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Bank monitoring and CEO risk-taking incentives☆

Anthony Saunders[a], Keke Song[b,*]

[a] Stern School of Business Finance Department, New York University, 44 West 4th Street, Suite 9-190, New York, NY 10012, United States
[b] Melbourne Business School, The University of Melbourne, 200 Leicester Street, Carlton, VIC 3053, Australia

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ABSTRACT

This paper investigates whether monitoring by bank lenders affects CEO incentives of borrowing firms. We find that an increase in bank monitoring incentives significantly reduce the sensitivity of CEO wealth to stock return volatility (*Vega*). The results are more profound when bank lenders are more powerful and reputable and have a prior lending relationship with the borrowing firms. Additionally, *Vega* decreases after financial covenant violations and increases when bank lenders have offsetting equity stakes in borrowing firms. The reduction in *Vega* due to bank monitoring has some real effects on borrowing firms' corporate policies. These results together suggest banks have a unique role in monitoring and shaping CEO incentives to mitigate the risk-shifting incentives of firm managers.

1. Introduction

A significant part of the banking literature has focused on the unique role of banks[1] in the monitoring and information-generation of borrowing firms. Compared with publicly traded bonds, loans are generally more closely held by a few syndicate members (Amihud et al., 1999; Ivashina, 2009). As a result, banks can achieve more cost-efficient monitoring with less severe free-rider problems (Diamond, 1984, 1991; Fama, 1985) and more flexible financial contracts that collectively can prevent a borrowing firm's projects from going awry (Rajan, 1992). In particular, unlike bondholders, banks form long-term relationships with strong reputational linkages, devoting resources toward evaluating and monitoring borrowers (Chemmanur and Fulghieri, 1994).

An important question is whether bank monitoring intensity, as measured by the size of banks' exposures to a borrowing firm, affects that firm's CEO's risk-taking incentives. This paper seeks to address this question. Consistent with prior executive compensation literature[2] we disentangle the sensitivities of a CEO's firm-specific wealth to the firm's stock performance (*Delta*) and to the volatility of its stock returns (*Vega*). In this study, we use *Vega* as the main dependent variable that describes a CEO's risk-taking incentives (Armstrong et al., 2015). We create two alternative measures of bank monitoring intensity based on all banks and the five biggest banks' loan stakes in a firm. Arguably, bank lenders' incentives to monitor should intensify as the size of their loan exposures to a borrowing firm increases and banks should have more influence over a borrowing firm if the firm has greater reliance on bank loans relative to other sources of financing. Using these measures, we find that bank monitoring significantly reduces

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* Corresponding author.
E-mail addresses: asaunder@stern.nyu.edu (A. Saunders), keke.song@mbs.edu, kekes@unimelb.edu.au (K. Song).

[1] In this study, we do not differentiate banks from non-bank institutional lenders of corporate loans such as mutual funds, private equity funds, or hedge funds. Therefore, we refer to banks and loan creditors interchangeably herein.

[2] For example, Guay (1999), Core and Guay (2002), Coles et al. (2006) and Brockman et al. (2010).

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Vega. This result is consistent with the argument that banks play a unique role in disciplining the risk-taking incentives of a borrowing firm's CEO. More specifically, our univariate analysis finds that the mean *Vega* in the quartile with the lowest positive bank monitoring intensity is 225.73, which is interpreted as the amount of change ($ thousands) in CEO wealth caused by a 1% increase in the annualized standard deviation of stock returns. This sensitivity is more than double the mean value of 91.78 in the highest bank monitoring intensity quartile. Our results are robust to the inclusion of various control variables including leverage as well as firm and year fixed effects. In particular, we find that borrowing firms' leverage ratios become insignificant in explaining *Vega* when our bank monitoring measures are included as separate explanatory variables in all regressions. This finding implies that non-bank lenders, such as public bondholders, play a less important role in determining the risk-taking incentives of a borrowing firm's CEO.

We provide support to our bank monitoring interpretation by exploring heterogeneity in banks' monitoring incentives and capability. Specifically, we aim to identify conditions under which bank monitoring intensity should be greater and examine whether its effect on *Vega* is indeed stronger under these conditions. For example, everything else the same, secured borrowers should be under relatively greater pressure in case of default in comparison with unsecured borrowers. This is because secured lenders have a first claim on collateral and more likely to choose liquidation in case of default. Anticipating this, shareholders might prefer relatively lower CEO risk-taking incentives to avoid relatively more costly defaults of secured loans. Additionally Rajan and Winton (1995) argue that secured borrowers are more likely to be the firms that need monitoring, and the use of collateral increases banks' incentive to monitor in order to perfect their liquidation decisions. Combining these arguments, we expect that secured loans have a greater disciplining effect over the borrowing firms' risk-taking incentives than unsecured loans. Similarly, in comparison with revolving facilities which offer borrowing firms greater flexibility in draw-downs and repayments, term loans typically have a specific loan amount with a stricter repayment schedule. The default in any scheduled payment during the life of a term loan may trigger the loan renegotiation process in which case creditors have greater influence over the borrowing firm. Thus we argue that term-loan lenders should be relatively more influential in restricting CEO risk-taking incentives. Our results indicate that the effect of bank monitoring on *Vega* is indeed stronger for secured loans and term loans than other loans. We next investigate whether bank reputation and prior lending relationships matter. We find stronger effects of monitoring by reputable and relationship bank lenders on *Vega* than less reputable and non-relationship banks. These results are consistent with the argument that banks play a unique role in disciplining the risk-taking incentives of a borrowing firm' CEO.

We conduct several additional tests to rule out alternative explanations. For example, we find that both long-term and short-term loans have significantly negative impacts on *Vega* with similar economic magnitudes. Therefore, our results are unlikely driven by the maturity difference between bank loans and other types of debt; alternatively, some omitted variables could have driven both firms' bank loan borrowing decisions and CEO incentives. Our identification strategy consists of two parts. First, we utilize the downgrade of General Motor (GM) and Ford in 2005 documented in Acharya et al. (2014) as an exogenous shock to market-wide credit risk and conduct a difference-in-difference (DID) analysis on *Vega*. We argue bank monitoring should have been intensified during this GM-Ford crisis period and therefore have a greater effect on *Vega*. Consistent with this expectation, we find the treatment group, namely the firms with at least one outstanding bank loan, experienced a relatively greater reduction in *Vega* than the control group which has no bank loans. Second, we conduct a 2-stage least square (2SLS) analysis with instrumental variables (IV). Particularly, for each firm/year observation in our sample, we calculate the average ratios of interest income and loan loss provision to total loans of nearby banks. We argue that these two attributes of local banks capture a firm's access to local bank credit, but have no direct impact on the firm's CEO risk-taking incentives and therefore are valid instruments. Our main results remain robust in this 2SLS analysis.

What are the channels through which bank monitoring could impact CEO risk-taking incentives? On the one hand, a leveraged company might be forced to constrain its CEO's risk-taking incentives so as to alleviate the risk-shifting concerns of banks and reduce the agency cost of debt (John and John, 1993). On the other hand, following covenant violations banks can exert a direct influence on major corporate decisions such as dividend payouts and capital expenditures.[3] What happens to CEO risk-taking incentives once a financial covenant is violated? When control rights shift to private creditors following covenant violations, a CEO's power is likely to be partially constrained. For example, banks might use the threat of accelerating loan payments to limit a CEO' compensation and investment decision flexibility. As a result, covenant violations can be utilized as a "shock" to bank lenders' power in establishing causality between bank monitoring intensity and CEO risk-taking incentives. We use a multivariate regression approach similar to Chava and Roberts (2008) as well as a "sharp" regression discontinuity (RD) design to investigate the impact of loan covenant violations on CEO risk-taking incentives. On average we find that *Vega* is reduced by as much as 50 (equivalent to 41% of the sample mean) immediately after a borrowing firm violates a net worth covenant.

Then we extend our analysis in two dimensions. First, we examine a CEO's risk-taking incentives when the firm's bank lenders also hold equity control rights in a borrowing firm (via direct investment or fiduciary trust activities[4]). Arguably bank lenders' simultaneous equity holdings in the borrowing firm can in part internalize the conflict of interest between themselves and equity holders.[5] Bank lenders' incentives to reduce *Vega* could thus be mitigated as their equity stakes in a borrowing firm increase. To test this, we identify banks' dual-stake holdings of equity and loans by merging our Dealscan/Execucomp sample with Thomson Reuters' 13F institutional holding database. We find that a CEO's *Vega* is negatively correlated with bank lenders' equity stakes in a borrowing firm. Second, we investigate whether the reduction in *Vega* associated with bank monitoring has any real effect on borrowing firms' corporate policies. Interestingly, we find the reduction in *Vega* explained by bank monitoring and other firm characteristics is associated with higher cash level, but lower capital expenditures and dividend payouts.

We acknowledge our study has one limitation: even though *Vega* has been commonly used in the literature as the measure of CEO risk-taking incentives, it is not a pure choice variable and could be an equilibrium outcome that is endogenously determined by, for example, changes in stock prices and volatility and CEOs' actions.[6] To minimize this concern, we control for contemporaneous annual stock returns and volatility in all regressions and we still find bank monitoring significantly reduces *Vega*. Moreover, we show that bank monitoring intensity significantly reduces the proportion of option grants in CEOs' total compensation. The reduction in CEO option grants should at least partially explain the reduction in *Vega* associated bank monitoring. Additionally, we

[3] See Chava and Roberts (2008), Nini et al. (2009, 2012), Roberts and Sufi (2009a) and Ozelge and Saunders (2012).

[4] See Santos and Rumble (2006).

[5] See Manconi and Massa (2009) and Jiang et al. (2010).

[6] Indeed, we find a significantly positive relationship between bank monitoring intensity and borrowing firm's stock return volatility as shown in Table 5.