COMMON COMMITTEE MEMBERSHIP ON THE RELATIONSHIP BETWEEN CEO INCENTIVE COMPENSATION AND RISK-TAKING: A STUDY OF THE BANKING INDUSTRY

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Abstract - CEO compensation practices in the banking industry are widely believed to have induced excessive risk-taking and, thus, to have played an important role in causing the recent financial crisis. The Basel Committee on Banking Supervision (BCBS) has called attention to the need to understand, and improve the corporate governance of financial organizations. The purpose of this study is to analyze whether there is a mechanism in boards that may have impacts on the relationship between CEO incentive compensation and risk-taking behavior for the banking industry. The mechanism this study proposes is the compensation/audit committee overlap (hereafter, director overlap).In this study, the results show that in the banking industry, director overlap affects the risk incentive resulting from CEO incentive compensation; director overlap can reduce the relationship between CEO incentive compensation and default risk; and director overlap reduces the relationship between CEO incentive compensation and systematic risk, instead of idiosyncratic risk. These findings indicate that director overlap between compensation committee and audit committee can help risk management by reducing risk-taking behavior inducing by CEO incentive compensation, reducing default probability inducing by CEO risk-taking behavior and systematic risk.

Keywords - Compensation/Audit Committees Overlap; CEO Incentive Compensation; Risk-Taking; Banking Industry.

I. INTRODUCTION

CEO compensation practices in the banking industry are widely believed to have induced excessive risk-taking and, hence, to have played an important role in causing the recent financial crisis (e.g., Bebchuk and Spamann, 2009; Board of Governors et al., 2010). In the banking industry, the monitoring of managerial risk-taking is subject toa well-defined moral hazard problem. Banks are known as highly-leveragedinstitutions. Bank shareholders facelimited downside risk, but they stand to benefit more from high-risk strategies thatincrease the volatility of bank assets than shareholders in less leveraged firms(John and John, 1993; Noe et al., 1996). Moreover, bank shareholderincentives to increase risk are motivated by deposit insurance and theoperation of government bail-out policies which protect many bank creditors fromlosses in the event of bank failure and reduce their propensity tocontrol excessive risk-taking by CEOs (John et al., 2000; John et al., 2010). Therefore, bank shareholders may use their control over CEO compensation to encouragemanagerial risk-taking and the switching of risk to bondholders and regulators (Hubbard and Palia, 1995;Benston et al., 1995; Bolton et al., 2010).

Recently, the Basel Committee on Banking Supervision (BCBS) has called attention to the need for sound corporate governance of banking organizations. The BCBS especially advocates a governance structure including a board of directors and senior management (Enhancing Corporate Governance for Banking Organizations, February 2006). The main point of the BCBS message is that good corporate governance can increase monitoring efficiency.

Therefore, the purpose of this study is to analyze whether there is a mechanismin boards that may haveimpacts on the relationship between CEO incentive compensation and risk-taking behaviorfor the banking industry. The mechanism this study proposes is the compensation/audit committee overlap (hereafter, director overlap).The board is a major mechanism to monitor and advise managers' decision and implementation. Since the board needs to implement decisions on anumerous variety of subject matter, specified sub-committees are formed. In practice, the compensation committee and the audit committee are two common committees in the board. The objective of compensation committees is to formulate CEOs compensation packages to converge the interests between CEOs and shareholders. However, these compensation packages mayalso induce incentives that could motivate CEOs to have risk-taking behavior (Rajgopal and Shevlin, 2002; Coles et al., 2003). On the other hand, the objective of audit committees is to supervise the quality of the financial reports and the operation process. Therefore, they would like to have CEO compensation packages that reduce the risk-taking of managers.In practices, some of the same directors may serve on both committees. The extent to which the same directors serve on both committees is referred to as director overlap. The consequence of direct overlap on audit and compensation committees has been discussed by researches. On one hand, the different goals of each committee may result in conflicting interests leading to decisions that are not optimal (Laux and Laux, 2009). On the other hand, prior studies (e.g.,Chandar et al., 2008; Zheng and Cullinan, 2010; Hoitash and

Hoitash, 2009) propose a knowledge spillover hypothesis for the direct overlap and find that direct overlap is associated with better monitoring (Chandar et al., 2008) and designing a compensation scheme that will reduce managers' incentives for misreporting (Zheng and Cullinan, 2010).

In the banking industry, risk-taking behavior is a crucial issue. CEO risk-taking behavior is regarded positively related to CEO incentive compensation. To reduce CEO risk-taking, compensation committees need to understand what audit committees consider and understand the potential risks created by incentive compensation and audit committees should have a thorough understanding of CEO incentives so that they can be aware of managers' motivations. Even though a few studies argue that director overlap may also an ineffective governance scheme (e.g., Higgs, 2003; Laux and Laux, 2009; Liao and Hsu, 2013), we do not expect that this effect of director overlap will be significant in the banking industry. Since the banking industry is a highly regulated and monitored industry, board members bear relatively high legal liability comparing with board members in the unregulated industries. If board members serve in both compensation committees and audit committees, these two committees can be beneficial for knowledge spillover. As a result, board members may have incentives to use their knowledge about two committees to reduce their potentially possibilities in facing legal liability by designing the CEO incentive compensation with lower risk and having the sound monitoring.

In this study, the results show that in the banking industry, director overlap affects the risk incentive resulting from CEO incentive compensation; director overlap can reduce the relationship between CEO incentive compensation and default risk; and director overlap reduces the relationship between CEO incentive compensation and systematic risk, instead of idiosyncratic risk. These findings indicate that director overlap between compensation committee and audit committee can help risk management by reducing risk-taking behavior inducing by CEO incentive compensation, reducing default probability inducing by CEO risk-taking behavior and systematic risk.

The contributions of this study are shown as below.(1)This study extends the literature on corporate governance in the banking industry.There are many studies on corporate governance to date, but only a few papers focusing on banks' corporate governance (e.g., Levine, 2004; Adams and Mehran, 2005; Caprio et al., 2007). Since banks are highly-leveraged organizations,bank shareholders face limited downside risk but have benefits from high-risk strategies that increase the volatility of bank assets than shareholders in the less leveraged firms (John and John, 1993; Noe et al., 1996). Hence, the monitoring of managerial risk-taking is subject to a moral hazard problem. At the same time, banks are also highly-regulated organization. As a result, corporate governance in banking firms may be very different from firms in unregulated industries. This study extends the understanding of director overlap in the banking industry andproposethatthere may be an effect of director overlap on the relationship between CEO incentive compensation and CEO risk-taking. (2) This study extends the literature on director overlap. Prior studies discuss this issue using unregulated firms and investigate the effect of director overlap from the performance part (e.g., Chandar et a., 2008). This study extendsto understand the effect of director overlap on the risk-taking issue which is important in the banking industry. (3)This study extends the literature on the link between CEO incentive compensation and risk-taking in the banking industry. This study investigatesthreedimensions of banks' risk: vega/CEO incentive compensation, default risk and systematic/idiosyncratic risk.

The remainder of this proposal is organized as follows. Section 2 reviews the relevant literature and presents the research questions. The research design is described in Section 3. The research results and conclusion are described in Section 4 and 5.

II. LITERATURE REVIEW AND RESEARCH QUESTIONS

2.1 CEO Compensation and Risk Taking

The arguments arise with the debate that as CEO compensation in the form of stock options increases, the interests of CEOs and shareholders converge. The reasoning of aligning CEOs' wealth to the shareholders' wealth through option compensation is that CEOs' wealth is an increasing function of share price and stock volatility. Some studies have proposed that the use of CEO incentive compensation not only ties the wealth function of executives and shareholders more directly but also leads executives to have more risk-taking (e.g., Hall and Murphy, 2002). Furthermore, several empirical studies have provided evidence that CEO incentive compensation is positively related to CEOs' risk-taking behavior. Rajgopal and Shevlin (2002) show that for a group of oil companies, CEO incentive compensation grants are positively correlated to future risk-taking. Coles et al. (2003) show a positive relation between the sensitivity of CEO wealth to stock volatility and risky strategy choices.

In the setting of the banking industry, it is well established in the corporate finance literature that stockholders have an incentive to increase the risk of the firm resulting in a wealth transfer from bondholders to stockholders. Saunders et al. (1990) argue that since depositors cannot perfectly monitor the actions of shareholders, bank depositors are also susceptible to this wealth transfer effect. Chen et al. (2006) find a positive relation between option-based compensation and risk-taking in banking industry.

Therefore, stockholders can also increase the value of their equity by increasing bank risk.

2.2 Audit/Compensation Committees Overlap

Since the board is a major mechanism to monitor managers' behavior and needs to implement decisions on a wide variety of subject matter, sub-committees are formed within the board. Audit/compensation committees overlap (hereafter, director overlap) is defined as that the same board members serve on audit and compensation committees of the board.

There is inconclusive evidence in the literature about the effect of director overlap. Some authors suggest that director overlap may be beneficial to shareholders for knowledge spillover. Chandar et al. (2008) find that director overlap is associated with higher financial reporting quality, implying that the monitoring is improved by director overlap. Zheng and Cullinan (2010) examine the association between director overlap and CEO incentive compensation packages and find that cash compensation plans are not associated with director overlap, while option compensation is negatively associated with director overlap. They suggest that knowledge of misstatement-inducing effects of equity-based compensation may spill over from the audit committee to the compensation committee. This may lead the compensation committee to reduce the equity-based component of CEO compensation.

However, on the other hand, some authorsargue that director overlap may be an ineffective governance scheme due to limited time and limited efforts of overlapping members. Van der Zahn and Tower (2005) using a sample of Singapore firms empirically investigate director overlap among the audit, compensation and nominating committees and find that boards with higher levels of director overlap are less effective at constraining earnings management. Therefore, they conclude that director overlap is related with lower financial reporting quality. Laux and Laux (2008) consider the relationship between board committees and CEO compensation using an analytical modeling approach. They suggest that when the whole board has these two functions, and the whole board thus bears the burden of financial reporting oversight, the board will be less likely to grant managers more performance-based compensation in order to reduce the risk of earnings manipulation. Consistent with the finding of Laux and Laux (2008), Hoitash and Hoitash (2009) find that firms with overlapping committees may provide more cash compensation to their executives than firms whose committee members do not overlap.

2.3 Research Questions

Based on the above discussions, we consider threeresearch questions regardingthe effect of director overlap onCEO incentive compensation and risk-taking. First question is to investigate how director overlap affects the risk incentive (vega) resulting from CEO incentive compensation in the banking industry. CEO incentive compensation gives CEOs incentives to change their firms' risk profile through both their sensitivity to stock return volatility, or vega (infering to risk incentive), and their sensitivity to stock price, or delta (inferring to effort incentive). For the banking industry, risk-reducing is more important that effort-increasing. Therefore, we consider that if director overlap is effective in the banking industry, the compensation committee may have incentives to design a CEO incentive compensation with lower vegaper dollar of incentive compensation than that in firms without director overlap.

Second research question is regarding default risk. In the banking industry, default risk is a crucial issue. We argue that if compensation committee with director overlap can design CEO incentive compensation with lower vega (lower risk) per dollar of incentive compensation, thus, the default probability will be reduced given the same amount of CEO incentive compensation.

The lastquestion we would like to discuss is to investigate whether the reduced risk is from systematic or idiosyncratic risk. Finance research often investigates risk by distinguishing risk into systematicand idiosyncratic risk. Following CAPM, rate of return will decrease if systematic risk reduces, but rate of return will not change if idiosyncratic risk decreases. Moreover, systematic risk can not be hedged by market portfolio, but idiosyncratic risk can be hedged. Therefore, if director overlap result in lower CEO risk-taking behavior, we expect that the risk that director overlap reduces is more in systematic riskthan inidiosyncratic risk.

III. RESEARCH DESIGN

3.1 Sample

Here,we conduct an empirical test to investigate whether director overlap affects the relation between CEO incentive compensation and risk-taking behavior for the US banking industry. We collect a sample of industry SIC codes 6000 to 6299, with data available in the Compustat bank file, RiskMetrics, Crsp stock return file and Exucomp compensation files from the years 2004 to 2010.

3.2 Measuring the default probabilityfor default risk

This study use The Moody's KMV model to measure default probality. Since we cannot get exact expected default frequency (EDF) from KMV model, we use the method which Vassalou and Xing (2004) mentioned to obtain daily expected default frequency.

First, we use Black and Scholes formula to obtain the firms' equity value. We use the last 252 daily stock price and the outstanding shares to get the equity value (stock price multiply by outstanding shares). Then we can calculate the volatility of the equity

value from these values and we use this volatility as an initial value to estimate the volatility of firm's asset. We use numerical procedure to calculate the market value of the equity and estimate the market value of firm and the firm asset volatility. After we have the daily firm value, we calculate the mean of the change in log firm values μ .Finally we calculate the distance to default which as follows:

$$\mathrm{DD} = \frac{\ln \frac{V_A}{X} + (\mu - \frac{\sigma_A^2}{2})T}{\sigma_A \sqrt{T}}, (1)$$

Where DD: distance to default,V_A: value of the firm,μ: mean of the change in log firm values,σ_A: the volatility of the firm value,X :the value of the default barrier which equals "Debt in One year" plus 0.5 times "Long Term debt" and T to one yearAnd the default probability is as below, $\mathrm{Prob_{def}} = \mathrm{N}(-\mathrm{DD})$.

3.3 Measures for systematic and idiosyncratic risks

For testing our research question 3, we follow Armstrong and Vashishtha (2012) to disaggregate total risk into systematic and idiosyncratic components.

We first collect data about the operating segments and the book value of assets in those segments defined at the two-digit SIC level from the Compustat Industry Segment Database. We use the denotation$n_j$as the number of industry segments in which firm j operates at the end of the fiscal year, the denotation A_j^i as the book value of assets of the ith segment of firm j, and the denotation$A_j$as the total book value of firm j. Second, we let A_t^i as the month t return for the ith industry segment, designed as a value weighted average of the monthly returns of all firms that operate exclusively in segment i at the end of the fiscal year, and $r_{m,t}$ as the monthly return of the market portfolio for month t. We calculate r_t^i only for those segment years for which there are at least three firms that operate solely in industry i. Finally, $r_{j,t}$ is defined as the imputed monthly return for firm j at time t according to the following equation:

$$r_{j,t} = \sum_{i=1}^{n_j} \frac{A_j^i}{A_j} r_t^i . (2)$$

As our measure of total risk,we follow Armstrong and Vashishtha (2012) to calculate the variance of imputed monthly returns, $r_{j,t}$, over the previous 60 months, and require at least 20 months. Later, we regress imputed monthly returns on the Fama and French (1993) factors shown as follows to disaggregatetotal risk in to its systematic and idiosyncratic components:

$$r_{j,t} = \beta_{0,j} + \beta_{1,j} r_{mktrf,t} + \beta_{2,j} r_{smb,t} + \beta_{3,j} r_{hml,t} + \varepsilon_{j,t} . (3)$$

Using the returns estimated from above equation,this equation is estimated for each firm at the beginning of every year. We calculate our measure of systematic risk as the square root of the explained variance and idiosyncratic risk as the square root of the unexplained variance.

3.4 Regression models for research questions

For testing our research question one, we set up the following regression model and control for several bank characteristics, corporate governance and CEO characteristics that may affect the level of vega per dollar of CEO incentive compensation. We expect that the coefficient on OVERLAP is negative.

$$\begin{aligned}(VEGA/CEO_INCENTIVE_PAY)_{i,t} &= c + \alpha_1 OVERLAP_{i,t-1} + \alpha_2 BD_SIZE_{i,t-1} \\ &+ \alpha_3 INDEPENDENCE_{i,t-1} + \alpha_4 DUALITY_{i,t-1} \\ &+ \alpha_5 CEO_AGE_{i,t-1} + \alpha_6 CEO_TENURE_{i,t-1} \\ &+ \alpha_7 LNASSETS_{i,t-1} + \alpha_8 LEVERAGE_{i,t-1} + \alpha_9 ROA_{i,t-1} \\ &+ \alpha_{10} MB_{i,t-1} + \varepsilon_{i,t} . (4)\end{aligned}$$

Where VEGA/CEO_INCENTIVE_PAY = vega is divided by CEO equity-based compensation. Here, vega is the change in the risk-neutral value of the CEO's portfolio of stock options for a 0.01 change in the standard deviation of the return of the underlying stock (vega).

OVERLAP = (1)the dummy variable which is 1 if compensation committee members who also serve as the audit committee (lagoverlap_d) or (2)ratio of overlap (lagoverlap). In addition, the overlapping variable is a time lagged variable.CEO_INCENTIVE_PAY=CEO equity-based compensation.BD_SIZE = the size of the board of directors, measured by the number of board directors.

INDEPENDENCE= the percentage of independent directors in the board.DUALITY= a dummy variable which is equal to 1 if the CEO also acts as chairman of the board.CEO_AGE = the age of the CEO.CEO_TENURE = the number of years that the CEO has been CEO.LNASSET = the natural logarithm of total assets.LEVERAGE = 1 minus the ratio of the book value of equity to total assets.ROA = the ratio of pre-tax profits to total assets.MB= the market-to-book ratio.YEAR = dummy variables of calendar years.

For testing our research question two, we employee the regression model showed as below. Our model control for several bank characteristics, corporate governance and CEO characteristics that may affect the level of bank default risk and expect that the coefficient on OVERLAP*VEGA is negative.

$$\begin{aligned} &DEFAULT_{i,t} \\ &= c + \alpha_1 OVERLAP_{i,t-1} + \alpha_2 VEGA_{i,t-1} \\ &\quad + \alpha_3 OVERLAP_{i,t-1} * VEGA_{i,t-1} \\ &\quad + \alpha_4 BD_SIZE_{i,t-1} + \alpha_5 INDEPENDENCE_{i,t-1} \\ &\quad + \alpha_6 DUALITY_{i,t-1} + \alpha_7 CEO_AGE_{i,t-1} \\ &\quad + \alpha_8 CEO_TENURE_{i,t-1} + \alpha_9 LNASSETS_{i,t-1} \\ &\quad + \alpha_{10} LEVERAGE_{i,t-1} + \alpha_{11} ROA_{i,t-1} + \alpha_{12} MB_{i,t-1} \\ &\quad + \varepsilon_{i,t}. \quad (5) \end{aligned}$$

Where DEFAULT = the default probability measured from the method of Moody's KMV model.

For testing our research question three, we employee the following regression model showed as below. After controlling variables for several bank characteristics, corporate governance and CEO characteristics, we expect that the coefficient on OVERLAP*VEGA is negative in idiosyncratic and systematic risk regressions and absolute value of the coefficient is smaller in systematicrisk model than that in idiosyncraticregression.

$$\begin{aligned} &SYSTEMATIC\,RISK_{i,t} \,(\text{or } IDIOSYNCRAIC\,RISK_{i,t}) \\ &= c + \alpha_1 OVERLAP_{i,t-1} + \alpha_2 VEGA_{i,t-1} \\ &\quad + \alpha_3 OVERLAPPING_{i,t-1} * VEGA_{i,t-1} \\ &\quad + \alpha_3 BD_SIZE_{i,t-1} + \alpha_3 INDEPENDENCE_{i,t-1} \\ &\quad + \alpha_3 DUALITY_{i,t-1} + \alpha_3 CEO_AGE_{i,t-1} \\ &\quad + \alpha_4 CEO_TENURE_{i,t-1} + \alpha_5 LNASSETS_{i,t-1} \\ &\quad + \alpha_6 LEVERAGE_{i,t-1} + \alpha_7 ROA_{i,t-1} + \alpha_3 MB_{i,t-1} \\ &\quad + \alpha_8 YEAR_{i,t-1} + \varepsilon_{i,t}. \quad (6) \end{aligned}$$

WhereSYSTEMATIC RISK = the square root of the explained variance andIDIOSYNCRAIC RISK = the square root of the unexplained variance from Eq. (3). We also lag measures ofOVERLAP, CEO_INCENTIVE_PAY and all control variablesby one year. This lag allows for the effect of any change in CEO incentive compensation, governance structure and firm structure to show up in firm risks and eliminates a simpler form of reverse causality.

IV. EMPIRICAL RESULTS

4.1 Regression results

This study argues that overlapping is associated with the relation between the CEOincentive compensation and risk-taking behavior for the banking industry. First, table 1 presents the results for research question one. The result indicates that the overlapping dummy (lagoverlap) and the overlapping ratio (lagoverlap) is significantly and negatively associated with vega. These findings support that the overlapping membership on the CEO incentive compensation is effective for our research question one.

Table 1

	vegaratio					
_cons	-0.0055 (-1.558)	-0.0048 (-1.312)	-0.0053 (-1.487)	-0.0047 (-1.255)	-0.0068 (-0.658)	-0.0049 (-0.464)
lagoverlap_d	**-0.0010* (-1.679)**		**-0.0012* (-1.810)**		**-0.0014 (-1.634)**	
lagoverlap		**-0.0053* (-1.758)**		**-0.0063** (-2.023)**		**-0.0081* (-1.791)**
Control variables	Yes	Yes	Yes	Yes	Yes	Yes
Fixed year effect	No	No	Yes	Yes	Yes	Yes
Fixed firm effect	No	No	No	No	Yes	Yes
N	746	746	746	746	746	746
adj. R-sq	0.118	0.123	0.118	0.123	0.118	0.123

Second, table 2 presents the results for research question two. It shows that the interaction of vega and both the overlapping ratio (lagoverlap) and dummy (lagoverlap_d) are significantly and negatively associated with the default probability. The finding indicatesthat the overlapping membership on the CEO incentive compensation can reduce default probability.

Table 2

	edf_chg			
_cons	-0.0852	-0.0779	-3.2625***	-3.2096***
	(-0.719)	(-0.687)	(-6.370)	(-6.348)
lagoverlap_d	-0.0049		-0.0307	
	(-0.280)		(-1.387)	
lagoverlap		-0.0759		-0.1787
		(-0.914)		(-1.262)
lagvega	0.0000	0.0000	0.0001	0.0000
	(0.776)	(0.286)	(0.852)	(0.507)
overlap_d_vega	-0.0001**		-0.0000	
	(-2.511)		(-0.114)	
overlap_vega		-0.0002**		0.0002
		(-2.036)		(1.156)
Control variables	Yes	Yes	Yes	Yes
Fixed year effect	Yes	Yes	Yes	Yes
Fixed firm effect	No	No	Yes	Yes
N	779	779	779	779
adj. R-sq	0.366	0.367	0.366	0.367

Third, table 3and 4 present the results for research question three. It shows that the interaction of vega and both the overlapping ratio (lagoverlap) and dummy (lagoverlap_d) are significantly and negatively associated with systematic risk, instead of idiosyncratic risk. The findings indicate that the overlapping membership on the CEO incentive compensation can reduce systematic risk consistent with the literature.

CONCLUSION

The purpose of this study is to analyze whether there is a mechanism in boards that may have impacts on the relationship between CEO incentive compensation and risk-taking behavior for the banking industry.

In this study, the results show that in the banking industry, director overlap affects the risk incentive resulting from CEO incentive compensation; director overlap can reduce the relationship between CEO incentive compensation and default risk; and director overlap reduces the relationship between CEO incentive compensation and systematic risk, instead of idiosyncratic risk. These findings indicate that director overlap between compensation committee and audit committee can help risk management by reducing risk-taking behavior inducing by CEO incentive compensation, reducing default probability inducing by CEO risk-taking behavior and systematic risk.

Our findings have important policy implication that the proportion of compensation committee members who also serve as the audit committee may help companies make better CEO compensation to bring lower risky behavior from CEOs, lower default risk and lower systematic risk. The capital market regulator (i.e., SEC) may consider additional recommendations regarding the overlapping proportion between compensation committee and audit committee members. In additional, investors can pay close attention to companies with higher overlapping ratio as preceding targets.

Table 3

	retvol_chg			
_cons	0.0951	0.0832	-0.4936**	-0.4691**
	(1.636)	(1.504)	(-2.051)	(-1.993)
lagoverlap_d	-0.0085		-0.0170	
	(-0.784)		(-0.886)	
lagoverlap		-0.0158		-0.0677
		(-0.473)		(-1.181)
lagvega	0.0001**	0.0001**	0.0001**	0.0001**
	(2.198)	(2.168)	(2.344)	(2.254)
overlap_d_vega	-0.0001**		-0.0001	
	(-1.997)		(-1.464)	
overlap_vega		-0.0002**		-0.0002**
		(-2.359)		(-2.057)
Control variables	Yes	Yes	Yes	Yes
Fixed year effect	Yes	Yes	Yes	Yes
Fixed firm effect	No	No	Yes	Yes
N	782	782	782	782
adj. R-sq	0.758	0.756	0.758	0.756

Table 4

	idiovol_chg			
cons	0.1233**	0.1149**	-0.3368	-0.3082
	(2.260)	(2.202)	(-1.573)	(-1.468)
lagoverlap_d	-0.0082		-0.0163	
	(-0.810)		(-0.904)	
lagoverlap		-0.0243		-0.0797
		(-0.852)		(-1.628)
lagvega	0.0001*	0.0001*	0.0001**	0.0001**
	(1.811)	(1.759)	(2.216)	(2.047)
overlap_d_vega	-0.0001		-0.0001	
	(-1.629)		(-1.566)	
overlap_vega		-0.0001		-0.0001
		(-1.464)		(-1.171)
Control variables	Yes	Yes	Yes	Yes
Fixed year effect	Yes	Yes	Yes	Yes
Fixed firm effect	No	No	Yes	Yes
N	782	782	782	782
adj. R-sq	0.683	0.682	0.683	0.682

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