during a credit crisis. The Senior Supervisory Group reported that risk management differentiated between performances during the current credit crisis. Previous literature has established a link between performance and management accounting system sophistication moderated by firm structure. I measure Management Accounting Systems (MAS) risk sophistication by doing a content analysis on financial firms' risk factor disclosures. I measure firm structure by using organizational hierarchy for financial firms as reported by the Federal Reserve's National Information Center (NIC). I find this risk factor disclosure helps to explain earnings performance. I examine firm structure and find a negative return to size during the credit crisis but a positive return to decentralization. I also find that the effect of MAS risk sophistication differs depending on the level of decentralization of the firm. The contingent effect of structure on MAS has been found in previous studies and proved to be a significant contingency for this study also. In general, this study finds that, for financial firms during the credit crisis (2005-2007), MAS explains performance but the effect is contingent on the level of decentralization. Regulators will be interested in these results as they help establish the importance of risk factor disclosures. Bank managers will be interested in these results as they evaluate their strategic plan as to the structure of their firm and their risk management practices. Investors will be interested as this information helps to explain financial firm performance and lastly, acedemics will be interested in these results as it adds another piece of evidence to the

establishment of firm structure theory.

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And finally and most importantly, I offer thanks to Him who makes all things possible. Now as always, may my work serve only to glorify You. Philippians 4:13

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1 Dissertation introduction

1.1 The credit crisis

The credit crisis of 2005-2007 could be considered the worst economic turmoil the United States has seen since the Great Depression of the 1930s. As the full effects of the credit crisis are still unfolding, demand for research differentiating among financial firms handling of the crisis is strong. This dissertation studies performance by focusing on firm characteristics of financial firms. The first essay focuses on the performance effects of firm risk positioning induced by stock incentives. The second essay focuses on the performance effects of risk management explained by firm structure and their management accounting system.

1.2 Risk as an unobservable

It is logical to assume that a firm's risk choices and their ability to manage risk explain the differentials in performance during the credit crisis. However, risk is an unobservable firm choice that affects performance. This research assumes that the credit crisis was an exogenous negative shock to the financial system. This shock will reveal a firm's risk position and management through its performance; firms with riskier positions or with poorer risk management will perform worse.

1.3 Essay 1 – firm risk choices

The first essay explores stock incentives owned by CEOs and directors of financial firms and how that helps to explain firm performance. Theory suggests that stock incentives will have a motivational impact on management as to the amount of effort they will put forth and as to how attractive risk is. This research uses the credit crisis as a natural experiment to reveal a firm's chosen risk position. The results of the

study find that performance during the credit crisis depends on the type of stock incentives. Specifically the results show evidence that options lead to lower performance during the credit crisis and stock ownership leads to higher performance. The results also show that options are positively related to firm risk measures and stock ownership is negatively related to firm risk.

1.4 Essay 2 – firm management of risk

The second essay explores firm structure and the related management accounting system and how they explain differences in firm performance. Theory suggests that these two firm characteristics are related to risk management. The credit crisis provides a shock to environment and the performance during the crisis reveals a firm's ability to manage risk. The results suggest that firms with more flexible structures and a fit between management accounting systems and their structure perform better during the credit crisis

1.5 Dissertation limitations

The first limitation of this study is the unobservable nature of risk. At most the results of this dissertation can conclude that firm characteristics associated with risk explain performance. Whether risk choices cause the firm characteristics, if firm characteristics cause risk, or even that risk causes differences in performance is beyond the scope of this dissertation. Secondly, the credit crisis, which created a fertile research environment, may produce associations that would not generalize to another time period. Lastly, this dissertation focuses on only one industry. This enables me to study industry specific environment such as deregulation but it limits the generalization of the findings to other industries.

2. Stock-based incentives and performance during the credit crisis: Evidence from the financial sector (essay 1)

2.1 Introduction

The late 2000's have been turbulent times for financial markets. What began as a mortgage crisis in the US quickly spread to other industries and other countries. Business periodicals lamented the woes of the market and placed a great deal of the blame on the financial markets. *BusinessWeek* wrote the following: "…disruptions in the credit markets started Wall Street's recent run of bad luck. Worries about bad mortgage debt have caused investors to flee from a vast array of financial stock."[1] While the US firms made headline news and market disruptions overflowed the borders, foreign periodicals added to the gloomy outlook. A UK newspaper wrote "The Bank of England joined four other big central banks around the world … in emergency action that will see £50bn injected in to the world money markets in a move designed to prevent the worsening credit crunch derailing the world economy."[2] However not all was bleak; some financial institutions were able not only to keep their heads above water, but swim the turbulent waters. Of course this begs the question: How can banks navigate financial storms? *The Economist* noted "With so much at stake if the banks mess up, regulators and politicians are now asking fundamental questions. Should banks be allowed to take on so much debt? Can they be trusted to make their own assessment of the risks they run?"[3]

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[1] "The Stock Market's Biggest Losers" BusinessWeek Online http://www.businessweek.com/inv/estor/content/apr2008/pi20080425_706031.htm?chan=top+news_top+news+index_businessweek+exclusives 4/28/2008

[2] "Banks act on meltdown fear" Gaurdian.co.uk http://www.guardian.co.uk/business/2007/dec/13/bankofenglandgovernor.creditcrunch 12/13/07

[3] "Paradise Lost" The Economist http://www.economist.com/specialreports/displayStory.cfm?story_id=11325347 5/15/08

The 1990's saw a huge deregulation movement in the US financial sector. Academic research has shown that this fiscal freedom was accompanied by changes in governance structure. Kole and Lehn (1997) study the airline industry and find that firms most likely to survive deregulation were ones with more managerial compensation tied to equity and those with smaller boards. Adams and Mehran (2005) study board structure and find that, contrary to research studying other industries, banks that perform better have larger boards. The authors theorize that large boards may be an asset to financial firms with complex structures. In banking, Becher et al (2005), find that the percent of equity compensation to directors increases as bank regulation relaxes. Crawford et al (1995) go a step further and find an increase in pay sensitivity for cash, options and stock ownership for the top executives of banks. Their results support the idea that as financials deregulate they will rely more on market discipline rather than regulation. In fact the historical differences between governance in a financial firm and in an industrial firm with regard to use of equity compensation began to blur. The increase in equity compensation may have contributed to the credit woes of the 2000's or, perhaps, firms that were agile enough to adjust their incentive schemes as the industry deregulated were able to perform despite the credit woes.

This study focuses on a sample of financial firms from 2005-2007 and attempts to explain their performance by differentiating based on stock based incentives. After deregulation, financial firms became larger and the industry consolidated due to mergers and acquisitions; companies used more stock compensation. *Contracting theory* suggests that equity incentives will align agents' interests with shareholders. This will be more necessary after deregulation as companies will rely on market

discipline rather than regulation to provide oversight. On the other hand, the *Moral Hazard theory* suggests that equity incentives will motivate agents to take on more risk. Coles et al (2006) find that pay for performance compensation is associated with more risky policy choices. Specifically they look at the sensitivity of CEO wealth to stock volatility and find that the higher the sensitivity the riskier the firm characteristics, such as more research and development, less property, plant and equipment, more focused business and higher leverage. However, Houston and James (1995), who limit their sample to banks and the years 1980 - 1990, find that risk is not linked to either stock ownership or option compensation. They measure risk as the volatility of returns and find no significant association with the level of equity compensation. They admit their results need to be interpreted with caution because of the endogenous nature of compensation.

The research question addressed is: Does the use of option incentives or stock ownership explain short-term performance, as measured by earnings or returns, or long-term performance, as measured by market value, consistent with contracting theory or moral hazard theory? The study will attempt to discriminate between the two theories, address the endogeneity issue and differentiate between types of equity incentives: options versus stock ownership. Another advantage of this study is the natural risk experiment brought about by the recent credit crisis. The study does not have to rely on risk measures; the banks' performance in the credit crisis reveals its chosen risk exposure.

In general, I find, for CEOs, options are related to worse performance and stock ownership to better performance during the credit crisis. This result holds for

performance measured as abnormal earnings (a short-run measure of performance). For directors, there are no short run performance effects for options or stock but long-run performance is improved for option incentives and insignificant for stock ownership. These results suggest that CEOs with more options (stock derivatives) take on more risk but that CEOs that own more stock perform better by short run measures during a period of extreme uncertainty. After a further partitioning of the sample, I find that the result is driven by the trading subsample and is insignificant for the banking and insurance subsamples.

The results of this study will be of interest to investors, regulators, management in the financial sector and academics. Investors will find the results interesting in that it will help to evaluate current incentive structures and provide a basis for improvement. Regulators are currently under pressure from the public to limit the effects of the current crisis and to prevent any future crises from being as pervasive or extreme. They will find the results helpful as they determine if and how regulation should be changed. Of special interest are the differences in incentive affects across type of financial institution. The stock broker/dealers that make up the subsample that drove the results are now regulated by the Federal Reserve which previously regulated only banks. It remains to be seen if these firms will take on the incentive structures of banks now that they are regulated by the same body.

Management will be interested in the results as they struggle to increase confidence in their firms as well as the industry. Management is seeking not only to placate investors but also to convince customers, depositors, borrowers, and regulators that they provide safe and secure financial instruments. Lastly, this study will interest

academics as it adds to the body of literature on incentives and its effect on performance.

Section 2 provides background about the credit crisis. Section 3 outlines moral hazard theory and contracting theory as competing theories and summarizes previous literature related to my hypotheses. Section 4 explains the models used to test the hypothesis and outlines sample selection. Section 5 summarizes the results of the study and section 6 concludes.

2.2 Background

2.2.1 Changes in the regulation and governance of financial firms.

In general, regulation of the financial industry decreased during the 1990s. The Riegle-Neal Interstate Banking and Branching Efficiency Act of 1994 removed barriers for banks to grow across borders. Holding companies could now acquire banks in any state in the US and with few restrictions (such as restricting a portion of a state's deposits for loans in that state), banks in other states could be full-service branches. The Gramm-Leach-Bliley Act of 1999 allowed banks to affiliate with insurance and security companies, services that were previously separated by the Glass-Steagall Act and the Bank Holding Act. Also, financial holding companies were allowed to acquire banks and banks were permitted to sell insurance. The changes in legislation helped pave the way for larger but fewer banks. For example, the number of US commercial banks fell from 14,000 to 8,000 between 1980 and 2005. The regulatory focus shifted from geography and services to capital and risk management. Regulators increased the use of market data as a barometer of institutions' strength and relied less on direct oversight which was becoming more and more costly as the complexity of banks increased. (Rose and Hudgins 2008). As regulation is relaxed, corporate governance

becomes a more crucial oversight mechanism. Empirically, deregulation leads to increased use of incentive based compensation (Kole and Lehn 1997) and this trend holds for banks (Becher et al 2005, Crawford et al 1995; Hubbard and Palia 1995).

2.2.2 The credit crisis of 2000

(insert figure 1)

Bailey et al (2008) provide an overview of the credit crisis and factors influencing the crisis. They report that historically housing prices have rarely fallen and from the mid-1990s until 2006 prices rose sharply. Falling interest rates pushed up demand for housing. In areas where land was limited (California) and where there was strong economic growth and/or population influx (Las Vegas), residential construction boomed and real estate investment provided huge returns. Parallel to this movement in housing, there was an increase in demand for home mortgage loans. From 2001 to 2003 the mortgage origination industry expanded pursuing primarily prime conformable loans. After that, the growth in the industry leveled off but the financial sector growth continued, buoyed by loosening lending standards leading to the rise of subprime and Alt-A mortgages. As a result, the securitization of mortgages expanded and moved these mortgages from the bank that originated them to all types of financial institutions, especially foreign firms who pushed their capital into these high return vehicles and provided great liquidity to the mortgage secondary market.

Warning signs of market slowing appeared as early as 2005. Housing price increases began to slow. Borrowers that had planned on refinancing found they were unable to do so and delinquencies began to rise. The credit crisis hit full force when, in early 2007, HSBC announced their subprime losses and hedge funds collapsed. The residential housing market fell into a severe slump. The drop in new construction,

together with soaring oil prices and a tightening of lending standards created a credit crunch that was felt globally. Many professionals in the industry feel that the worst of the sub-prime crisis had passed by 2008[4] but high yield spreads, thin liquidity and low investor confidence could remain for quite awhile, continuing the economic turmoil.

2.3 Motivation and Hypothesis Development

2.3.1 Contracting theory: Incentive alignment and Market discipline

Contracting theory is based on agency theory. The classic agency relation in publically traded firms is between owners and managers. The agency problem arises because managers want to maximize their personal wealth with the minimum amount of effort whereas owners want to maximize the value of the firm. Contracting theory suggests mitigating this problem by having management hold stock or stock derivatives. Therefore managers will benefit when owners benefit and management's interests and motivation will be aligned with the goals of the owners. The alignment of interests via equity compensation is a commonly held theory which has held up under academic scrutiny. (i.e. Cory and Guay 2001; Mehran 1995). Under contracting theory, stock incentives will induce a more long-term focus and will create incentive to more effectively manage and respond to risk. The deregulation of the 1990s induced a change in corporate governance of banks; CEO turnover increased and banks used more stock based pay. Becher et al 2005 studied director compensation and found that following deregulation directors received more equity based compensation. Crawford et al (1995) study CEOs and finds that after deregulation pay performance sensitivity for

4 Barr, Alistare. "End of Sub-prime write downs in sight, S&P says, Subprime mortgage-related hits may reach $285 bln, rating agency estimates." March 13, 2008, MarketWatch.com http://www.marketwatch.com/news/story/end-subprime-mortgage-write-downs-sight/story.aspx?guid=%7B1E95410C-02D4-438D-BF13-3602D812678B%7D

cash, option and stock compensation increases. The evidence supports the idea that deregulation shifted governance from regulatory oversight to market discipline.

Outside of banking, Kole and Lehn (1997) observe that firms become widely held very quickly after deregulation but that governance structures changed more slowly. The stickiness of governance structure may help explain the differences in financial firms' performance during the credit crisis. Firms that were able to adapt to the deregulation and increase market discipline and align incentives through stock based pay may have been better situated to weather and respond to the rapidly changing and risky environment of the 2000s. Based on contracting theory, firms with more equity compensation will have better performance as agents' incentives are more closely aligned with shareholders and the stock compensation will make them responsive to the changing market conditions of the credit crisis. Also, investors may recognize as effective governance the market discipline induced by the equity compensation and market valuations for firms with equity compensation will be higher.

2.3.2 Moral Hazard theory: Equity compensation and risk tolerance

However, contracting theory may not explain the relation between equity incentives and performance for all types of firms. Banks operate in a unique environment. In fact, the nature of the banking industry with deposit insurance, high debt to equity levels and asset-liability issues complicate the agency relationship compared to other firms. Generally, an agent is more risk averse than shareholders as a large portion of their wealth (their salary) is tied into the company they work for whereas shareholders can reduce their risk through portfolio diversification. The manager (agent) would choose lower risk and lower return projects than a shareholder would desire because of their inability to diversify. If a firm fails, the shareholders lose

their investment but the manager loses his or her job. Stock incentives, particularly stock options, align interests by inducing agents to be less risk-averse. Coles et al (2006) find that CEOs whose wealth is more closely tied to stock price volatility (i.e. a larger portion of their wealth is in the form of options) tend to invest in more risky projects such as research and development and less in less risky assets such as property, plant and equipment. They generally have more focused businesses and have higher leverage which would make a company more risky. This risk is desirable to investors since they can moderate the risk by diversifying their portfolios. However, banks tend to have very high debt to equity levels, more liquid liabilities than assets and because banks have deposit insurance, which is subsidized by the government, they are less risk averse than most institutions. (Leaven, 2000) The CRO reported that "perhaps the most important lesson from the meltdown is that when risk appetites are binging, it takes a strong corporate culture and executive willpower at the highest levels to slam shut the refrigerator door."[5] Macey and O'Hara (2003) posit that because of deposit insurance and lack of other devices to protect fixed claimants, such as bond covenants, aligning agents' interests with shareholders may create an incentive for banks to take on too much risk. The difference in banks performance during the credit crisis may be a function of agent's risk choices. A more cautious approach may have enabled companies to recognize the warning signs of the economy and to closely monitor their risk exposure. Equity incentives may motivate agents to be less cautious than otherwise. Based on moral hazard theory, firms with more equity compensation will perform worse during the credit crisis as they will have adopted a riskier position. In

[5] "A Sub-Primal Scream" The CRO http://www.thecro.com/?q=node/667&spesh=printme 5/1/2008

addition, the market will recognize that firms with more stock compensation will be more likely to take on too much risk and will value the firm less.

2.3.3 Equity incentive differences – options versus stock ownership

Research has found that stock options and stock ownership are different types of incentives and induce different behaviors. Previously cited studies, either looked at stock ownership or stock options together as equity compensation (e.g. Coles et al, 2006) or looked at the elements separately in different models and were unable to differentiate between the two (e.g. Houston and James, 1995). Sanders (2001) does look at both types of incentives and theorizes that since options do not have downside risk they will make agents take on high yield but risky prospects, consistent with moral hazard theory. Conversely, stock ownership is exposed to the downside risk and will induce agents to be more risk averse. He studies acquisitions and divestitures and finds that option pay is associated with risk-seeking behavior and stock ownership with risk-averse behavior. Brickley et al (1985) find that shareholder wealth is increased by long-range managerial compensation plans. They include both stock ownership and stock options as long-range compensation plans and they try to test for a difference among plans. They are unable to find any significant differences and they suggest that this is due to differences in firm characteristics and that optimal compensation plans differ according to these characteristics. This study's sample of only financial firms is more homogeneous in characteristics and may shed light on the Brickley et al's suggestion of optimal compensation fits with firm characteristics. I expect to find that options are related negatively with returns, earnings and valuation because options will induce firms to accept a risky position and our sample period contains a large negative shock. I also expect to find that stock ownership is related positively with returns,

earnings and valuation because ownership will induce firms to be more cautious and they will perform better in our sample period.

2.4 Models and Samples

2.4.1 Variables of interest in this study

I focus on the incentive effect of options and stock ownership on two groups: CEOs and directors. Although the theory of moral hazard and contracting may generalize to both groups, their influence on the company and the influence of the incentive on them will likely vary. Although most studies focus on CEO or top management, (Crawford et al 1995; Brickley et al 1985, Houston and James 1995; Coles et al 2006; Mehran 1995; Sanders 2001) adding directors will add depth to the study. Adams and Ferriera (2008) study director incentives. Many directors are CEOs and executives of large companies and the amount that directors are typically paid is much less than their primary compensation and may not be sufficient incentive to achieve the desired motivation. However they find that higher meeting fees paid to directors is associated with greater meeting attendance. These results help motivate studying the compensation structure of directors. Becher et al 2005 study director compensation also but do not examine any relation with performance. They simply show the increase in incentive compensation for banks as a result of deregulation. Farrell et al (2008) study director compensation and changes in director compensation. They find that firms adjust equity compensation to a targeted market level. Their sample excludes financials and they do not extend their analysis to performance. This study will fill a hole in the literature by examining stock incentives and their relationship with performance for both CEOs and directors.

Moral hazard theory suggests that CEOs may choose risky projects to increase the value of their options over equally profitable but less risky projects. Because of this I expect that CEOs may have the ability to affect their company in both the long-run and the short-run: The short-run is affected by the type of projects he or she selects and the long-run is affected because of the effect of legacy project choices. Directors, however, are not able to choose among different projects in the same manner as a CEO. Instead, their job is to evaluate the CEO's effort and decision making. Because of this I expect that short –term performance (as measured by earnings) will not be affected by the type of incentive a director has; however, stock incentives in the long-run may have a moral hazard or contracting effect.

2.4.2 Sample and Models

The sample includes Fortune 1000 financial firms with SIC codes from 6000-6999 (financial firms) for the years 2005-2007 that have the data available. The firms and firm years of the sample selection process is outlined in Table 1.

(insert table 1)

I start by identifying all the financial firms (SIC codes 6000-6900) that are in the fortune 1000 in the period of 2005-2007. This gives me 303 unique observations. Then I check to see what firm years have a complete set of variables from Compustat and CRSP. Next I identify the number of shares and the number of stock derivatives (along with derivative characteristics, strike price, stock price etc.) from the Insider database using Form 4 filings. For the CEO sample I am able to supplement with Execucomp data, but Execucomp does not have total share ownership and option ownership for directors (they only have yearly grant amount). Therefore a firm has to have a Form 4 filing to be included as an observation for that year for the director sample. However if

either a CEO or a director observation has one incentive variable but not the other, the missing variable is coded as 0. The CEO and director samples are measured independently; firms do not have to have both CEO and director stock incentives to be included[6]. Every time an insider buys/sells stock or is granted/exercises an option they must file a Form 4. It is likely that the director sample is missing some firms simply because the directors do not have any buy/sell or grants/exercises in one year, hence no Form 4; but the firms do in fact have directors with stock incentives. Therefore my director sample consists of firm year observations for only firms with directors that actively manage their stock incentives or directors of firms that award stock or options regularly. Also the director sample includes only non-employee directors (a director who is also a CEO or upper management is not included) and there are 31 observations in the CEO sample where the CEO is also a director[7].

All data is obtained through WRDS (CRSP, Compustat, Insider and Execucomp). The insider database has the Form 4 information and I use the filing closest to fiscal year end for any individual that files within the year for each firm. For each firm there are four measures of stock based incentives. First, CEO ownership is measured as the value of stock in which they have direct control. This is calculated by taking fiscal year end stock price on Compustat and multiplying it by the reported number of shares owned from the Form 4 filing on the Insider database closest to fiscal year end. If there is more than one CEO in one fiscal year the variable is the average of the two

[6] If I do not code missing stock incentives as zero the firm-year sample size for CEOs is only 158, however the results are the same except that the effect of stock ownership is insignificant in the earnings model. For directors the observations drop to 305 and the results hold.

[7] I rerun all models the 31 observations where a CEO is also a director. Eliminating these observations does not qualitatively change the results.

ownership levels. CEO options are measured as the Black-Sholes portfolio value of the options using the data from the Insider database (strike price, number of grant derivatives, and number of total derivatives held) and using similar assumptions to Core and Guay (2002) to value the entire portfolio of options that the CEO or director owns. The Form 4 filing provides number of derivatives and strike price; stock price comes from CRSP and volatility is company reported volatility found on Compustat. For CEO observations without a Form 4 for a year, I uses Execucomp data to supplement the sample. Secondly, director ownership is measured as the average value of stock in which directors have direct control and director options are measured as the average portfolio value of the options using the Insider database and the same valuation techniques are used as those used for the CEO variables.

(Insert table 2)

The sample is comprised of fairly large firms. The mean firm in the sample has a market value of $12 billion. This is not too surprising considering we started with the Fortune 1000 firms and chose financial firms from that pool. The sample is well distributed among the three industry types within financials. Although traditionally industry controls are dummies for each four digit SIC code, Fama and French (1997) divide the financial sector (SIC codes in the 6000s) into three groups: Banks (SIC codes 6000-6199), Insurance (SIC codes 6300 – 6411), and Trading (6200- 6299, 6700-6799)[8]. I include dummies for each of these classifications.

Banking firms are the most heavily represented at 37% of firm-year observations in 2005 and Insurance firms are the least represented at 28% in 2005 for the CEO sample.

[8] Fama and French (1997) also separate out real estate investment trusts. There are only a few firms in my sample that fall into that category so I combine trading and real estate. However excluding these firms does not significantly change my results

The director sample has the largest proportion of trading firms with 45% in 2006 and the smallest representation is of insurance firms in 2007. Returns are much lower for 2007 than the previous two years and this result holds across both samples. Looking at the stock incentive variables, options for CEOs and directors appears to remain steady throughout the sample period but there appears to be an upward trend for directors' stock ownership and a downward trend for CEO stock ownership. Also there is a large but expected difference in the mean value of the incentive variables between CEOs and directors. The average stock holding or derivative holding of a director tends to be about .04% of the average stock or derivative holding of the CEO. This generally holds except for 2007 where the CEO stock ownership mean drops. This could easily be attributed to CEO turnover. I expect that long tenured CEOs would have an opportunity to amass more significant stock holdings than their junior counterparts. Also the decrease in net income and return may explain the lower value of CEO shares in 2007. However if a lower stock price explains lower stock value for CEOs, it does not explain the increase in average value of director shares[9]. The yearly changes in these variables highlight the need for year dummy variables to control for yearly differences or trends.

First, I run a return regression model separately for CEOs and directors. I regress firm specific return on the market return and the incentive variables. I include dummies for each year 2005-2007 and each industry.

[9] Also I have looked at mean number of stock owned. This follows the same general pattern as value of shares; with CEOs declining over the years and directors increasing.

(Equation 1)

$$ret_{it} = \propto_1 + \propto_2 mktret_t + \propto_3 Opt_i + \propto_4 Stock_i + \sum_{i=1}^{4} \propto_{i+4} d_i + \varepsilon_i$$

ret_{it} = Yearly return of financial firm i
$mktret_t$ = Yearly market return corresponding with firm i's fiscal year end
int_t = The 7 yr treasury bond interest rate for year t
Opt_i = Option variable for either CEO or directors
$Stock_i$ = Stock ownership variable for either CEO or directors
$\sum_{i=1}^{4} d_i$ = year dummies and industry dummies

This is a capital assets pricing model (CAPM) with return being explained by it's covariance with the market return. I add my two measures of stock incentives to see if they will help to explain firm return. This model has an endogeneity problem; a firm's return will affect the value of the options and stock. In fact, the covariance with the market will affect the volatility of the stock which in turn affects the value of an option.

Houston and James (1995), who address a very similar research question to mine, comment on the difficulty of discriminating between contracting and moral hazard theory because of the endogeneity of compensation. In their model they use the incentive variables as the dependant variable and admit that the type of compensation will also influence performance and the risk preferences of the firm both of which are exogenous variables in their model. Therefore, I employ a simultaneous equation system to help address the endogeneity. I begin with the Ohlson model (1995) and use the incentive variables as the v_t, or "other information", in the model.

(Equation 2)

$$x_t^a = \omega_{1,1} + \omega_{1,2} x_{t-1}^a + \omega_{1,3} v_t + \varepsilon_{1t}$$

(Equation 3)

$$v_t = \gamma_{2,2} v_{t-1} + \varepsilon_{2t}$$

(Equation 4)

$$CE_t^M = \alpha_{3,1} + \alpha_{3,2} CE_t^B + \alpha_{3,3} x_t^a + \alpha_{3,4} v_t + \mu_{3t}$$

(Equation 5)

$$x_{t+1}^{a} = x_t - RF_t CE_t^B$$

x_t^a = the unexpected earnings
x_t = observed earnings
v_t = the other information variables – incentive variables[10]
CE_t^M = The market value of common equity at time t
CE_t^B = the book value of common equity at time t
RF_t= risk free rate

Equation two is the short-run performance equation. Ohlson's model suggests that unexpected earnings are a function of last period's unexpected earnings and other information (v_t). I use an option and stock measure as other information to test how they explain unexpected earnings. Equation 3 helps the model deal with the endogeneity. Unexpected earnings will affect the value of stock and stock derivatives making the error of that equation correlated with the stock incentive variables (v_t). Equation 3 uses lags of the stock incentives variables as instruments (there is no reason to expect last period's stock incentive value to be affected by this period's unexpected earnings). Equation 4 is the long-run performance equation. This equation suggests that the market value of equity (the discounted value of expected future cash flows) is a function of the book value of equity (the historical value of the surplus of assets over liabilities), unexpected earnings and other information (v_t). I include the stock incentive variables as other information to test if they affect the long run expected performance of a firm. Equation 5 is an identity. Unexpected earnings are calculated as the difference between earnings (net income) and the risk free return on the book value of equity. Equations 2 and 4 are of primary interest as they test the effect of stock

[10] I could measure the stock variable as number of stock rather than value of stock. This measure is not correlated with market value, options or earnings through the stock price; however it is not a good measure of the wealth an individual has invested in stock incentives, since 5 shares of Brookshire-Hathaway is considerable more wealth than 5 shares of Ford. To address this correlation problem, I rerun the entire test using number of shares rather than value of shares to measure stock ownership. The results for the return model still find that both stock incentive variables for CEO and directors are insignificant. For the two-stage least squares model, the results are qualitatively similar for CEOs but both stock incentive variables are insignificant in both equations for directors.

incentives on short-run (eq. 2) and long-run (eq. 4) performance. I estimate these equations with two stage least squares.

2.5. Results

2.5.1 Returns model

The return model does not control for the endogeneity problem. If the level value of the incentive affects performance it is also true that performance affects stock price and stock volatility which in turn affects stock and option value. Therefore these results need to be interpreted with caution because the statistical analysis will be bias as long as there is an effect of performance on the value of the stock option. The test is important to run to show how this sample compares to the sample in previous studies. Like Houston and James (1995), the OLS estimation of the return model finds no significant explanatory effect of either the option variable or the stock ownership variable for the full CEO and director sample. The banking and insurance subsamples for CEOs do have a significantly positive option variable and the director trading subsample has a significantly positive option variable. As expected, the market return variable is significant in almost all subsamples and also banking is significantly negative in the full model and the intercept is significantly negative in the bank sample showing an average negative return for banks during the credit crisis, however the average negative return doesn't hold as consistently for insurance or trading firms.

(Insert table 3)

2.5.2 Simultaneous equations model

Firm performance models, equation (2) and equation (4) are estimated using two stage least squares. The unexpected earnings instrumental equation (x_t^a) has an R^2 = .6488, options R^2 =.1132, and stock R^2 = .0659. The instruments are lags of the stock,

options and unexpected earnings variables plus the dummies for year and industry. I find the contracting hypothesis is supported by CEO stock ownership and moral hazard is supported by CEO options. The evidence suggests that earnings (short-term performance) is improved by a higher level of CEO stock ownership (p value = .0362) and decreased by higher levels of CEO options (p value = .0047). The effect on the market value of common equity (long-term performance expectation) is insignificant for both options and stock ownership (p value = .3637 and .3957 respectively). The results suggest, in the short-run, firms with more stock ownership had CEOs who were more diligent and mitigated the negative effects of the credit crisis better than CEOs with lower levels of stock ownership, consistent with the contracting hypothesis. However, consistent with moral hazard theory and the risk inducing effect of stock incentives, firms that gave CEOs more options performed worse during the credit crisis than CEOs with fewer options.

Subdividing the CEO sample by financial firm type, I find that the results are driven by the trading subsample. There is no incentive effect for either options or stock ownership for either banks or insurance companies. The positive performance effect for stock ownership and the negative performance effect for options come from the trading subsample. Consistent across all subsamples is the fact that there is no effect on the long run measure of performance (market value).

Directors' incentives have a different effect than CEO incentives. There is no short-run effect on performance as expected; however the contracting theory is supported for stock options in the long-run. The effect on the market value of common equity (long-term performance) of the stock variable is insignificant (p value = .9073) but

positive and significant for options (p value = .0351). Looking at the subdivisions of this sample by financial firm type, I find no significant effect for options, most likely because of loss of power due to a smaller sample size. In the trading subsample, interestingly I find a positive and significant effect of stock ownership on performance similar to what I find in the CEO sample; however the effect is not noticeable in the full sample. In contrasting the CEO and director full samples, there is considerable difference in the magnitude of the stock and option variables but very little for all other variables. This can be attributed to the difference in the value of stock and options that a CEO has relative to a director (see table 2) whereas the other variables are similar in both the CEO and director samples.

(Insert table 4)

For CEOs, the results for stock ownership support contracting theory and options supports moral hazard theory. Both of these effects are only found in the short-run measure of performance (unexpected earnings) and only hold for the trading subsample. For directors, there is no short-run effect for either options or stock; in the long-run I find that firms with directors who hold more stock options are valued higher, consistent with contracting theory.

2.5.3 Robustness test: a direct test of risk

It seems reasonable to posit that financial firms with riskier project choices perform worse during the credit crisis than firms that make conservative choices. So far I have only shown empirically that stock incentives help to explain firms' performance during the credit crisis but I have not directly tested differences in risk. Moral hazard theory suggests that stock incentives encourage risk taking. I test to see if my pervious result of CEO options leading to lower performance is consistent with CEO options

inducing a firm to take on more risk. I measure risk as the standard deviation of earnings, the standard deviation of unexpected earnings, the volatility of stock price and stock return beta. I create quartiles for options ($Q1_{options}$ to $Q4_{options}$) and stock ownership ($Q1_{stock}$ to $Q4_{stock}$) and run a multiple analysis of variance the risk measures.

(Insert Table 5)

Table 5 provides descriptive statistics for the quartiles as defined by options and ownership. Notice that assets and net income rise as options and stock ownership rise; of all the measures of risk, only standard deviation of unexpected earnings controls for size because the book value of equity is used in the calculation of unexpected earnings. Having 4 groups of options and 4 groups of share ownership I have a 4X4 model or 16 different groups. Firms are put into groups depending on their level of CEO options and stock ownership. I run the multiple analysis of variance using a General Linear Model (GLM) technique. I cannot run an ANOVA because the sample is not evenly distributed among the 4x4 matrix of options and stock ownership groups. This creates groups of different sizes which a simple ANOVA cannot handle. An ANOVA procedure is more efficient than the GLM procedure; however, using GLM biases the test against finding a result.

(Insert Table 6)

In panel A, the standard deviation of net income, the options quartiles are significant (F value = 3.83, p value = 0.0009. The top quartile has significantly more earnings deviation than the bottom quartile (Q4 to Q1) using Tukey's studentized range test. The result holds when I measure risk as the standard deviation of unexpected earnings (F value = 3.46, p value = 0.0022). This measure controls for size as

unexpected earnings are based on a risk free return to equity. Again, the top option quartile has significantly more unexpected earnings deviation than bottom quartile using Tukey's studentized range test. The top option group has a higher volatility of net income and unexpected earnings than the other groups, suggesting that more options are associated with more risk. For beta, I find a significant relation between quartiles and risk (F value = 3.65, p value = .0014). Consistent with the previous two panels I find a significant difference between the top and bottom quartiles.

For stock ownership quartiles, I find that they are not significantly associated with risk as measured by either earnings or unexpected earnings volatility and there is only a spurious relationship for beta that I report in panel E. Also, running a one way ANOVA (not controlling for stock ownership) does not have significant results for options and risk.

If I measure risk as the firm reported volatility of stock price I find a significant result for share ownership (panel D: F value = 2.88, p value = .0099) but not for options. Using Tukey's studentized range test again and controlling for option quartile, I find that the lowest quartile of stock ownership has significantly higher stock price volatility than all other quartiles (The negative significant result of Q4 to Q1). The bottom stock ownership group has the higher stock volatility, suggesting that less stock ownership is associated with more risk. These risk results are generally consistent with moral hazard theory suggesting that higher levels of CEO options lead to greater risk. There is also some evidence that higher levels of CEO stock ownership leads to less risk, suggesting that stock ownership lessens the effect of moral hazard.

2.6 Conclusion

The results differentiated between moral hazard theory and contracting theory and explained the relation between performance and CEO/director stock incentives.

2.6.1 Moral hazard versus contracting theory

Stock incentives for CEOs and directors have an effect on firm performance. Contracting theory suggests that increased stock incentives will induce better performance; I find support for this for firms that use stock ownership incentives. I find an increase in short-term performance for firms with CEOs with more stock ownership and an increase in long-term performance for firms with directors with more stock ownership. After subdividing the samples by financial firm type, I find that the results of the CEO group are driven by the trading firms. Looking at the director subsamples there is not one group that is driving the results, however there are differences in the sign and significance of the models across the subsamples.

Moral hazard theory suggests that stock incentives will increase the risk tolerance of CEOs and directors. This study finds that CEO options are associated with negative short-term performance. I also find that a portfolio of the highest option firms have higher earnings and unexpected earnings volatility than the lowest option firms The increase in risk and the decrease in performance during the credit crisis support moral hazard theory. In general, I find that options induce moral hazard type effects while stock ownership induces contracting type effects.

2.6.2 Performance effects for CEOs and Directors stock incentives

In summary, I find that options are related to poor earnings performance during the credit crisis. These results suggests that option compensation may induce too much risk for CEOs of financial firms which already have risk increasing mechanisms,

such as deposit insurance, liquid liabilities and illiquid assets, and absence of bondholders. In contrast, I find that stock ownership for CEOs increases performance during the credit crisis. This result suggests that stock ownership, which exposes CEOs to both up and down-side stock movement, motivates CEOs to make value enhancing decisions. In addition, I show that this result holds mainly for financial firms that are stock broker/dealers or holding/investment companies and not for depository institutions or insurance firms.

The results for directors show a relationship only in the long-run market model. I find that stock options increase market valuations. It is not surprising that I only find an effect in the long-run measures as directors have little influence over day-to-day operations that would influence short-run performance but they do influence strategic decisions and evaluate CEO performance that would have long-run implications.

2.6.3 Implications and limitations

The findings of the study imply that option compensation for CEOs should be closely monitored in financial firms for evidence of risk inducing motivation, especially CEOs of financial trading firms. They also imply that stock ownership should be promoted in financial firms as it increases performance and valuation. For directors, my results only find that director options increase valuation but have no short-run implications. These results may not generalize to another industry, particularly one with different risk characteristics, or to a different time period. Focusing on one industry and one time period allowed us to find stock incentive effects that may have been cancelled out in a more heterogeneous sample. The findings of this study will be of interest to investors and regulators as they try to determine why financial firms invested so heavily in risky assets and how to prevent this from happening again in the future. These

results will also help inform the compensation debate regarding how bank management and their oversight should be compensated.

3. Risk management, firm structure and performance among financial firms: Evidence from the credit crisis (essay 2)

3.1 Introduction

The credit crisis rocked the financial markets in the late 2000s. It appeared that banks were either unable to manage their risk exposure or were unaware of it until assets started to turn sour. Firm risk has two main components. The first concerns the assets that a firm chooses to invest in. The second is the uncertainty of the environment that a firm operates in. The first risk is endogenous and the second is exogenous to the firm. A good management accounting system (MAS) will track both risks. It will provide managers with information about how to hedge or balance the risk of their asset portfolio and track the environment to provide managers with timely information about changes in environment. The Senior Supervisors Group[11] released a study to the Financial Stability Forum[12] in March of 2008, exploring risk management practices during the market turmoil. They analyzed eleven of the largest banking and securities firms along with an additional five that participated in round table discussions. Their study concluded that the predominant source of loss came from firms that made "strategic decisions to retain large exposures to super-senior [high credit rating] tranches of collateralized debt obligation that far exceeded the firms' understanding of the risks inherent in such instruments. Another challenge concerned firms' understanding and control over their potential balance sheet growth and liquidity

[11] The Senior Supervisory Group is made up of seven regulatory bodies. These include: the Board of Governors of the Federal Reserve System, the Federal Reserve Bank of New York, the Office of the Comptroller of the Currency and the Securities and Exchange Commission from the United States, The Banking Commission from France, the Federal Financial Supervisory Authority from Germany, the Federal Banking Commission from Switzerland and the Financial Services Authority from the United Kingdom.

[12] The Financial Stability Forum is the body that created Basel and Basel II, which are international regulatory requirements to improve the safety and soundness of international banks. These standards are intended to regulate international banks, however many countries, particularly in Europe, have adopted them for intra-national banks also.

needs." The study went on to identify two general characteristics of firms that performed better during the credit turmoil. First, they noted firms "that avoided such problems demonstrated a comprehensive approach to viewing firm-wide exposures and risk, sharing quantitative and qualitative information more effectively across the firm. They had more adaptive (rather than static) risk measurement process…relied on a wide range of risk measures with more scenario analysis…." And secondly that "management of better performing firms typically enforced more active controls over the consolidated organization's balance sheet, liquidity and capital, often aligning treasury functions more closely with risk management processes, incorporating information from all businesses into global liquidity planning, including actual and contingent liquidity risk." The first characteristic speaks to firms' gathering analyzing and distributing risk information within the firm. The second addresses a firms' use of the information in control procedures and strategic planning. Both of these characteristics are confined to the sophistication and implementation of the firms' management accounting system (MAS). A more sophisticated MAS system will lead to greater performance as these managers will have better information on how to handle the risk of their chosen assets and more timely information on changes in their operating environment.

In addition to the sophistication of MAS, theory tells us that a firms' structure will determine its performance (Williamson, 1975). Particularly, firms operating in an uncertain environment need to have structures that are adaptable to changing conditions (decentralized firms), whereas, firms in a stable environment can gain efficiencies by centralizing authority and creating static processes (hierarchical firms). (Williamson, 1975) The financial sector has a wide array of structures, ranging from

single entity structures to structures that have more than 5,000 separate entities. A firm's structure, the sophistication of their management accounting system (MAS) and the interaction of these two characteristics may have an effect on its ability to manage uncertainty.

This leads us to the research question of this study: Does the level of decentralization, moderated by sophistication of MAS, help explain performance during the credit crisis?

This question is an important one to address. The current financial crisis has caused losses surpassing 1.6 trillion[13]. The swift regulatory measure, The Troubled Asset Relief Program (TARP) with its $700 billion bailout, was instigated on Oct 14th 2007 with revisions announced bi-monthly until it was largely abandoned in February as the crisis continued[14]. Secretary of the Treasury Paulson held the remaining $300 billion for the next administration and when Geithner took over he responded with a new bank asset program on March 23rd under the new administration's economic stimulus package[15]. As policy makers move forward with new economic stimulus plans, but more importantly long term regulatory changes, they will need research on financial firms' ability to survive similar crises. In addition, academics have long pursued the theoretical question surrounding the optimal fit of structure, MAS, and environment (Chia, 1995; Chenhall and Morris, 1986; Chenhall, 2008); this study will add to that literature. This study will also be of interest to bank managers and board members as they seek ways

13 Mauldin, J "Credit Crisis Losses Pass $1.6 Trillion as Credit Contraction Ensures Recession" The Market Oracle July 12th 2008 http://www.marketoracle.co.uk/Article5424.html

14 Task, A. "Bailout Improv: Paulson rolls out new TARP", Yahoo Finance. Nov 12, 2008, http://finance.yahoo.com/tech-ticker/article/126386/Bailout-Improv-Paulson-Rolls-Out-New-TARP?tickers=AIG,FNM,FRE,XLF,AXP,%5EDJI,%5EGSPC

15 Schmidt R. and Christie R. "Geithner puts finishing touches on plan to revive US banks" Bloomberge.com March 21,2009.http://www.bloomberg.com/apps/news?pid=20601087&sid=a5z1.VcMZHBM&refer=home

to strengthen their risk management. Lastly investors, borrowers and financial employees will be interested in the results as they evaluate and chose firms to interact with.

This study explores measures of sophistication of MAS using a content analysis procedure on the risk factors disclosures section of the 10-K report. This measure along with a measure of decentralization from the Federal Reserve's NIC web site which contains data on organizational hierarchy and standard measures of performance (earnings, stock returns) provides a way to study MAS control systems in a relatively large sample of financial firms.

This study differs from other studies on structure, MAS and environment, by first focusing on financial firms. It is always difficult to interpret empirical results in heterogeneous samples. Limiting the sample to only the financial industry will help provide a clearer picture of the effects and interactions. Secondly the period of study, 2005 - 2007, was one of extreme uncertainty and historic levels of volatility in market inputs. This provides a natural experiment testing the ability of financial firms to adapt to changing conditions. Lastly, although content analysis is common in accounting research on qualitative disclosures (Ittner and Larker, 2001), I am unaware of a study that uses this technique on the risk factors section to measure MAS sophistication.

3.2 Theory Development

3.2.1 Risk, MAS and performance

Waterhouse and Teissen (1978) explore the connection between MAS and uncertainty. They define environment to be important variables in determining the structure of MAS and that firms exist on a continuum from total static to totally dynamic environments. Specifically they note that stable environments allow firms to be static or

rigid in their procedures. These firms tend to have budgeting and budget based controls central to their MAS. These firms also tend to be larger and more bureaucratic. On the other end of the continuum, there are firms that face dynamic and uncertain environment. Their MAS systems tend to be flexible, include large amounts of external data, and have very few defined control procedures or static processes. These firms tend to employ more non financial measures of performance, such as the balanced score card. These firms also tend to be smaller and more decentralized. Relating this theory to financial firms, I expect them to span the continuum. In addition, I observe a lot of variability in structure across financial firms, implying that their MAS gather different information or are interpreted differently across financial firms.

Performance will be affected by the fit between MAS and decentralization. A decentralized firm has different information needs than a centralized firm. In the literature, the breadth and depth of a MAS system for a decentralized firm is often referred to as sophistication. Theory suggests that it is not sophistication of MAS that leads to greater performance but rather the fit between the structure of the organization and their MAS system.

3.2.2 Decentralization and MAS

Chenhall and Morris (1986) found that MAS aspects were related to firm structure. They found that decentralization, environmental uncertainty and organizational interdependencies created preferences for different aspects of MAS. Specifically decentralized firms and firms with lots of organizational interdependencies operating in an uncertain environment reported high perceived need of aggregate information. Gul (1991) takes the Chenall and Morris paper and extends it to performance and finds that fit between MAS sophistication and environmental

uncertainty matters. For high uncertainty sophisticated MAS leads to higher performance but for low uncertainty, sophisticated MAS reduces performance.

More recently, Chenhall (2008) reviews the best practices of organizational management of decentralized organizations (horizontal firms). Decentralized organizations are born from a strategic desire to "integrate activities across the value chain to support strategy that is customer focused"(517). Chenhall notes that there is little in the conversation about structure and accounting control. There is even distaste for accounting among decentralized organizations that claim accounting numbers are not timely or specific enough to believably control a decentralized firm, not relevant to the process of strategy, not accepted as a strategic information input, and not well related to operations. Chenhall argues that MAS can support a firm's decentralization and customer focused strategy and he calls for more in depth research on how management accounting plays a role in decentralized organizations. The credit crisis has highlighted the need among financial firms for good internal information. The MAS, and the interaction with a firm's structure may help explain performance.

Chia (1995) studies decentralization and MAS and its effect on performance. He finds that sophistication of MAS has a larger effect on firms' performance as firms decentralize. His findings are based on self reported survey data and limited to firms in Singapore. Gul and Chia (1994) find that the relationship between decentralization and performance is moderated by MAS sophistication using the same data set. This study will expand and test the generalization of their findings.

3.2.3 Structure, MAS and Risk in the financial industry

The Senior Supervisory Group, a group of regulators from US, France, Germany, Switzerland, and the UK, published a report on March 6, 2008 in which they surveyed

eleven of the largest banks worldwide about their risk management practices. The report attempts to identify the best practices from these interviews. The report identifies four areas where firms differentiated themselves. They are: 1) firm wide risk identification and analysis 2) consistent application of valuation practices across the firm 3) effective management of funding liquidity, capital and the balance sheet[16] and 4) informative and responsive risk measurement and management reporting practices. All of these metrics would be contained in a banks management accounting system (MAS). The above research suggests that the sophistication of a firm's MAS and their organizational structure may explain the difference in performance among banks.

Banks also have a great variety of structures. My sample is comprised of 259 unique financial firms. The most complex structure has 5,266 separate institutions under a parent company, although about half of the sample has only one institution. An organization hierarchy report for First Indiana Corporation is included in Appendix A for illustrative purposes. These structures also vary in terms of how decentralized they are. Figure 2 is a pictorial representation of the decentralization of First Indiana Corporation.

(Insert Figure 2)

The credit crisis created environmental uncertainty and a competitive advantage to firms that were decentralized with sophisticated MAS. Because of this I expect to find a positive main effect of MAS sophistication and decentralization on performance but I do not expect it to generalize to studies of other time periods.

3.2.4 Measures of MAS sophistication: risk factor disclosure

[16] The Senior Supervisory Group Report does not explicitly mention off balance sheet assets, however, there is considerable discussion of it in SEC releases. Off balance sheet assets are beyond the scope of this study.

Previous studies used survey data to directly measure MAS sophistication, in order to maintain an adequate sample size limited to just the credit crisis and to avoid respondent[17] bias I proxy MAS sophistication from the risk factor disclosure. In banking, risk monitoring would be a significant part of a MAS system. Item 503(c) of Regulation S-K requires a company to discuss its risk factors in plain English in accordance with Rule 421(d). As of 12/1/2005 all firms must disclose risk factors in their annual reports and disclose any material changes to their risk factors in their quarterly reports. In the risk factor disclosure a firm is to discuss the most significant factors that may adversely affect their business, operations, industry, financial position or future financial performance. This disclosure is particularly interesting because of the Senior Supervisory study findings that firms did not adequately identify and respond to systematic or industry risk. This disclosure is also legitimate to study because the risk factors section is contained in the financial statements that management, since Sarbanes Oxley 2002, must attest to its accuracy. Therefore there is little probability that the risk factor disclosure was delegated to an unknowledgeable lower level employee. This study assumes that the firm that recognizes and monitors more risks will have a risk factors section that differs systematically from firms that recognize and monitor fewer risks.

Qualitative disclosures are important disclosures and are closely scrutinized by regulators. In December of 2001, the SEC Corporate finance division of the SEC,

[17] This bias results from surveys being returned by firms with certain characteristics (ie firms with good news to tell are more likely to respond) and also refers to the bias that the survey is not necessarily answered by management that would have the knowledge to answer the questions. It is possible that the survey would be delegated to a lower level employee with fewer time demands.

conducted a study on the 10-K reports of the fortune 500 firms[18]. The management discussion and analysis was commented on more than any other topic. The most common criticism was that firms' disclosure was just a repeat of information in the financial statement, rote calculations of percentage changes in financial items and explanations of immaterial changes in these figures. There was little variability in MD&A from firm to firm, within an industry and even less difference from year to year for the same firm. I also find that within my sample there are a few firms whose risk factor disclosure does not change from 2005 to 2007 even though the risk environment to banks changed considerably. I include a control dummy for firms whose risk factors do not change or change very little.

In response to the study of Fortune 500 firms the SEC released *Interpretation: Commission Guidance Regarding Management's Discussion and Analysis of Financial Condition and Results of Operations* (Release Nos. 33-8350; 34-48960; FR-72) [19]. In this guidance, risk factors are to be included in the introduction or overview. It is suggested that the introduction of the MD&A "…provide insight into material opportunities, challenges and risks, such as those presented by known material trends and uncertainties, on which the company's executives are most focused for both the short and long term, as well as the actions they are taking to address these opportunities, challenges and risks."

The importance of this risk disclosure was highlighted in a speech by Stephanie Hunsaker before the 2007 AICPA National Conference on Current SEC and PCAOB

[18] http://www.sec.gov/divisions/corpfin/fortune500rep.htm
[19] http://www.sec.gov/rules/interp/33-8350.htm

Developments.[20] The majority of the speech is devoted to MD&A disclosures in the current credit environment. In the speech she notes that the media attention surrounding the credit crisis has created a demand for good MD&A disclosure. "Given everything going on, and what seems to be constant negative news about the current credit environment, investors are scrambling to get their hands on information." She continues by saying there have been some improvements to disclosures, including "added new risk factors about transactions with off-balance entities and the fact that those transactions could cause them to recognized future gains or losses or have to consolidate the entity. Or new risk factors warning that the registrant may experience additional write-downs in the securities or loan portfolio." The emphasis on MD&A in general and risk factors specifically motivates this study's focus on risk factor disclosures. Measuring elements of the risk factor disclosure will give insights to two aspects of the company: First, their general understanding of the risk environment, and secondly, the risk factor section will give an insight into the risk management style of the firm.

3.3 Variables and their measurement

3.3.1 Decentralization

I will measure the degree of decentralization as the proportion of 1st level institutions plus the parent institution from the NIC organizational hierarchy report to total institutions. The NIC, National Information Center, is a repository of financial data and institutional characteristics collected by the Federal Reserve System[21]. A sample organization hierarchy report is included in Appendix A. The variable is calculated from

[20] http://www.sec.gov/news/speech/2007/spch121107slh.htm
[21] http://www.ffiec.gov/nicpubweb/nicweb/NicHome.aspx

the parent sequence number. This number identifies which line the direct parent of the institution is reported on. For example from

Appendix A, MB Realty Corporation has a 4 in the parent sequence column. This identifies the institution in line 4 as the direct parent which is First Indiana Bank. This particular firm has a decentralization measure of 4/9; the firm has 3 level one institutions plus the parent to a total of 9 institutions.

3.3.2 MAS Sophistication

I perform a content analysis on the 10-K risk factors disclosures section. According to Li (2006), very few studies examine the text of publicly available corporate documents; instead the majority of the analysis has been on the quantitative variables released by the companies. Content analysis will allow me to study the text of corporate documents. Geppert and Lawrence (2008) describe content analysis as a "structured process used to find patterns that occur in any form of communication. Examples include counting the number of violent acts in a movie, looking at trends in color choice in print advertisements, or identifying isolationist themes in a political candidate's speeches." Accounting research has long understood the value of qualitative disclosures. Ingram and Frazier (1983) explore qualitative disclosures in the president's letter and management analysis. They find that the relationship between disclosure and management performance are consistent with attribution theory. Geppert and Lawrence (2008) use content of the president's letter and find they can assess a firm reputation through the writing style of the letter. Abrahamson and Amir (1996) study the president's letter for words with a negative connotation. They find this measure is related to financial performance and help to assess the permanent versus transitory components of earnings. Smith and Taffler (2000) explore discretionary

disclosure and financial risk of bankruptcy. They find that these unaudited disclosures help to identify bankruptcies, indicating that unaudited disclosures are important in valuation.

I use the software Diction 5.0 and the business norm setting to analyze the content of their risk factors disclosure. This setting was formed using a sampling of corporate financial reports. Numbers referred to in the text are included in the analysis with the idea that if specific numbers are being mentioned, the management believes these are in some way different from numbers summarized in the other sections of the MD&A. The analysis is conducted at the individual word level, so grammatical classifications such as clauses or parts of speech are ignored. The DICTION 5.0 software assigns each word to a concept classification or theme. These themes are described in the following section. In content analysis literature, this approach falls under the heading of conceptual analysis – which measures the appearance and frequency of concepts represented by individual words.

Diction 5.0 analyzes the content and returns scores for five factors: activity, optimism, certainty, realism, and commonality. These five features are composed of combinations of thirty-five sub-features. Diction 5.0 analyzes texts in 500 word blocks. The resulting Diction score represents the number of times each word (per 500 word text length) from one of the thirty-five sub-features appears in the text. These sub-feature scores are then aggregated to form the five major thematic categories. The aggregation process is simply the sum of various sets of the sub-features. While the content of the risk factors section appears similar with respect to the topics covered, there will be subtle differences in the style and tone of the letters. I use Diction 5.0

software because it was designed to identify and isolate aspects of linguist tone. These variables for linguistic tone, in addition for a measure of the quantity of disclosure, will proxy for MAS sophistication.

Diction Factors

Certainty: This variable is defined as language indicating resoluteness, inflexibility and completeness. In the calculation of this score, words that reflect dependence and social groupings increase this score, where words that increase variety and numerical terms decrease this score. Because risk reporting should have little to do with dependence and social grouping, I expect this measure to be unrelated to performance.

Optimism: This variable is defined as language endorsing some person, group, concept or event or highlighting their positive entailments. In the calculation of this score, words that indicate satisfaction or praise increase this score, where words that deal with blame, hardship or denial decrease this score. In risk reporting, words of satisfaction or praise are positively related to performance and blame hardship and denial to be negatively related. Therefore, I expect the optimism score to be positively related to performance.

Activity: This variable is defined as the language featuring movement, change, the implementation of ideas and the avoidance of inertia. In the calculation of this variable, terms related to aggression or accomplishment increase the score while words related to cognitive terms decrease this score. In risk disclosure, cognitive terms would be important as risk is an abstract phenomenon whereas accomplishments would not be. Therefore, I expect the measure of activity in the risk factor disclosure to be negatively related to firm performance.

Realism: This variable is defined as language describing tangible, immediate, recognizable matters that affect people's everyday lives. In the calculation of this variable, words related to temporal awareness, present concern and human interest increase this score while words related to past concern or complexity reduce this score. In risk disclosure, particularly during the credit crisis, I expect current focus to be important and that this variable is positively related to performance.

Commonality: This variable is defined as language highlighting the agreed upon values of a group and rejecting idiosyncratic modes of engagement. In the calculation of this variable, words that reflect centrality, cooperation and rapport increase the score while words that reflect diversity or exclusion decrease the score. In risk disclosure, I expect cooperation to be important. Centrality would also help with risk management. The Senior Supervisory Board identified firm wide risk management as an important element of bank risk management during the credit crisis. Therefore, I expect commonality in risk factor disclosures to be positively related to firm performance.

The interaction of decentralization and risk factor measures: As decentralization increases, the relation of MAS and performance will change. With the exception of commonality, I have no specific prediction as to how risk factor disclosure will relate differently with performance for decentralized firms. For decentralized firms I expect that commonality would have a lesser effect on performance.

3.3.3 Environmental uncertainty

Environmental uncertainty is measured as the company reported volatility. This is the volatility measure the company uses to value their options. This measure will be management's best guess of future volatility. The pressure to underestimate volatility in order to value option grants as less and therefore record a smaller expense would be

similar across firms in this study because they are all financial firms. I don't expect this effect to bias my results.

3.3.4 Control variables

I include log of total assets as a control for size. This control is especially important as my findings support the antidotal evidence that the credit crisis affected large banks more adversely. I include year dummies as the banking industry returns were incredibly different from 2005 to 2007. (See Appendix B) I also include a dummy for banks, insurance, and broker-dealer firms. It may be that decentralization and/or performance differs systematically across these three types of financial firms, including dummies will control for this possibility. I include a variable that measures the number of words in the disclosure to control for the idea that more disclosure is preferable to less. I include a variable for the number of institutions within a parent that must make Home Mortgage Disclosure Act (HMDA). This variable controls for a firms involvement in mortgage loans. (See appendix C for the rules regarding which institutions fall under HMDA) I also include a control dummy that is coded as one if the cumulative variation of the five diction measures is less than 50 to control for firms that do not change their risk factor disclosure very much over the sample period.

3.3.5 Performance

I have two measures of performance, the dependent variable. First, I measure performance as abnormal earnings based on the difference between reported earnings and expected earnings. Expected earnings are measured as difference between earnings and the risk free return on total assets.

$$b_{,} = {}_{,} - *_{,}$$

Secondly, I measure performance using the annual stock return. The credit crisis may have an effect on stock price that is independent of the firm's performance. For example if the credit crisis dampens investor sentiment for financial investment this will lower stock price and thus stock return regardless of a firm's performance. This effect will then be reversed when investor sentiment is changed[22]. This creates a noisy measure of performance, but an interesting one because a relation between MAS sophistication and return performance may capture an effect of the risk factor disclosure on investor sentiment. Also the market measure will be free of any accounting manipulation.

3.4 Model and Sample

I expect abnormal performance during the credit crisis to be a function of decentralization, MAS sophistication and the fit or interaction of MAS and decentralization. To test that I run the following model.

$$
\begin{aligned}
abX_{i,t} = \ & \beta_0 + \beta_1 Decentral_i + \beta_2 Activity_{i,t} + \beta_3 Optimism_{i,t} + \beta_4 Certainty_{i,t} \\
& + \beta_5 Realism_{i,t} + \beta_6 Commonality_{i,t} + \beta_7 EnvUncert_{i,t} + Decentral_i \\
& * (\beta_8 Activity_{i,t} + \beta_9 Optimism_{i,t} + \beta_{10} Certainty_{i,t} + \beta_{11} Realism_{i,t} \\
& + \beta_{12} Commonality_{i,t} + \beta_{13} EnvUncert_{i,t}) + \beta_{14} HMDA_i + \beta_{15} Numwrds_{i,t} \\
& + \sum_{i=16}^{19} \beta_i dummy + \beta_{20} lnTotalAssets_{i,t} + \beta_{21} stdevdum_i + \varepsilon_{i,t}
\end{aligned}
$$

$abX_{i,t}$ is measured as net income minus the risk free return on assets.
$Decentral_i$ is the proportion of level one subsidiaries to total subsidiaries.
$Activity$, $Optimism$, $Certainty$, $Realism$, and $Commonality$ are the reported scores from the content analysis.
$EnvUncert_{i,t}$is measured as the company reported volatility.
$HMDA$ is the number of subsidiaries that must report HMDA data.
$Numwrds$ is the number of words that appear in the risk factor section.

[22] The huge upswing in the market in April 2008 is an example of a change in investor sentiment. Bank Q1 earnings was better than expected but not as good as the market reaction suggested they were. For more detail see Rotblut, C. "Bank Earnings Worse Than Sentiment Suggests" Zach's investment research. http://www.zacks.com/commentary/7466/Bank+Earnings+Worse+Than+Sentiment+Suggests (Apr 23, 2008)

$dummy$ are two dummy variables for observations in year 2006 or in year2007 and two dummies for either insurance or broker industry.
$lnTotalAssets$ is the natural logarithm of total assets.
$stdevdum$ is a dummy to control for risk factor disclosures that change very little from year to year.

I run an OLS model with a pooled sample of 259 firms for the years 2005-2007. Not all firms appear every year as that was considerable consolidation and bankruptcy during the period. (For example Wachovia and Lehman Brothers are both in the sample) I include year dummies to control for the wide variation in financial industry returns over the sample period. I interact the decentralization variable with all of the MAS sophistication variables and environmental uncertainty.

I also run a second model using the firm's stock return as the dependent variable. The first model is a measure of accounting return whereas this one is a measure of market return. Since my sample time period is the credit crisis and investor sentiment played a large roll in the value of the stock, I expect firm return to be a very noise measure of firm performance. Nevertheless, it is important to look at a market measure of performance because the accounting measure may be manipulated. For the market model I run the following OLS regression:

$$
\begin{aligned}
Ret_{i,t} = \beta_0 + \ & \beta_1 Mktret_t + \beta_2\, Decentral_{\ i} + \beta_3 Activity_{i,t} + \beta_4 Optimism_{i,t} \\
& + \beta_5 Certainty_{i,t} + \beta_6 Realism_{i,t} + \beta_7 Commonality_{i,t} + \beta_8 EnvUncert_{i,t} \\
& + \ Decentral_{\ i} \\
& * \left(\beta_9 Activity_{i,t} + \beta_{10} Optimism_{i,t} + \beta_{11} Certainty_{i,t} + \beta_{12} Realism_{i,t}\right. \\
& \left. + \beta_{13} Commonality_{i,t} + \beta_{14} EnvUncert_{i,t}\right) + \beta_{15}\, HMDA_i + \beta_{16} Numwrds_{i,t} \\
& + \beta_{17} lnTotalAssets_{i,t} + \beta_{18} stdevdum_i + \sum_{i=19}^{20} \beta_i dummy + \varepsilon_{i,t}
\end{aligned}
$$

$Ret_{i,t}$is measured as the fiscal year end annual return
$\mathrm{Mktret_t}$is measured as the annual market return corresponding to the firms' fiscal year end.
$Decentral_{\ i}$ is the proportion of level one subsidiaries to total subsidiaries.
$Activity$, $Optimism$, $Certainty, Realism$, and $Commonality$ are the reported scores from the content analysis. $EnvUncert_{i,t}$is measured as the company reported volatility.

$HMDA$ is the number of subsidiaries that must report HMDA data.
$Numwrds$ is the number of words that appear in the risk factor section.
$dummy$ are two dummy variables corresponding to insurance and broker industry type.
$lnTotalAssets$ is the natural logarithm of total assets.
$stdevdum$ is a dummy to control for risk factor disclosures that change very little from year

I include all of the same controls as in the first model except for the year dummies. They are eliminated because I include the market return as a control in this model and since the yearly market return is the same for all firms for a year, if you include a year dummy the matrix is not full rank.

In choosing the sample, I start with Fortune 1000 firms that have SIC codes in the 6000s for the years 2005-2007. The firms must appear on the NIC web site for decentralization data and they must have Compustat and CRSP data for the other variables. The sample selection is outlined in Table 7.

(Insert Table 7)

I have 303 unique financial firms and 425 firm year observations. I also have included the break down of type of financial firm. I have 175 banking firm year observations, 116 insurance firm year observations and 134 broker dealer firm year observations. I divided the financial firms into these three industries based on Fama and French (1997).

3.5 Results

3.5.1 Descriptive statistics

Table 8 reports descriptive statistics. The data is reported for the 425 observations that had complete data.

(Insert table 8)

Note that the number of words is as low as 24. These firms have a risk factors section that generally states that the risk factor disclosure is contained in the MD&A. There are

only 15 firm yrs with a risk factor disclosure less than 106 words. The next observation with the fewest words was 424. Eliminating these observations from my analysis did not significantly change my results.

The mean of abnormal earnings and firm return are both negative which is expected for a sample of financial firms during the credit crisis. The decentralization variable is the number of level one segments over total segments. The mean of .7209 means that the average financial firm has 72% of their segments decentralized. There is considerable variation in this measure, ranging from 1% to 100%.

3.5.2 Diction analysis results

In Table 2, the results of the diction analysis are summarized. Remember that the values are normalized at 50 based on the business norms setting in diction. The business norms setting was developed using financial reports from fortune 500 companies, official mission statements, public pronouncements, financial news, legal documents, and TV and magazine business advertising. In general the mean of this sample is below the norm on optimism and realism but around the norm on activity, certainty and commonality. It is not surprising that this sample is below the norm on optimism; recall that the sample is contrived of financial firms during the recent credit crisis. There was understandably little to be optimistic about in terms of risk. The realism variable can be explained by the fact that risk was changing so fast that it was difficult to have a current focus and that most risk modeling is based on historic data. Activity has a very wide range but the standard deviation appears to be in line with the other diction variables. This is most likely because a few firms merely reference the MD&A in their risk factors section. I don't exclude these observations because the lack of specific risk factor disclosure may contain information. However, I do run the tests

with and without these observations to check the stability of the results. Certainty and commonality have means around the norm and there is nothing unusual about their range or standard deviation.

(Insert table 9)

3.5.3 Structure and performance

The results of the accounting regression show that large firms performed significantly worse during the credit crisis. The log of total assets is significantly negative for both specifications of accounting performance (t stat = -14.82, t-stat = -14.94). There is a significant negative return to size; larger firms perform worse than smaller firms in terms of abnormal earnings. However in the return model, I find no negative return to size. This could be that the stock price has already incorporated a lower return to size for larger firms. I find a positive and significant return to decentralization[23] (t stat = 4.54) in only the expanded accounting model. This suggests that the return to decentralization is contingent on the sophistication of the MAS system; the positive and negative of the interaction net out enough to make the main effect insignificant in the basic model. This supports the hypothesis that decentralized firms may have a performance advantage because of flexibility and shortened response time. This result is similar to the survey results of Chia (1995) and Chenhall and Morris (1986). I do not find any significant return to decentralization in either of the market models.

[23] I also ran the model without any of the diction variables and found no significant return to decentralization in either the accounting or the return model. Decentralization is insignificant without the MAS variables and their interaction with structure.

(Insert Table 10)

3.5.4 MAS and performance

The effect of MAS on performance is insignificant in the basic accounting return model. This is because of the contingency of decentralization. When the interaction with decentralization is included, I find a negative and significant main effect of activity (t-stat = -1.99) as expected. This suggests that firms with a lot of cognitive terms in their risk factor disclosure outperformed firms with a lot of aggression or accomplishment terms. Next, I find a very significant positive relation with the main effect of optimism (t-stat = 4.07). This suggests that using a risk factor section to give credit or list accomplishments and not to outline blame, hardship or denial is related with higher performance. Next, I find a significant positive return to realism (t-stat = 1.77); current focus in risk factor disclosure is associated with higher performance. Lastly, I find a significant positive return to commonality (t-stat = 3.27). Recall that commonality measured cooperation; I find that this is associated with higher performance.

In the market model, I find a significant return to realism (t-stat = 2.32) in the basic model. The current focus that is measured by realism appears to have a positive return on a firm's stock, however this is not strong enough to find a significant main effect in the expanded model. All other MAS variables from the risk factor section are insignificant in the market model.

3.5.5 Structure, MAS and performance

For the accounting model, I find that decentralize firms have different MAS as revealed by the different relationship between risk factor disclosure measures and performance. I find a significant and negative return to optimism interacted with decentralization (t-stat = -3.87). This suggests that it is less important to highlight

accomplishments for decentralized firms. Also, as predicted I find a negative return to commonality for decentralized firms (t-stat = -3.12). For decentralization to be an effective strategy different managers must have autonomy, I find that risk factor disclosures that stress centrality and cooperation for decentralized firms perform worse.

For the market model, I find no significant differences for decentralized firms and the risk factor disclosure. Remember that the market model has a noisier measure for the dependant variable as return is affected by things exogenous to the firm. Financial firms would have especially noisy returns during the credit crisis.

One of the key findings of this analysis is that when studying management accounting systems, decentralization must be controlled and interacted with MAS. Many of the measured effects were insignificant in the absence of the interaction because the two effects netted out. The use and effect of MAS varies with the amount of decentralization a firm chooses.

3.6 Conclusions

3.6.1 Limitations and implications for future research

This study results are limited to financial firms and as a future avenue of research could be expanded to a larger population. Also these results may be factors of the time period. Risk factor disclosure was very important for financial firms during the credit crisis but the results may not generalize to a different time period. The narrowing of the sample to one industry during a time of crisis was a first attempt to describe the importance of MAS risk sophistication and the related risk factor disclosure.

3.6.2 Conclusions and application of findings

Risk management was critical during the credit crisis. I find evidence to support the Senior Supervisory Group Report that suggests risk management differentiated

between performances during the credit crisis. Specifically I measure MAS risk sophistication by doing a content analysis on financial firms' risk factor disclosures. I find this risk factor disclosure helps to explain earnings performance. I examine firm structure and find a negative return to size during the credit crisis but a positive return to decentralization. I also find that the effect of MAS risk sophistication differs depending on the level of decentralization of the firm. The contingent effect of structure on MAS has been found in previous studies (Chia 1995; Chenhall and Morris 1984) and proved to be a significant contingency for this study also.

The results of this study are important because this is to my knowledge the first study to examine the content of the risk factors disclosure and this importance is magnified by the risk management problems financial firms faced during 2005 to 2007. This study is also important to academic understanding of firm structure and organization and the implications of structure on the utilization of MAS. Finally, regulators will be interested in this study as it shows the importance of qualitative disclosures.

REFERENCES

Abrahamson ,E. and Amir, E. “The Information Content of the President’s Letter to Shareholders,” Journal of Business Finance and Accounting, (October1996): 1157-82.

Adams, R. and D. Ferreira. “Do directors perform for pay?” *Journal of Accounting and Economics* (2008): 154-171.

Adams, R, and H. Mehran “Corporate Performance, Board Structure and its Determinants in the Banking Industry.” Working paper, Stockholm School of Economics. (Aug., 2005).

Baily, M., D. Elmendorf and R. Litan. “The Great Credit Squeeze: How it happened, How to prevent another.” Discussion paper, Economic Studies at Brookings. (May 2008)

Becher, D., T. Campell II and M. Frye “Incentive Compensation for Bank Directors: The Impact of Deregulation.” *Journal of Business* (2005): 1753 – 1777.

Brickley, J., S. Bhagat and R. Lease. “The impact of long-range managerial compensation plans on shareholder wealth.” *Journal of Accounting and Economics* (1985): 115-129.

Chia, Y. “Decentralization, management Accounting System (MAS) information characteristics and their interaction effects on managerial performance: A Singapore Study.” Journal of Business Finance and Accounting (Sept 1995): 811-830.

Chenhall R. and D. Morris. “The impact of Structure, Environment, and Interdependence on the Perceived Usefulness of Management Accounting Systems” The Accounting Review (Jan. 1986): 16-35.

Chenhall, R. “Accounting for the horizontal orgainizaton: A review essay.” Accounting Organizations and Society (2008): 517-550

Crawford J., J. Ezzell and J. Miles. “Bank CEO Pay-Performance Relation and the Effects of Deregulation.” *The Journal of Business* (April 1995): 231-256.

Coles, J., N. Daniel and L. Naveen. “Managerial incentives and risk-taking.” *Journal of Financial Economics* (2006): 431-468.

Core, J. and W. Guay. “Stock Options plans for non-executive employees.” *Journal of Financial Economics* (2001): 253-287.

Fama, E. and K. French. “Industry cost of equity.” *Journal of Financial Economics* (1997): 153 – 193.

Farrell, K., Freisen, G. and Hersch, P.“How Does Director Compensation Change?” Journal *of Corporate Finance*, (2008): 153-162.

_____ Erratum *Journal of Corporate Finance* (2008): 753-754.

Geppert, J. and J. Lawrence, “Predicting Firm Reputation through Content Analysis of Shareholders’ Letters,” *Corporate Reputation Review*, (2008): 285–307.

Gul, F. “The Effects of Mnanagement Accounting Systems and Environmental Uncertainty on small Business Managers’ Performance.” Accounting and Business Research. (1991):57-61.

Gul, F. and Chia, Y. “The effect of management accounting systems, perceived environmental uncertainty and decentralization on managerial performance: A test of three-way interaction.” Accounting, Organizations and Society, (1994): 413-426.

Houston J. and C. James. “CEO Compensation and bank risk: Is compensation in banking structured to promote risk taking?” *Journal of Monetary Economics.* (1995): 405–431.

Hubbard R. and D. Palia. “Executive pay and performance, Evidence from the US banking industry.” *Journal of Financial Economics* (1995): 105-130.

Ingram, R.W. and Frazier, K.B. “Narrative Disclosures in Annual Reports,”Journal of Business Research, (Autumn 1983): 614-622.

Ittner, C. and D. Larker. “Assessing empirical research in managerial accounting: A value-based management perspective.” Journal of Accounting and Economics (2001):349-410.

Kole, S. and K. Lehn. “Deregulation, the Evolution of Corporate Governance Structure, and Survival.” *The American Economic Review* (May 1997): 421-425

Laeven, L. “Banking Risks around the World: The Implicit Safety Net Subsidey Approach.” Working paper, The World Bank. 2000

Lamont, P. ”Credit Crisis Timeline - From Foreclosures to Bank Failures”. The Market Oracle. http://www.marketoracle.co.uk/Article3859.html 02/29/2008.

Li, Feng. “Do Stock Markey Investors Understand the Risk Sentiment of Corporate Annual Reports?” Working paper Ross School of Business, University of Michigan (2006).

Macey J. and M. O’Hara. “The Corporate Governance of Banks.” *FRNYB Economic Review* (April 2003): 91-107.

Mehran, H. “Executive compensation structure, ownership, and firm performance.” *Journal of Financial Economics* (1995): 163-184.

Ohlson, J. “Earings, Book Values, and Dividends in Equity Valuation.” *Contemporary Accounting Research* (Spring 1995): 661-687.

Rose, P. and S. Hudgins. Bank Management and Financial Services. New York: McGraw-Hill/Irwin, 2008.

Sanders, G. “Behavioral Responses of CEOs to Stock Ownership and Stock Option Pay.” *The Academy of Management Journal.* (2001): 477-492.

Senior Supervisory Group. “Obeservations on Risk Management Practices during the Recent Market Turbulence.” March 6, 2008

http://www.newyorkfed.org/newsevents/news/banking/2008/ssg_risk_mgt_doc_final.pdf.

Smith, M. and Taffler, R. “The Chairman’s Statement: Content Analysis of Discretionary Narrative Disclosures,” Accounting, Auditing & Accountability Journal (2000): 624-46.

Waterhouse, T.J. and P. Teissen. “A contingency Framework for Management Accounting Systems Research.” Accounting Organizations and Society (1978): 65-76

Williamson, O. Markets and Hierarchies: Analysis and Antitrust Implications 1975. The Free Press, New York.

Figure 1 Lamont Trading Advisors' Credit Crisis Timeline (Lamont 2008)

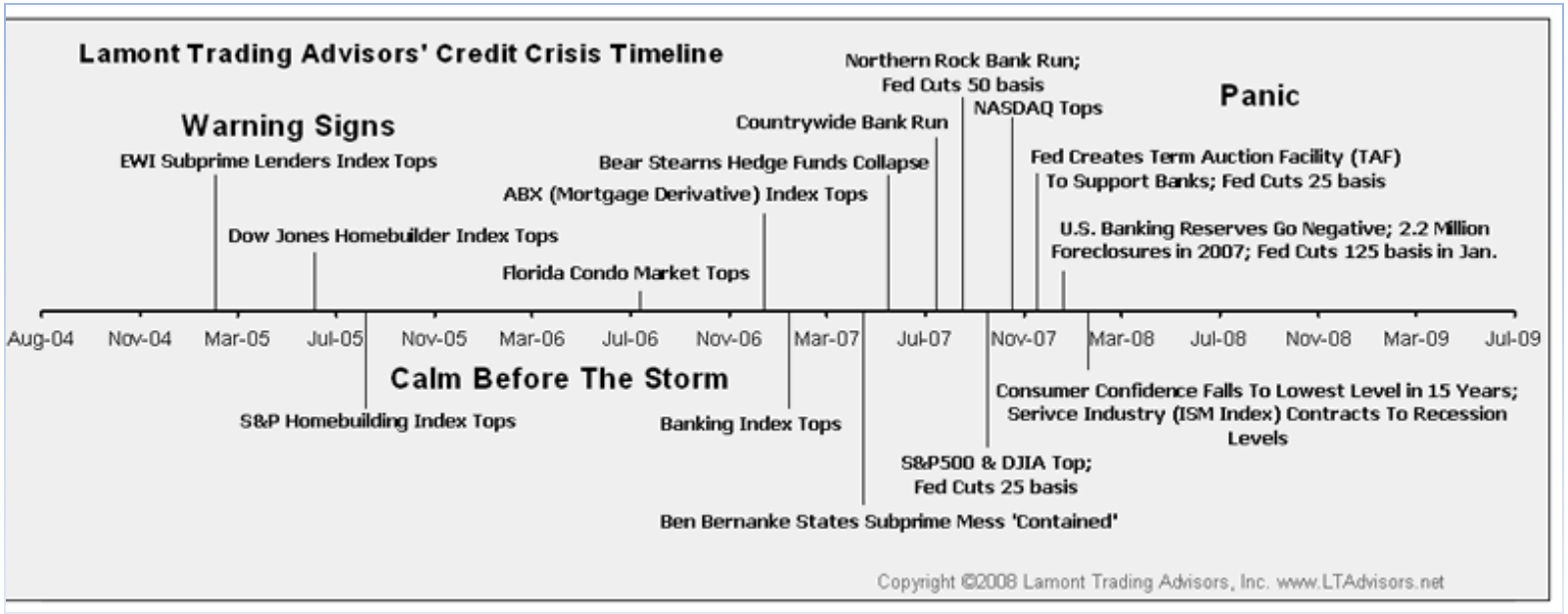

Figure 2 Organizational Hierarchy Illustrations

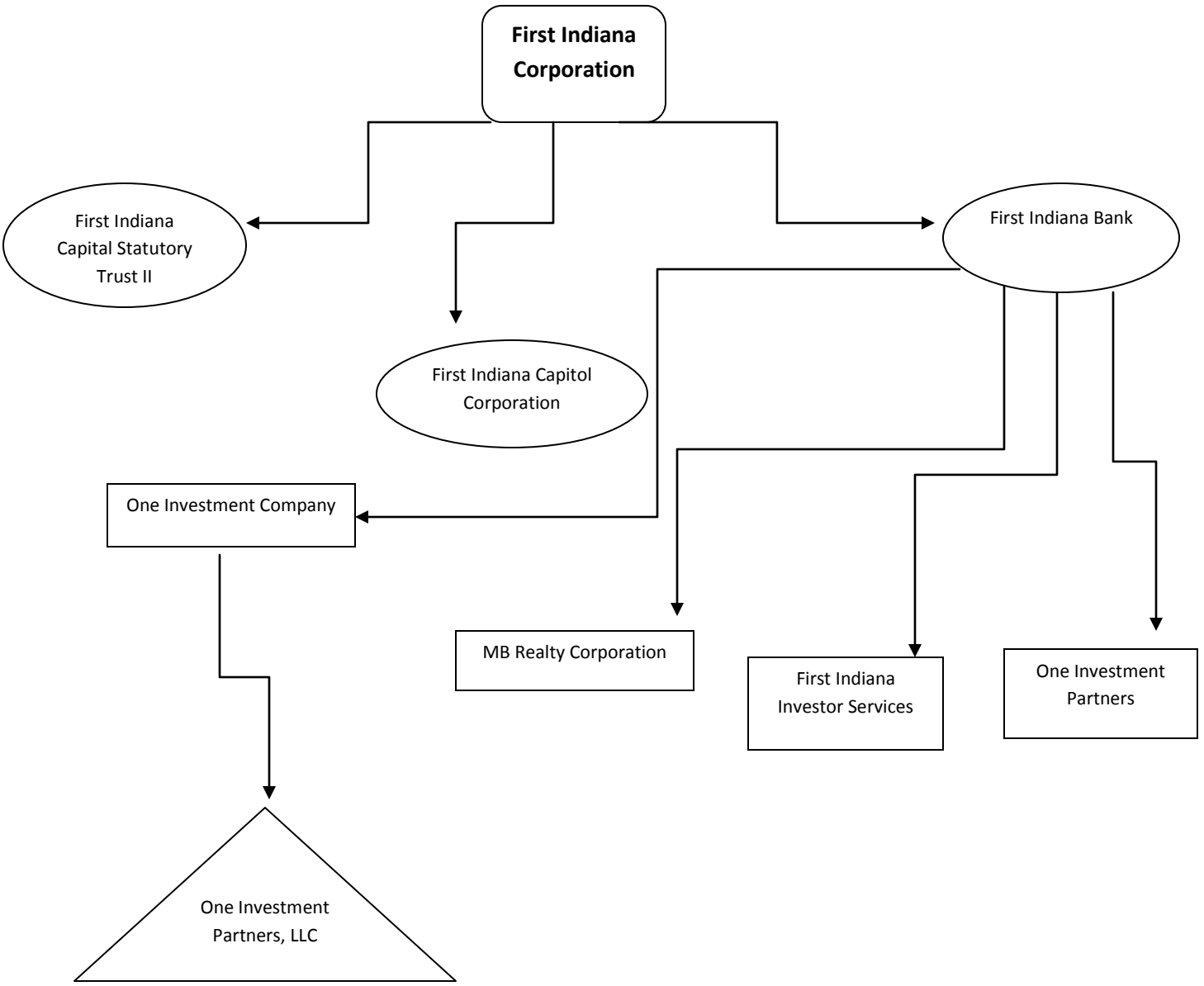

Table 1 Sample selection, essay 1

Fortune 1000 Firms from years 2005-2007 with SIC code in the 6000s

		CEO sample	Director sample
Number of unique firms		303	303
Compustat / CRSP data			
	2007	252	252
	2006	268	268
	2005	285	285
	2004[24]	293	293
Option and stock data			
	2007	135	147
	2006	218	139
	2005	238	133
	2004	223	116
Total observations for ret model (years 2005-2007)		591	419
Total observations for 2sls model (yrs 05-07, obs with lags		521	321

[24] 2004 observations are reported because the two-stage least squares model needs lag variables from 2004

Table 2 Summary Statistics, essay 1

Panel A:		CEO sample		Director
Variable	**N**	**Mean (Std dev)**	**N**	**Mean (Std dev)**
Firm mktval*	238	11933797.71 (27670114.25)	133	10370177.34 (22891767.39)
Net Income**	238	852.47 (2314.65)	133	735.76 (1647.40)
Return	238	.0380 (.2701)	133	.0945 (.2709)
Unexpected	238	587.92 (1745.79)	133	481.99 (1099.89)
Shares*	238	14425514.06 (122759425)	133	3303.33 (5964.29)
Options*	238	670453.45 (3906493.54)	133	286.31 (1271.13)
Banking	89	.3739	39	.2932
Insurance	69	.2899	38	.2857
Trading[25]	80	.3362	56	.4211
Panel B:		**CEO sample**		**Director**
Firm mktval	218	13988168.22 (33475251.71)	139	11505672.68 (25740200.44)
Net Income	218	1097.27 (2769.20)	139	891.90 (2168.91)
Return	218	.0924 (.2460)	139	.1547 (.2886)
Unexpected X	218	753.79 (1947.94)	139	579.09 (1439.66)
Shares	218	12403201.89 (66427331.83)	139	4740.18 (13882.15)
Options	218	694549.53 (2281549.24)	139	254.94 (764.40)
Banking	80	.3670	42	.3022
Insurance	67	.3073	35	.2517
Trading	71	.3257	62	.4461

[25] Trading includes both the trading specification and the Real Estate Investment Trust as defined by Fama and French (1997). There are only a few REITS in each sample year. (2005, 10; 2006, 9; 2007, 13) The results with these firms excluded are qualitatively similar so all statistics are reported with REITS classified as Trading in order to maintain sample size.

*measured in thousands of dollars

**measured in millions of dollars

Table 2 Summary Statistics (continued), essay 1

Panel C:		CEO sample		Director
Variables	**N**	**Mean (St dev)**	**N**	**Mean (St. dev)**
Firm mktval	135	15428323.12 (28541599.03)	147	12513649.36 (27823963.33)
Net Income	135	946.23 (2266.15)	147	685.57 (2382.13)
Return	135	-.1686 (.2880)	147	-.1949 (.2990)
Unexpected X	135	483.08 (1692.44)	147	268.73 (1728.24)
Shares	135	4985261.20 (11896825.66)	147	7358.88 (32183.74)
Options	135	681525.18 (1793653.64)	147	252.95 (820.90)
Banking	45	.3333	50	.3401
Insurance	43	.3185	36	.2449
Trading	47	.3482	61	.4150

Table 3 Return model – Incentive effect on stock return

$$ret_{it} = \propto_1 + \propto_2 mktret_t + \propto_3 Opt_i + \propto_4 Stock_i + \sum_{i=1}^{2} \propto_{i+4} d_i + \propto_7 TotalAssets_{i,t} + \varepsilon_i$$

ret_{it} = Yearly return of financial firm I, $mktret_t$ = Yearly market return corresponding with firm i's fiscal year end, Opt_i = Option variable, $Stock_i$ = Stock ownership variable, $\sum_{i=1}^{4} d_i$ = year dummies and TotalAssetsis total assets for firm i.

Panel A: OLS estimation of the effect of incentives on firm return for pooled sample 2005-2007

Variable[26]	Full sample	Bank	Insurance	Trading sample
Intercept	.0867***	-.0843***	.0188	.0922***
Mktret	11.02	14.57***	5.54**	12.87***
Opt	$-1.76x10^{-9}$	$4.95x10^{-8}$*	$4.32x10^{-8}$**	$-5.74x10^{-9}$
Stock	$1.03x10^{-10}$	$-3.47x10^{-9}$	$-1.30x10^{-9}$	$.13041.05x10^{-10}$
Banking	-.1631***			
Insurance	-.0465*			
Total assets	$3.15x10^{-8}$	$2.35x10^{-8}$	$3.22x10^{-8}$	$3.99x10^{-8}$
Number of	591	214	179	198
Adj. R – square	0.1793	0.3016	0.0525	0.1443
Model F-value	22.48	24.00	3.47	9.30
Model p-value	<.0001	<.0001	0.0094	<.0001

Panel B: OLS estimation of the effect of director incentives on firm return for pooled sample 2005-2007

Intercept	-.1068***	-.3260***	-.0200	-.1731***
Mktret	2.94***	3.41***	.9917	3.73***
Opt	$1.21x10^{-5}$	$3.77x10^{-5}$	$2.20x10^{-6}$	$9.84x10^{-5}$*
Stock	$-4.22x10^{-7}$	$1.30x10^{-6}$	$-6.06x10^{-7}$	$-9.61x10^{-7}$
Banking	-.1997***			
Insurance	-.0385			
Total Assets	$1.60X10^{-8}$	$1.80x10^{-8}$	$9.48x10^{-8}$	$-1.77x10^{-8}$
Number of	419	131	109	179
Adj. R – square	0.2378	0.4043	-0.0094	0.2191
Model F-value	22.74	23.06	0.75	13.49
Model p-value	<.0001	<.0001	0.5609	<.0001

Table 4 Two-stage least squares estimation of firm performance, CEO analysis

$$x_t^a = \omega_{1,1} + \omega_{1,2}x_{t-1}^a + \omega_{1,3}v_{t-1} + \varepsilon_{1t}$$
$$v_t = \gamma_{2,2}v_{t-1} + \varepsilon_{2t}$$
$$CE_t^M = \alpha_{3,1} + \alpha_{3,2}CE_t^B + \alpha_{3,3}x_t^a + \alpha_{3,4}v_t + \mu_{3t}$$
$$x_{t+1}^a = ni_t - RF_tCE_t^B$$

x_t^a = the unexpected earnings, v_t = the other information variables – incentive variables, options and shares owned, CE_t^M = The market value of common equity at time t, CE_t^B = the book value of common equity at time t, RF_t= risk free rate. Industry and year dummies are included but not reported. Instrumental regression R^2 for options = .1132, stock = .0659, unexpected earnings = .6488

Panel A: Analysis of the effect of CEO incentives on firm performance for pooled sample 2005-2007

Variable	Full sample	Bank sample	Insurance	Trading sample
$x_t^a = \omega_{1,1}x_{t-1}^a + \omega_{1,2}v_{t-1} + \varepsilon_{1t}$				
Intercept	195.17	364.55*	114.98	240.89
Unexpected earnings	.7972***	.8058***	9.92.7770***	.8365***
Options	-.0002**	-.00006	.00004	-.0003***
Stock	$1.24x10^{-6}$*	$9.58x10^{-6}$	$1.69x10^{-7}$	$1.31x10^{-6}$*
Bankdum	29.94			
Insurancedum	181.13			
Yr6dum	76.38	-111.61	286.27*	28.55
Yr7dum	-542.277***	-1056.85***	-119.84	-528.69*
Number of observations	520	196	165	159
Adj R – square	0.59196	0.67109	0.57854	0.3427
Model F-value	108.77	80.57	46.02	17.47
Model p-value	<.0001	<.0001	<.0001	<.0001
$CE_t^M = \alpha_{3,1} + \alpha_{3,2}CE_t^B + \alpha_{3,3}x_t^a + \alpha_{3,4}v_t + \mu_{3t}$				
Intercept	2911321	4913436*	986973	-618716
BV of equity	1164.58***	1216.141***	19.791159.12***	619.98
Unexpected earnings	5792.09***	5147.53*	6374.04*	15442.94
Options	-6.16	-13.31	-1.49	-13.05
Stock	.1559	1.239	.3525	0.1862
Bankdum	-1056326			
Insurancedum	-836460			
Yr6dum	2991985	-1233463	-1889408	15407591
Yr7dum	-1692746	-7592313**	-4665188	9849952
Number of observations	520	196	165	159
Adj. R – square	0.72725	0.89089	0.83594	.07675
Model F-value	174.31	266.37	140.27	3.19
Model p-value	<.0001	<.0001	<.0001	<.0056

Table 4 two-stage least squares estimation of firm performance, Director analysis

$$x_t^a = \omega_{1,1} + \omega_{1,2} x_{t-1}^a + \omega_{1,3} v_{t-1} + \varepsilon_{1t}$$
$$v_t = \gamma_{2,2} v_{t-1} + \varepsilon_{2t}$$
$$CE_t^M = \alpha_{3,1} + \alpha_{3,2} CE_t^B + \alpha_{3,3} x_t^a + \alpha_{3,4} v_t + \mu_{3t}$$
$$x_{t+1}^a = ni_t - RF_t CE_t^B$$

x_t^a = the unexpected earnings, v_t = the other information variables – incentive variables, options and shares owned, CE_t^M = The market value of common equity at time t, CE_t^B = the book value of common equity at time t, RF_t= risk free rate. Industry and year dummies are included but not reported. Instrumental regression R^2 for options = .0595, stock = .1871, unexpected earnings = .5252

Panel B: Analysis of the effect of director incentives on firm performance for pooled sample 2005-2007

Variable	Full sample	Bank sample	Insurance	Trading sample
$x_t^a = \omega_{1,1} x_{t-1}^a + \omega_{1,2} v_{t-1} + \varepsilon_{1t}$				
Intercept	114.68	162.36	83.95	92.74
Unexpected earnings	.8151***	1.01***	.6699***	.7411***
Options	.2035	.2965	.8523*	.0835
Stock	.0049	-.0104	.0061	.0063
Bankdum	-4.93			
Insurancedum	-0.8267			
Yr6dum	91.04	-144.43	283.28	103.90
Yr7dum	-552.43***	-789.17**	-641.9*	-368.69
Number of observations	321	89	87	145
Adj. R – square	0.45634	0.64815	0.57320	0.24413
Model F-value	39.37	33.42	24.10	10.30
Model p-value	<.0001	<.0001	<.0001	>.0001
$CE_t^M = \alpha_{3,1} + \alpha_{3,2} CE_t^B + \alpha_{3,3} x_t^a + \alpha_{3,4} v_t + \mu_{3t}$				
Intercept	1000449	2177175	-1417746	297551.1
BV of equity	1195.20***	1073.64***	1672.04***	1936.97***
Unexpected earnings	4040.21*	3664.6*	4323.17	-913.77
Options	9970.552*	7733	528.50	-4616.30
Stock	-47.38	60.96	-355.27	211.03**
Bankdum	-2726151			
Insurancedum	-3713397			
Yr6dum	485153	-1086035	-1644401	909331
Yr7dum	-2196639	-6831237**	797804.9	-1216705
Number of observations	321	89	87	145
Adj. R – square	0.80832	0.92353	0.91290	0.86193
Model F-value	169.68	178.13	151.23	150.82
Model p-value	<.0001	<.0001	<.0001	<.0001

Table 5 Descriptive Statistics by quartile[27]

Panel A: Quartiles measured based on CEO options

Variable	Q1	Q2	Q3	Q4
Total assets	36995.50	94220.54	52366.85	111557.30
	(143232.30)	(259931.17)	(196106.00)	(245859.64)
Net income	382.62	1282.55	653.11	1125.21
	(1069.13)	(3226.62)	(1763.18)	(2205.79)
St dev earnings	172.67	510.71	256.73	452.42
	(374.75)	(1255.51)	(750.51)	(1107.16)
St dev unexp earn	159.91	473.53	240.53	413.95
	(349.12)	(1230.01)	(739.41)	(1059.07)
Stock price	28.43	27.07	28.84	27.72
	(12.57)	(8.87)	(12.53)	(9.39)
Beta	1.1784	1.0338	1.0996	1.0787
	(.3896)	(.3437)	(.3852)	(.3528)

Panel B: Quartiles measured based on CEO stock ownership

Variable	Q1	Q2	Q3	Q4
Total assets	56816.51	41379.00	92126.00	102707.14
	(185935.75)	(153907.41)	(253121.14)	(254864.99)
Net income	749.07	424.37	1241.68	894.98
	(2135.80)	(1648.57	(2752.74)	(2024.80)
St dev earnings	302.13	22.99	379.79	461.52
	(845.71)	(560.77)	(987.91)	(1182.73)
St dev unexp earn	279.08	209.27	349.05	428.38
	(821.21)	(532.17)	(951.89)	(1153.42)
Stock price	29.37	26.54	27.40	26.87
	(12.57)	(8.85)	(11.43)	(7.35)
Beta	1.0946	1.1829	1.1035	1.0580
	(.3628)	(.3905)	(.3866)	(.3590)

[27] Means are reported with standard deviations in parenthesis

Table 6 Relation of risk to option and stock ownership quartiles

Panel A: Dependant variable - Standard deviation of earnings; option quartile comparisons			
Coeff of variation	**R-squared**	**Model F value**	**Model p value**
268.52	0.0260	3.83	0.0009
Grouping variable	**Type III SS**	**F value**	**p value**
Options	15278236.91	5.78	0.0007
Stock Ownership	3807909.30	1.44	0.2298
Quartile	**Difference in option means**[28]		
Q4 – Q3	195.69		
Q4 – Q2	-58.29		
Q4 – Q1	279.75***		
Q3 – Q2	-253.98***		
Q3 – Q1	84.06		
Q2 – Q1	338.04***		
Panel B: Dependant variable – Standard deviation of unexpected earnings; options quartile comparisons			
Coeff of variation	**R-squared**	**Model F value**	**Model p value**
281.87	0.0235	3.46	0.0022
Grouping variable	**Type III SS**	**F value**	**p value**
Options	12988185.33	5.21	0.0014
Stock Ownership	3402634.63	1.36	0.2522
Quartile	**Difference in option means**		
Q4 – Q3	173.42		
Q4 – Q2	-59.59		
Q4 – Q1	254.03***		
Q3 – Q2	-233.01***		
Q3 – Q1	80.62		
Q2 – Q1	313.62***		
Panel C: Dependant variable – Beta; options quartile comparisons			
Coeff of variation	**R-squared**	**Model F value**	**Model p value**
33.54	0.0243	3.65	0.0014
Grouping variable	**Type III SS**	**F value**	**p value**
Options	1.9429	4.78	0.0026
Stock Ownership	0.5686	1.40	0.2418
Quartile	**Difference in option means**		
Q4 – Q3	-0.0209		
Q4 – Q2	0.0449		
Q4 – Q1	-0.0997***		
Q3 – Q2	0.0658		
Q3 – Q1	-0.07881		

[28] Numbers with *** represent a significant difference at a 95% confidence level

Q2 – Q1	-0.1446***

Panel D: Dependant variable – volatility of stock price; stock ownership quartile comparisons

Coeff of variation	**R-squared**	**Model F value**	**Model p value**
38.62	0.0205	2.83	0.0099

Grouping variable	**Type III SS**	**F value**	**p value**
Options	845.88	2.41	0.0656
Stock Ownership	1603.71	4.57	0.0035

Quartile	**Difference in stock ownership means**
Q4 – Q3	-0.5330
Q4 – Q2	0.3307
Q4 – Q1	-2.4967***
Q3 – Q2	0.8637
Q3 – Q1	-1.9637
Q2 – Q1	-2.8274

Panel E: Dependant variable – beta; stock price quartile comparisons

(for coefficient and other GLM stats see panel C)

Quartile	**Difference in stock ownership means**
Q4 – Q3	-0.0454
Q4 – Q2	-0.1248***
Q4 – Q1	-0.0366
Q3 – Q2	-0.0794
Q3 – Q1	0.0089
Q2 – Q1	0.0882

Table 7 Sample selection, essay 2

Fortune 1000 firms with SIC codes 6000 to 6999

Number of Unique Firms	303
Number of Unique Firms with NIC data	256
2007 firms with complete data	131
2006 firms with complete data	132
2005 firms with complete data	162
Total firm year observations	425
Banking firm year observations	175
Insurance firm year observations	116
Broker-dealer firm year observations	134
Total firm year observations	425

Table 8 Descriptive statistics, essay 2

Variable	N	Mean	Std dev	Min	Max
$abX_{i,t}$	425	-432741.2	1255179.61	-10475135.49	157.443
Ret	425	-.0205	.2697	-.8682	1.0926
Mktret	425	.0649	.0435	.01550	.1245
$Decentral_{i,t}$	425	.7209	.3578	.0126	1
$Activity_{i,t}$	425	50.6413	4.2924	2.55	75.05
$Optimism_{i,t}$	425	46.9116	2.9402	32.54	59.01
$Certainty_{i,t}$	425	49.4801	4.0175	23.16	58.26
$Realism_{i,t}$	425	46.4117	4.4332	33.73	57.88
$Commonality_{i,t}$	425	50.9285	2.7800	40.69	64.45
$EnvUncert_{i,t}$	425	25.8457	8.1192	0	71
$HMDA_i$	425	4.5318	23.7376	0	281
$Numwrds^{29}_{i,t}$	425	3245.94	2207.95	24	14867.00
Yr05	425	.3812	.4862	0	1
Yr06	425	.3106	.4633	0	1
Yr07	425	.3082	.4623	0	1
$Ln(TotalAssets)_{i,t}$	425	9.6714	1.7683	6.1852	14.5983
Stdevdum	425	.1435	.3510	0	1

[29] There are 15 firm years where the risk factor disclosure was less than 106 words. The next fewest words were 424 words. A disclosure with only a few words generally stated that risk information could be found in the management discussion and analysis. Excluding these observations made no significant difference with my findings.

Table 9 Regression results – Accounting model

$$abX_{i,t} = \beta_0 + \beta_1\, Decentral_{\,i} + \beta_2 Activity_{i,t} + \beta_3 Optimism_{i,t} + \beta_4 Certainty_{i,t} + \beta_5 Realism_{i,t} + \beta_6 Commonality_{i,t} + \beta_7 EnvUncert_{i,t} + Decentral_{\,i} * (\beta_8 Activity_{i,t} + \beta_9 Optimism_{i,t} + \beta_{10} Certainty_{i,t} + \beta_{11} Realism_{i,t} + \beta_{12} Commonality_{i,t} + \beta_{13} EnvUncert_{i,t}) + \beta_{14}\, HMDA_i + \beta_{15}\, Numwrds_{i,t} + \sum_{i=16}^{19} \beta_i dummy + \beta_{20}\, lnTotalAssets_{i,t} + \beta_{21} stdevdum_i + \varepsilon_{i,t}$$

$abX_{i,t}$ is measured as net income minus the risk free return on assets. $Decentral_{\,i}$ is the proportion of level one subsidiaries to total subsidiaries. $Activity$, $Optimism$, $Certainty$, $Realism$, and $Commonality$ are the reported scores from the content analysis. $EnvUncert_{i,t}$ is measured as the company reported volatility. $HMDA$ is the number of subsidiaries that must report HMDA data. $Numwrds$ is the number of words that appear in the risk factor section. $dummy$ are two dummy variables for observations in year 2006 or in year2007 and two dummies for either insurance or broker industry. $lnTotalAssets$ is the natural logarithm of total assets. $stdevdum$ is a dummy to control for risk factor disclosures that change very little from year to year.

Variable	Expanded Model	Basic Model
Intercept	**-9157720 (-3.02)**	**3892481 (2.55)**
Decentral$_i$	**17056552 (4.54)**	-132686 (-0.72)
Activity$_{i,t}$	**-36410 (-1.99)**	-4685.97 (-0.42)
Optimism$_{i,t}$	**135507 (4.07)**	16172 (0.94)
Certainty$_{i,t}$	4849.32 (0.23)	-12586 (-1.06)
Realism$_{i,t}$	**43879 (1.77)**	3211.23 (0.29)
Commonality$_{i,t}$	**129759 (3.27)**	15052 (0.83)
EnvUncert$_{i,t}$	4450.33 (0.34)	**-10780 (-1.85)**
Decentral$_i$ * *Activity*$_{i,t}$	41436 (1.43)	
Decentral$_i$ * *Optimism*$_{i,t}$	**-164300 (-3.87)**	
Decentral$_i$ * *Certainty*$_{i,t}$	-22142 (-0.76)	
Decentral$_i$ * *Realism*$_{i,t}$	-48674 (-1.59)	
Decentral$_i$ * *Commonality*$_{i,t}$	**-151132 (-3.12)**	
Decentral$_i$ * *EnvUncert*$_{i,t}$	-21156 (-1.35)	
HMDA$_i$	-780.02 (-0.36)	-3514.97 (-1.76)
Numwrds$_{i,t}$	17.69 (0.81)	8.34 (0.37)
Yr06	-123368 (-1.15)	-107879 (-0.98)
Yr07	-157539 (-1.46)	-146091 (-1.31)
Insurance	225723 (1.58)	**294946 (2.05)**
Broker	-204573 (-1.69)	-137823 (-1.15)
Ln(TotalAssets)$_{i,t}$	**-476359 (-14.82)**	**-489789 (-14.96)**
Stdevdum	57850 (0.44)	-12129 (-0.09)
R squared	.5213	.4806
Model F statistic	20.90	25.23
Number of observations	425	425

Table 30 Regression results – Return model

$$Ret_{i,t} = \beta_0 + \beta_1 Mktret_t + \beta_2\ Decentral_{\ i} + \beta_3 Activity_{i,t} + \beta_4 Optimism_{i,t} + \beta_5 Certainty_{i,t} + \beta_6 Realism_{i,t} + \beta_7 Commonality_{i,t} + \beta_8 EnvUncert_{i,t} + Decentral_{\ i} * (\beta_9 Activity_{i,t} + \beta_{10} Optimism_{i,t} + \beta_{11} Certainty_{i,t} + \beta_{12} Realism_{i,t} + \beta_{13} Commonality_{i,t} + \beta_{14} EnvUncert_{i,t}) + \beta_{15}\ HMDA_i + \beta_{16} Numwrds_{i,t} + \beta_{17} lnTotalAssets_{i,t} + \beta_{18} stdevdum_i + \sum_{i=19}^{20} \beta_i dummy + \varepsilon_{i,t}$$

$Ret_{i,t}$ is measured as the fiscal year end annual return. Mktret_t is measured as the annual market return corresponding to the firms' fiscal year end. $Decentral_{\ i}$ is the proportion of level one subsidiaries to total subsidiaries. $Activity$, $Optimism$, $Certainty$, $Realism$, and $Commonality$ are the reported scores from the content analysis. $EnvUncert_{i,t}$ is measured as the company reported volatility. $HMDA$ is the number of subsidiaries that must report HMDA data. $Numwrds$ is the number of words that appear in the risk factor section. $dummy$ are two dummy variables corresponding to insurance and broker industry type. $lnTotalAssets$ is the natural logarithm of total assets. $stdevdum$ is a dummy to control for risk factor disclosures that change very little from year

Variable	Expanded Model	Basic Model
Intercept	.2859 (0.35)	-0.3716 (-0.94)
Mktret$_t$	**2.41 (8.87)**	**2.43 (8.92)**
Decentral$_i$	-1.1983 (-1.19)	-0.0815 (-1.68)
Activity$_{i,t}$	-0.0068 (-1.38)	-0.0016 (-0.56)
Optimism$_{i,t}$	0.0073 (0.81)	-0.0039 (-0.87)
Certainty$_{i,t}$	-0.0052 (-0.91)	-3.03 x 10^{-5} (-
Realism$_{i,t}$	0.0052 (0.78)	**0.0068 (2.32)**
Commonality$_{i,t}$	-0.0010 (-0.97)	0.0028 (0.60)
EnvUncert$_{i,t}$	0.0053 (1.48)	0.0024 (1.60)
Decentral$_i$ * *Activity*$_{i,t}$	0.0089 (1.14)	
Decentral$_i$ * *Optimism*$_{i,t}$	-0.0185 (-1.61)	
Decentral$_i$ * *Certainty*$_{i,t}$	0.0104 (1.33)	
Decentral$_i$ * *Realism*$_{i,t}$	0.0033 (0.41)	
Decentral$_i$ * *Commonality*$_{i,t}$	0.0189 (1.45)	
Decentral$_i$ * *EnvUncert*$_{i,t}$	-0.0038 (-0.90)	
HMDA$_i$	-.0001 (-0.23)	-0.0004 (-0.77)
Numwrds$_{i,t}$	1.56 x 10^{-7} (0.03)	2.56 x 10^{-7} (0.04)
Ln(TotalAssets)$_{i,t}$	-0.0080 (-0.93)	-0.0083 (-0.97)
Stdevdum	0.0028 (0.08)	0.0097 (0.28)
Insurance	**.1425 (3.73)**	**0.1396 (3.73)**
Broker	**.1358 (4.18)**	**0.1411 (4.52)**
R squared	.2459	.2312
Model F statistic	6.59	8.81
Number of observations	425	425

Appendix A. NIC Hierarchy Report for First Indiana Corporation

FIRST INDIANA CORPORATION (1145506) as of 01/01/2008
Hierarchy report with the following institution types: Commercial Bank, Cooperative Bank, Credit Union, Edge/Agreement Corporation, Financial Holding Company, Holding Company, Industrial Bank, Insurance Co. Broker/Agent/Underwriter, Nondepository Trust Company, Other Company, Savings Bank, Savings and Loan Association, and the Securities Broker/Dealer/Underwriter

9 Institution(s) Found. >

Seq Num	Name (RSSD ID)	Parent Seq Num	City	State / Country	Institution Type
1	* FIRST INDIANA CORPORATION (1145506)		INDIANAPOLIS	IN	Financial Holding Company - Domestic
2	-* FIRST INDIANA CAPITAL STATUTORY TRUST II (3201536)	1	INDIANAPOLIS	IN	Domestic Entity Other
3	-* FIRST INDIANA CAPITAL CORPORATION (3551754)	1	INDIANAPOLIS	IN	Domestic Entity Other
4	-* FIRST INDIANA BANK, NATIONAL ASSOCIATION (889876)	1	INDIANAPOLIS	IN	National Bank
5	--* MB REALTY CORPORATION (2254759)	4	INDIANAPOLIS	IN	Domestic Entity Other
6	--* FIRST INDIANA INVESTOR SERVICES, INC. (3050846)	4	INDIANAPOLIS	IN	Domestic Entity Other
7	--* ONE INVESTMENT COMPANY, L.L.C. (3051030)	4	WESTMONT	IL	Domestic Entity Other
8	---* ONE INVESTMENT PARTNERS, L.L.C. (3051049)	7	WESTMONT	IL	Domestic Entity Other
9	--* ONE INVESTMENT PARTNERS, L.L.C. (3051049)	4	WESTMONT	IL	Domestic Entity Other

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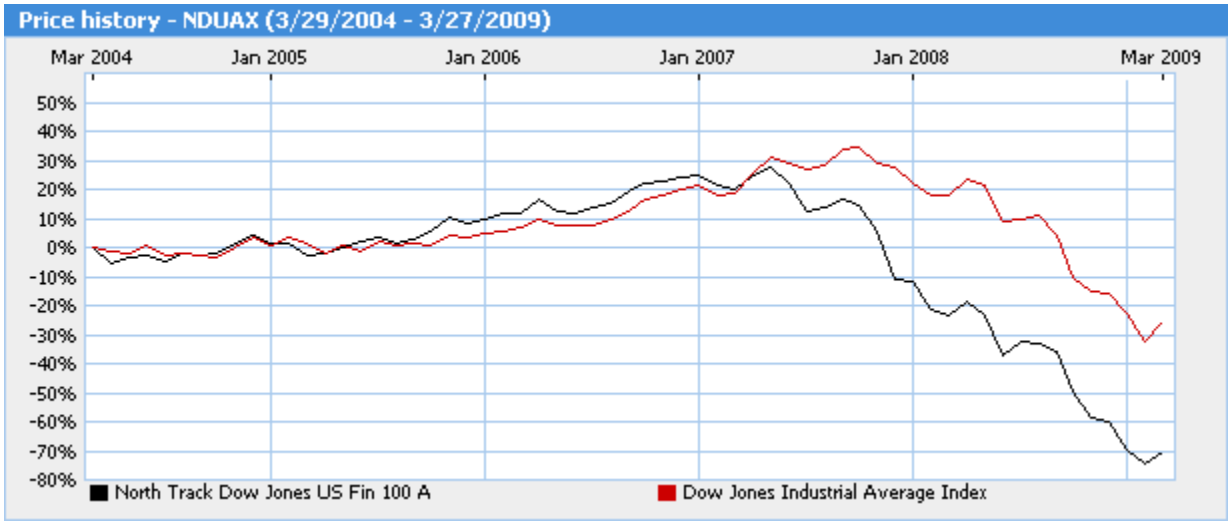
* Institutions Matching Selection Rule
+ For purposes of Regulation Y, the top-tier reporter's ownership level in this banking organization does not meet the definition of "control"; however, the ownership level does meet the FY Y-10/10F reportability criteria as this banking relationship is regulated by the Federal Reserve. ^ Although this relationship is not governed by U.S. banking statutes, it is included because it is of interest to the Federal Reserve.

Appendix B. North Track Dow Jones US Fin 100 A, (NDUAX)



http://moneycentral.msn.com/investor/charts/chartdl.aspx?showchartbt=Redraw+chart&CA=1&D4=1&DD=1&D5=0&DCS=2&MA0=0&MA1=0&CF=0&symbol=NDUAX&nocookie=1&SZ=0&CP=0&PT=9

Appendix C - Rules for which firms must report HMDA data.

Guidelines found at http://www.ffiec.gov/HMDA/reporter.htm (2007)

For Depository Institutions

1. Is the depository institution a bank, credit union, or savings association?
2. Did the assets of the institution total more than $36 million on the preceding December 31?
3. Did the institution have a home or branch office in a metropolitan statistical area or metropolitan division (MSA/MD) on the preceding December 31?
4. In the preceding calendar year, did the institution originate at least one home purchase loan or refinancing of a home purchase loan secured by a first lien on a one-to-four-family dwelling?
5. Is the institution federally insured or regulated; or was the mortgage loan insured; guaranteed, or supplemented by a federal agency; or was the loan intended for sale to the Federal National Mortgage Association (FNMA) or Federal Home Loan Mortgage Corporation (FHLMC)?

If a depository institution responds 'YES' to the above questions 1 through 4 and 'YES' to at least one question in 5, then HMDA applies to the institution's loan originations, purchases, and applications in the current calendar year. A negative response to any one of the first four questions or to all the questions in 5 would exempt the institution from filing HMDA.

For Non-Depository Institutions

1. Is the depository institution a bank, credit union, or savings association?
2. Did the assets of the institution total more than $36 million on the preceding December 31?
3. Did the institution have a home or branch office in a metropolitan statistical area or metropolitan division (MSA/MD) on the preceding December 31?
4. In the preceding calendar year, did the institution originate at least one home purchase loan or refinancing of a home purchase loan secured by a first lien on a one-to-four-family dwelling?
5. Is the institution federally insured or regulated; or was the mortgage loan insured; guaranteed, or supplemented by a federal agency; or was the loan intended for sale to the Federal National Mortgage Association (FNMA) or Federal Home Loan Mortgage Corporation (FHLMC)?

If a depository institution responds 'YES' to the above questions 1 through 4 and 'YES' to at least one question in 5, then HMDA applies to the institution's loan originations, purchases, and applications in the current calendar year. A negative response to any one of the first four questions or to all the questions in 5 would exempt the institution from filing HMDA.