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Financial Reporting Quality and Dual-Holding of Debt and Equity

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Abstract: I investigate whether financial reporting quality of a firm, measured by its accruals quality, is associated with institutional investors' simultaneous participation in the firm's syndicated loan and equity ("dual-holding"). Using hand-collected data from 2006 to 2014 on institutional investors' loan and equity holdings, I predict and find that investors are more likely to be dual-holders in firms with low accruals quality. Two possible explanations of this result are: (1) investors use dual-holding to mitigate the conflict of interest between shareholders and creditors that is exacerbated by the firm's low financial reporting quality ("incentive-alignment"), and (2) investors use dual-holding as a viable channel to gain access to better information in firms with poor financial reporting quality and to make profitable trades in the firm's equity based on material non-public information, thus extracting rent from other shareholders ("rent-extraction"). Contrary to the incentive-alignment hypothesis, I find that firms with dual-holders do not experience any improvements in their valuation, profitability, and operational efficiency. Consistent with the rent-extraction hypothesis, I find that dual-holders achieve an abnormal annualized return of approximately 6% in the borrower's equity in the time period between the syndicate origination and the next quarterly earnings announcement date.

Key Words: Dual-holding, financial reporting quality, syndicated loans, rent-extraction, incentive-alignment

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Financial Reporting Quality and Dual-Holding of Debt and Equity

I. INTRODUCTION

Non-bank institutional investors (institutional investors that are not commercial or investment banks) increased their participation in the syndicated loan market from 20% of the total loan amount issued in 1990 to 60% in 2013.[1] Interestingly, in over half of these loan facilities, at least one institutional investor participant per facility also held an equity position in the borrower as of the loan start date (i.e., were "dual-holders"). Prior studies on institutional dual-holders suggest institutional investors become dual-holders because (1) dual-holding mitigates the conflict of interest between shareholders and creditors (Jiang, Li, and Shao 2010), and (2) institutional investors are lenders of last resort and lend to higher-risk firms at a large premium (Lim, Minton, and Weisbach 2014). I add to this growing literature by investigating whether financial reporting quality of a firm is associated with institutional investors' dual-holding.

Shareholders and bondholders of a firm have access to information disclosed publicly by the firm through financial reports and news releases, whereas syndicated loan participants have access to material non-public information. As the financial reporting quality of a firm decreases, the information asymmetry between the firm's equity investors and syndicated-loan participants increases. Dual-holders are different from other shareholders because they are equity-holders with access to material non-public information. However, prior studies have not examined whether institutional investors' incentive for dual-holding is access to better information in firms

[1] I refer to non-bank institutional investors and non-bank dual-holders as institutional investors and dual-holders for brevity. I explicitly identify banking institutional investors and banking dual-holder as such.

with poor financial reporting quality. Prior studies on dual-holding suggest two reasons for institutional investors' dual-holding. Jiang, Li, and Shao (2010) find that syndicated loans with dual-holder participation have lower costs compared to loans without. The authors conclude that the lower cost of such loans is due to the incentive-alignment between shareholders and creditors that results from dual-holding. In contrast, Lim, Minton, and Weisbach (2014) find that loans with dual-holder participation have *higher* costs and attribute this higher cost to equity-holders of the firm being lenders of last resort and thus charging a higher rate. I build on these studies by offering the novel explanation that institutional equity holders of a firm with poor financial reporting quality participate in its syndicated loans and become dual-holders in order to gain access to better information. I predict and show that institutional dual-holding is more likely in firms with poor financial reporting quality because less reliable financial information enhances the dual-holders' information advantage. When dual-holders trade in such firms' shares based on material non-public information, they are more likely to profit. Thus dual-holders extract rent from other shareholders of the firm (Lambert, Leuz, and Verrecchia 2007; Skaife, Veenman, and Wangerin 2013).

My study consists of two main hypotheses. First, I predict and find that institutional equity investors attempt to gain access to better information by simultaneously participating in syndicated loans of firms with poor information quality, and thus firms with poor financial reporting quality are more likely to have dual-holders. I measure a firm's financial reporting quality using its accruals quality (Dechow, Ge, and Schrand 2010; DeFond 2010). To identify institutional investors that are also lenders, I manually match each lender that appears in the DealScan database in my sample period from 2006 to 2014 to institutional investors' fund names

(as they appear in the funds' 13f filings in the Thomson-Reuters database) using 10K filings and Bloomberg search. Using this hand-collected sample, I am able to identify 445 unique funds that correspond to 1,271 unique lenders in the DealScan database. Out of these 445 funds, 213 funds are dual-holders, 75 of which are owned by institutional investors (non-commercial or investment bank). I use a Probit regression at the loan facility level with the probability of dual-holding as the dependent variable and accruals quality of the firm as the independent variable of interest. I also include controls for firm and loan characteristics (e.g., firm and loan riskiness, profitability, and the purpose of the loan), as well as year fixed effects. In all analyses, I find that accruals quality is a statistically and economically significant determinant in the likelihood of dual-holding. In particular, I find that a firm with poor accruals quality is more likely to have dual-holders.

To provide more definitive evidence that institutional investors' incentive for dual-holding is access to better information, I examine whether financial reporting quality is associated with the likelihood of banking institutions' dual-holding (i.e., commercial banks and investment banks). Bank dual-holders are different from institutional dual-holders in that they do not have any incentive to gain access to better information through dual-holding. Banking institutions are first and foremost relationship lenders and are interested in generating fees not only from the loan, but also from cross-selling activities such as underwriting (i.e., investment banking) and monitoring of the loan (Fang, Ivashina, and Lerner 2013). Consequently, financial reporting quality of a firm should not influence the likelihood of a banking institution's dual-holding in that firm. Thus, I predict that if access to better information is the true incentive behind institutional investors' dual-holding, then I should not find any relation between a firm's

financial reporting quality and the likelihood of bank dual-holding. I repeat the Probit regression analyses at facility level using the probability of bank dual-holding as the dependent variable and the firm's accruals quality as the independent variable of interest. As expected, I find that accruals quality of a firm does not affect the likelihood of dual-holding for banking institutions.

In my second hypothesis, I explore how dual-holders utilize their unique position and their access to material non-public information. Dual-holders can use their position in two ways: (1) to align the incentives of shareholders and creditors, and (2) to trade on the material non-public information obtained by participating in the syndicated loan, and thus extract rent from other shareholders. Shareholders and creditors often have conflicting objectives due to differences in their payoff structures (Jensen and Meckling 1976). According to the incentive-alignment hypothesis, institutional investors can mitigate the conflict of interest between shareholders and creditors by participating in a firm's syndicated loans and holding its equity at the same time, thus eliminating their information disadvantage compared to creditors. In contrast, the rent-extraction hypothesis suggests that more informed shareholders (e.g., dual-holders) are able to make more informed equity trading decisions and generate excess returns, thus extracting rent from other "less informed" shareholders.

First, I investigate whether dual-holders align the incentives of shareholders and creditors of a firm. Jiang, Li, and Shao (2010) document that syndicated loans with dual-holder participants have lower costs (as measured by the spread of the loan above LIBOR plus any fees) and conclude that the lower cost of the loan is due to the incentive-alignment between shareholders and creditors in firms with dual-holders. I extend the authors' analyses using my sample data and OLS regressions at loan facility level with loan amount, cost, and maturity as

dependent variable and an indicator variable for dual-holding as the independent variable of interest, while controlling for loan and firm characteristics. I find that dual-holders' participation in the syndicated loan of a firm is associated with more favorable lending terms for the borrower, such as a larger facility amount and lower cost of debt. However, if more favorable loan terms are the result of incentive-alignment between shareholders and creditors, then dual-holding should result lower the cost of capital and increase the firm's valuation. Thus, next I examine changes in the borrower's investments, as well as financial health, operating performance, and valuation in the year following the syndicated-loan origination. I find that while a firm with dual-holders becomes slightly more conservative in its investments by reducing assets and capital investments, its financial and operating performance do not improve. Furthermore, I do not observe any improvements in the borrowers' return on asset, return on equity, or valuation (as measured by its book to market ratio) in the three years following the syndicate origination. Taken together, my empirical results do not support the explanation that institutional investors resort to dual-holding in order to align the incentives of shareholders and creditors.

Next, I examine whether institutional investors use dual-holding and their subsequent information advantage to trade in the firm's equity and extract rent from other shareholders. If dual-holders are using the material non-public information to trade in the firm's equity, then their trades should generate *abnormal* profits. I use 13f filings from Thomson-Reuters database to calculate changes in dual-holders' equity position between syndicated loan start date and the firms' next quarterly earnings announcement date. I select this time period because during this time, dual-holders have access to firm-specific information that other shareholders do not. I estimate each firm's *normal* return equation using the Fama-French three-factor model and daily

returns from 250 days to 110 days before the syndicate start date (estimation period). Then I use this return equation to calculate the expected return of the firm from the loan start date to the quarterly earnings announcement date (event period). I calculate each dual-holder's return for the event period using their individual trades in the firm's equity and the cumulative abnormal return. Thus, the profitability of the dual-holder's trades consists of capital gains after purchases and losses avoided by selling shares. If the dual-holder's trades reflect the information that is already impounded in the stock price, then on average the dual-holder's trading profitability should be zero. Interestingly, I find that dual-holders achieve an abnormal return of approximately 6% (annualized) in their equity investment in firms they have a dual position in during the event period. In comparison, the abnormal return on a buy and hold strategy in these firms' shares during the same time period is not statistically different from zero, and thus dual-holders' abnormal profits are a direct result of their *informed* trades in the firms' equity. My results provide strong empirical support for dual-holders' trading on material non-public information obtained from participation in syndicated-loans, and thus extracting rent from other shareholders.

This paper contributes to the accounting and finance literatures in two ways. First, this is the first study to show that a firm's financial reporting quality is an important factor in institutional investors' participation in the firm's syndicated loans. Second, while studies such as Bharath, Sunder, and Sunder (2008) recognize the effect of a firm's financial reporting quality on a borrowers' choice of private versus public debt, there are no studies that examine whether poor financial reporting quality of a borrower increases the likelihood of participation of institutional shareholders in the firm's syndicated loans. This is the first study to show that institutional equity

investors actively attempt to reduce the firm-investor information asymmetry by simultaneously participating in syndicated loans of firms that have poor financial reporting quality.

This study is also different from other studies that examine dual-holders' rent extraction (Lim 2011; Lim, Minton, and Weisbach 2014). First, prior studies on dual-holder rent-extraction focus on dual-holders extracting rent from the borrower. I provide evidence that dual-holders extract rent from other less informed shareholders. Second, the abovementioned studies find that loans with dual-holder participation cost more, while I find such loans actually cost less compared to loans without dual-holder participation (consistent with Jiang, Li, and Shao 2010). My paper also extends the Jiang, Li, and Shao (2010) study in following ways. First, the authors do not discuss why shareholders become dual-holders in some firms and not others. I show that the information asymmetry between shareholders and the firm caused by a firm's poor financial reporting quality is an important factor in determining the likelihood of institutional investors' dual-holding. Second, the authors attribute lower cost of loans with dual-holder participation to the incentive-alignment between shareholder and creditors, even though they do not find any changes in the firms' operational efficiency and valuation after the loan start date. I provide evidence that dual-holders' incentive is not to mitigate the conflict of interest between shareholders and creditors, but to gain access to material non-public information and use this information to make profitable trades in the firms' equity and extract rent from other shareholders.

My study complements other studies that examine information leakage from the syndicated loan participants to equity markets in the following ways. First, Bushman, Smith, and Wittenberg-Moerman (2010) provide evidence of information leakage from the syndicated loan

market to the equity market. However, the authors do not identify any channels of private information dissemination to equity market participants. In this study, I am able to directly identify this channel as dual-holders of debt and equity. Second, Ivashina and Sun (2011b) use instances of loan renegotiation to highlight the importance of taking into account the heterogeneity of institutional investors' incentives for participating in syndicated loans, and that not all participants trade on private information.[2] My results complement their study by showing that one class of syndicated loan participants, namely dual-holders in the firm's syndicated loan and equity, use the private information gained through the syndicated loan to generate returns in excess of 6% (annualized) in the equity of the borrower, without any need to precondition on loan renegotiations.

II. HYPOTHESES DEVELOPMENT

Financial Reporting Quality and Dual-Holding

Equity holders and syndicated loan participants of a firm have access to different sources of firm-specific information. A firm's public financial reports and news releases are the primary source of information available to its equity investors, while syndicated loan participants of a firm also have access to the firm's material non-public information. This private information typically includes the borrower's detailed financial information, covenant compliance reports, amendment and waiver requests, managements' forecast, and plans for acquisition or disposition of assets. A firm's poor financial reporting quality increases the equity investor's cost of

[2] The authors show that institutional investors that are part of the loan amendments trade on the private information disclosed to the syndicate participants during the renegotiation process, and do not find any significant results for loans without renegotiations.

collecting and processing firm-specific information (Verrecchia 1980; Jensen and Meckling 1976; Easley and O'Hara 2004). Thus, a firm's poor financial reporting quality (1) increases the information asymmetry of the firm's equity holders, and (2) exacerbates the conflict of interest between shareholder and creditors of the firm (Armstrong, Guay, and Weber 2010).

One way for institutional equity investors of a firm with poor financial reporting quality to overcome their information asymmetry and conflicts of interest is to become "dual-holders" in the firm by simultaneously lending to the firm and holding its equity. While institutional investors were mostly equity-holders in the past, they have increased their participation in the syndicated loan market from 20% of the total loan amount issued in 1990 to 60% in 2013. In particular, in over half of these loan facilities, at least one institutional investor participant per facility was a dual-holder (see Table 1). Given the ability of institutional investors to participate in the syndicated loan market, I predict financial reporting quality of a firm is related to the probability of institutional investors' dual-holding in the firm. I state my first hypothesis in alternative form as follows:

H1*: The probability of institutional investors' dual-holding in a firm is associated with the firm's financial reporting quality.*

I define a dual-holder as an institutional investor that holds a position in the firm's equity as well as at least one of its syndicated loan facilities in the same year-quarter as the loan-

facility's origination date.[3] If dual-holding of institutional investors is a natural consequence of their increased participation in the syndicated loan market, or if institutional investors other incentives, such as diversification of their revenue source, then I should not find any relations between a firm's financial reporting quality and the probability of institutional investor dual-holding.

If an institutional investor's incentive for dual-holding is access to material non-public information, then I would expect to find that the probability of dual-holding is negatively associated with the firm's financial reporting quality. Thus hypothesis 1.a is stated in alternative form as follows:

H1a*: The probability of institutional investors' dual-holding in a firm is negatively associated with the firm's financial reporting quality.*

The null hypothesis could occur if dual-holders are risk-averse lenders and only lend to firms with high financial reporting quality. Then I would expect to find that institutional investors are more likely to become dual-holders in firms with high financial reporting quality and thus less information asymmetry.

As a robustness test of the hypothesis 1, I also examine whether a firm's poor financial reporting is associated with the likelihood of dual-holding banking institutions (i.e., commercial banks and investment banks). Bank dual-holders are different from institutional dual-holders in

[3] The reason for choosing syndicate initiation is that other than using initial participants in the syndicate at origination and instances of loan renegotiations (see Ivashina and Sun 2011b), the institutional holders of the syndicate cannot be identified. Ivashina and Sun (2011b) show that 100% of lead arrangers and 83.3% of co-arrangers remain with the syndicate by the time of its first amendment, while the ratio drops to only 66% for general participants.

that they do not have any incentive to gain access to better information through dual-holding. Banking institutions are relationship lenders and are interested in generating fees not only from the loan, but also from cross-selling activities such as underwriting (i.e., investment banking) and monitoring of the loan (Fang, Ivashina, and Lerner 2013). Consequently, financial reporting quality of a firm should not influence the likelihood of a banking institution's dual-holding in that firm.

Dual-Holders' Utilization of Material Non-Public Information

Dual-holders in a firm are unique in that they are the only group of shareholders with access to the firm's material non-public information. Dual-holders can use their position in two ways: (1) to align the incentives of shareholders and creditors, and (2) to trade on the material non-public information obtained by participating in the syndicated loan, and thus extract rent from other shareholders.

Dual-holders and incentive alignment between shareholders and creditors

Institutional equity-holders who are also lenders to the firm provide a unique opportunity to revisit the classic conflict of interest between shareholders and creditors as described by Jensen and Meckling (1976), and examine whether dual-holders help align the incentives of shareholders and creditors. Shareholders' influence can cause a firm's management to engage in activities such as asset substitution, underinvestment, and myopic investments. This in turn can result in a deterioration of the firm's credit rating and an increase in the firm's probability of bankruptcy. Creditors in turn demand higher interest rates and stricter covenants in order to compensate for the increase in the borrower's default risk. If dual-holders mitigate the conflict of

interest between shareholders and creditors, then (1) the firm's cost of capital should be reduced and subsequently loans with dual-holder participation should have more favorable terms for the borrower, and (2) the firm's value should increase.

Prior studies examining the effect of dual-holding on loan characteristics find mixed results. Jiang, Li, and Shao (2010) document that loans with dual-holders' participation have a lower cost (as measured by the spread of the loan above LIBOR plus any fees), and argue that the cost is due to the incentive-alignment between shareholders and creditors. In contrast, Lim, Minton, and Weisbach (2014) find that loans with dual-holders have a higher cost and conclude that dual-holders are lenders of last resort and thus charge a premium to lend. In this study, I propose that if dual-holders align the incentives of shareholders and creditors, then dual-holding should increase the firm's value due to the lower cost of capital. Furthermore, I would also expect dual-holding to improve the firms' operational and investment efficiency because the incentive-alignment between shareholders and creditors should mitigate asset substitution and underinvestment following the debt issuance (Smith and Warner 1979). Hypothesis 2a is stated as follows:

H2a*: Dual-holders improve the firm's operational efficiency, investment efficiency, and valuation.*

Dual-holders and rent-extraction from other shareholders

A firm's poor financial reporting quality motivates more private information gathering and creates an advantage to those investors that incur the information gathering costs, thus enabling better informed investors to generate excess returns at the expense of other shareholders

(extract rent) by trading on their informational advantage (Verrecchia 1982). If dual-holders are using the material non-public information to trade in the firm's equity, then their trades should generate *abnormal* profits. In particular, if dual-holders achieve abnormal returns in their trades in the borrower's equity while other equity holders do not, I can conclude that dual-holders use the material non-public information obtained from the syndicated loan to make superior trading decisions in the borrower's equity, thus extracting rent from other shareholders. I offer hypothesis H2b (in alternative form) as follows:

***H2b**: Dual-holders generate abnormal returns on their trades in the borrowers' equity.*

III. RESEARCH DESIGN

Financial Reporting Quality and Dual-Holding

In order to test the effect of borrower's financial reporting quality on dual-ownership, I run the following Probit regression model at the syndicated-loan facility level:

$$P\left(dualholding_{ijk} = 1\right)_t = f(\alpha_0 + \alpha_1 FRQ_{i,t-1} + \sum_n \alpha_n X_t + \sum_m \delta_m Y_t + year\ FE), \quad (1)$$

where $dualholding_{ijk}$ is an indicator variable that is equal to 1 if the lender j holds equity of the firm i and also participates in loan facility k in the same year-quarter . $FRQ_{i,t-1}$ is the lagged financial reporting quality of firm i (borrower in facility k) during the prior year. X_t is a vector of control variables for the borrower and Y_t is a vector of control variables for the facility. Financial reporting quality is measured using several proxies: accounting quality measured by

accruals quality and the number of manager's forecasts, as well as by external demands on disclosure, namely number of analysts, and analysts' disagreement. The definition of variables is included in the appendix. Borrower-level variables includes controls for growth-firms (book-to-market ratio), size of the firm (sales), borrower's financial health (leverage ratio, 3-year industry adjusted return, S&P rated, Z Score), and firm liquidity (Amihud's illiquidity ratio). Facility-level controls include indicator variables for loan purpose (M&A and LBO), loan type (revolver), whether the loan is secured, and the number of participants in the loan.

Measurement of financial reporting quality

Following prior literature (e.g., Dechow, Ge, and Schrand 2010; DeFond 2010), I use accruals quality as the proxy for a firm's financial reporting quality. Accruals quality informs investors about the mapping of accounting earnings into cash flows. Poor accruals quality weakens this mapping and increases the information risk of investors (Francis et al. 2005). I use the Dechow and Dichev (2002) measure for accruals quality as modified by McNichols (2002). Accruals quality is measured as the extent to which working capital accruals map into past, current, and future operating cash flows, as the main measure of financial reporting quality. Assuming that cash flow is the valuation-relevant construct that earnings is intended to measure, the variability in the mapping of accruals into cash flows captures uncertainty about the valuation implications of accounting earnings. I estimate the following equation using OLS for every year and three-digit SIC industry using all firms in the CRSP/Compustat from 2000 to 2014:

$$WCA_{it} = \beta_0 + \beta_1 OCF_{it-1} + \beta_2 OCF_{it} + \beta_3 OCF_{it+1} + \beta_4 \Delta Rev_{it} + \beta_5 PPE_{it} + \varepsilon_{it}, \quad (2)$$

where:

WCA_{it}= working capital accruals for firm i in year t, computed as net income before extraordinary items, plus depreciation and amortization minus cash flow from operations;

OCF_{it}= cash flow from operations for firm i in year t;

ΔRev_{it}=the change in revenues relative to year $t-1$; and

PPE_{it}= gross property, plant, and equipment.

All variables are deflated by lagged total assets. The residual term (ε_{it}) in the above equation reflects the unexpected accruals. I calculated accruals quality as the standard deviation of residuals over the last four years and dispose of any firms with fewer than ten observations.

Dual-Holders Influence on Loan Characteristics

In order to test the effect of dual-holding on the loan characteristics, I use the following regression:

$$Loan\_Char_{i,k} = \alpha_0 + \alpha_1 NonBank\ Participation_{ik} + \alpha_2 Dualholding_{ijk} + \sum_n \alpha_n X_t + industry\ FE + year\ FE + \varepsilon_{it}, \quad (3)$$

where $Loan\_Char_{i,k}$ is either loan amount, loan duration (maturity), or the cost of the loan as measured by all-in-drawn spread over LIBOR. $NonBank\ Participation_{ik}$ is an indicator variable that equals one if the facility has non-bank participants. $dualholding_{ijk}$ is an indicator variable that is equal to 1 if lender j holds equity of the firm and also participates in loan facility k of firm i in the same year-quarter. X_t is a vector of control variables for the borrower,

namely profitability (EBITDA/Sales), size (log assets), and risk (S&P rated firm).[4] If dual-holding results in more favorable loan-terms for the borrower (for example lower cost or higher loan amount), then institutional investors are more likely to participate in loans of firms with poor accounting quality either to gain access to better information (and thus are willing to offer better terms to the borrower), or that dual-holders align the incentives of shareholders and creditor and reduce the risk of the loan as a result.

However, one other possible scenario is the dual-holder is more informed about the borrower (and thus offer better loan terms) due to a previous lending relation with the borrower. In order to control for this possibility, I also repeat the test and include controls for prior lending relations between the borrower and dual-holder as follows:

$$\begin{aligned} Loan\_Char_{i,k} = {} & \alpha_0 + \alpha_1 NonBank\ Participation_{ik} + \alpha_2 Dualholding_{ijk} \\ & + \alpha_3 Prior\ borrower\ lender\ relation_{ij} \\ & + \alpha_4 (Prior\ borrower\ lender\ relation_{ij} \times Dualholding_{ijk}) \\ & + \sum_n \alpha_n X_t + industry\ FE + year\ FE + \varepsilon_{it}. \end{aligned} \quad (4)$$

$Prior\ borrower\ lender\ relation_{jk}$ is the number of loans between the borrower i and lender j in the past five years. The other variables are as described before. If the dual-holder participation in the syndicated loan affects the characteristics of the loan due to their superior knowledge of the borrower gained from prior lending relations, I expect the coefficient on the interaction variable to be significant and result in more favorable loan-terms for the borrower.

[4] All results remain if all the same controls in equation (1) are included. Log assets is used as a control for firm size instead of log of sales to reduce the collinearity between the profitability measure (log of EBITDA to sales) and size.

However if this coefficient is not statistically significant or has the wrong sign, then I can rule out the prior information hypothesis and strengthen the hypothesis that dual-holders have other motivations (namely extracting rent through access to material non-public information) by offering better terms to the borrower and participating in the firm's syndicated loan.

Dual-holders' Influence on the Firm's Valuation, Financial Health, and Operational Performance

I examine the influences of dual-holders on the borrower's characteristics following the loan origination in three areas (see Nini, Smith, and Sufi 2012): (1) changes in the borrower's investments (changes in total assets, plant, property, and equipment, and capital expenditure), (2) changes in the borrower's financial health (changes in total debt, total cash, and shareholder payout), and (3) changes in the borrower's operating performance (changes in operating cash flow, sales, and SG&A). Following prior literature, I use the firm's book-to-market ratio as the proxy for its valuation. I include controls for the borrower's financial health because when a borrower is in financial distress its lenders increase their monitoring and have more control over the firm's operations compared to its shareholders. The control variables I use are ones that are most often used in financial covenants, namely operating cash flow to assets, leverage, interest expense to assets, net worth to assets, and current ratio. I further include book to market ratio to control for growth vs. value firms. I run the following regression at facility level:[5]

[5] I also repeat this test using panel data regressions at firm level (untabulated). Using this alternative research design, the coefficient on dual-holder indicator variable is not statistically different from zero in any of the regressions, thus rejecting both the monitoring and the incentive-alignment hypotheses.

$$\Delta Firm\_Char_{i,k} \tag{5}$$
$$= \alpha_0 + \alpha_1 NonBank\ Participation_{ik} + \alpha_2 Dualholding_{ijk}$$
$$+ \sum_n \alpha_n X_t + year\ FE + \varepsilon_{it},$$

where $Firm\_Char_{i,k}$ is one of the six variables measuring changes in investment, financial health, or operating performance. $NCB\ Participation_{ik}$ is an indicator variable that equals one if the facility has institutional investor participants and $dualholding_{ijk}$ is an indicator variable that is equal to 1 if lender *j* holds equity of the firm and also participates in loan facility k of firm i in the same year-quarter. X_t is the vector of control variables for the borrower as described before.

Excess Returns Calculations

I follow Brown and Warner (1980) and calculate abnormal returns on the firm's equity from the syndicate origination date to the firm's quarterly earnings announcement date (event period). This time interval was selected as the event period since: (1) I can be certain that the dual-holder is part of the syndicate,[6] and (2) during this time interval, syndicate participants have access to the borrower's financial data that is not publicly available. For each firm I estimate the return equation using daily returns from 250 days to 110 days before the syndicate origination date (simulation period) using the market model as follows:

$$r_{i,t} = \alpha_0 + \alpha_1 R_{m,t} + \varepsilon_{it}, \tag{6}$$

[6] Syndicate participants can dispose of their position in the secondary loan market.

where $R_{m,t}$ is the market return on day t and $r_{i,t}$ is the daily return of firm i. Using the coefficients obtained from this regression during the simulation period, I calculate the predicted return for each firm on each day during the event period and then calculate the abnormal (or excess) return as the difference between the actual and predicted return. The cumulated excess return (CER) is then the sum of the abnormal returns during the event period. Since the event period length is different for each facility-firm pair, I use the number of trading days during the event period to annualize the returns.

IV. DATA AND SUMMARY STATISTICS

The primary data sources for equity holdings and syndicated-loan participation of investors are Thomson Reuters Institutional Ownership database and Loan Pricing Corporation (LPC) DealScan, respectively. I use a more recent sample compared with prior studies that use similar data prior to 2006. The market for syndicated loans experienced significant changes from 2001 and 2007 as institutional investor participation in syndicated loans increased from $32 billion in 2001 to $426 billion in 2007. Institutional investors' increased demand led to mispricing of credit and caused the interest rate in these investors' tranches to fall below the interest rate on bank tranches of the same loan, despite the fact that these tranches shares the same borrower and fundamentals (Ivashina and Sun 2011a).[7] Consequently, the results of prior studies could have been influenced by this mispricing in the credit market.

[7] Lim (2011) and Lim, Minton, and Weisbach (2014) use data from 1997 to 2006, and Jiang, Li, and Shao (2010) use data from 1987 to 2006. In this study, I use a more recent sample from 2007 to 2014 to examine the effect of dual-holders on the cost of the syndicated loan as measured by the spread of the loan over LIBOR.

I obtain firms' financial information from COMPUSTAT. I retrieve quarterly institutional ownership data from January 2002 to June 2014 from 13f filings in Thomson Reuters database. A 13f form must be filed within 45 days after the end of March, June, September, and December by all institutional managers who exercise investment discretion over $100 million or more in total securities. The 13f lists the securities, the number of shares owned, and the market value of each investment. Syndicate-specific information is retrieved from DealScan database from January 2007 to June 2014 and consists of 98,842 facilities from 32,762 borrowing firms. I remove observations that are missing any of the following: borrower names, deal active dates, facility active dates, facility amount, or loan maturities. I restrict the data to U.S. borrowers and limit the observations to facilities where all-in-drawn spread (cost of the loan) is not missing and LIBOR is the base rate. Following prior literature, I also exclude bankers' acceptance, bridge loans, standby letters of credit, performance standby letters of credit, multi-option facilities, and loans that are categorized as "other" or "undisclosed". This screening process results in 29,436 facilities, associated with 19,510 loans made to 10,560 borrowing firms.

Next, I divide lenders into bank and non-bank institutional investors. Lenders that are banking institutions are identified as follows: first, a lender is classified as a commercial bank if its primary four-digit SIC Code provided in DealScan (SIC Code of 6011–6082, 6712, or 6719) or its Thomson Financial institution type code (type code = 1) indicates that it is a commercial bank. Second, a lender is a commercial bank if the institution has major commercial banking operations (i.e., it accepts deposits). Third, the lender's type in DealScan is "U.S. Bank", ends in "Bank", or is "Thrift/S&L". Non-commercial banking institutions are divided into seven

categories using their type in DealScan as well as Bloomberg and SIC classification: investment bank (SIC code 6211), insurance company (SIC code 6311-6361, 6399, or 6411) finance company, mutual fund, hedge or vulture fund, pension fund, and other. The detailed sample selection procedure is shown in Table 2, panel A.

I also distinguish between major participants and participants in the syndicated loan. The structure of a syndicated loan changes during its life due to the secondary trading market. Members of a syndicate loan have different roles and can be divided into two main groups: participants and major participants. Major participants can further be divided into lead arrangers and other major participants based on their relation with the borrowing firm. It is important to distinguish between these different groups of lenders for two reasons. First, Ivashina and Sun (2011b) show that 100% of lead arrangers and 83.3% of co-arrangers remain with the syndicate by the time of its first amendment, while the ratio drops to 66% for general participants.[8] Lenders with the following roles are considered major participants: admin-agent, agent, arranger, book runner, co-agent, co-arranger, co-lead arranger, co- lead manager, co-manager, co-syndications agent, coordinating arranger, documentation agent, joint arranger, joint lead manager, lead arranger, lead bank, lead manager, manager, managing agent, mandated arranger, senior arranger, senior co-lead manager, senior lead manager, senior lender, senior managing agent, sole lender, and syndications agent.

The major challenge in constructing the sample is that there is no matching table between the fund names listed in 13f filings in the Thomson Reuters database and the lenders in

[8] Loan-amendment refers to the date on which any modifications to the syndicated-loan contract (through negotiations between the borrower and the lenders) are approved. Roberts and Sufi (2009) show that over 90% of all long-term contracts are renegotiated prior to their stated maturity, and that on average, loans are renegotiated just after half (57%) of their stated maturity has elapsed.

DealScan. Furthermore, the name of the fund listed in the 13f filing is almost always different from the name of the lender used in the DealScan database. The fund and/or the lender could also belong to a subsidiary or a parent of a firm. Thus In order to match each fund in the 13f database to a lender in DealScan, I *manually match* each fund in the 13f database to a lender in DealScan. To identify the fund(s) that correspond to each lender, I search Bloomberg and BusinessWeek online resources, as well as the firms' SEC filings. Next, I check each firm, as well as its parent(s) and all direct subsidiaries to see if it also exists as a lender in the DealScan database. Table 2, panel B shows the results of this manual matching procedure. Overall, there are 201 non-bank lenders and 245 bank lenders that are matched from 13f database to the DealScan database during the sample period. Non-bank lenders exist in 2,281 facilities, while bank lenders exist in 6,537 facilities. Furthermore, in 78% of facilities, major participants in the facility also hold a significant equity position (defined as either a total equity ownership greater than $2M or a 2% of total shares of the borrower) in the borrower. For a loan to have dual holders, I require at least one of the lenders (or one of their subsidiaries) in the facility to have an equity holding in the borrowing firm or in the borrower's parent firm in the same year-quarter in which the loan is originated. I match the borrower to CRSP/COMPUSTAT following Chava and Roberts (2008) and obtain the GVKEY for each borrower. Using this GVKEY, I am able to construct borrower level control variables from IBES, CRSP/COMPUSTAT, and Thomson Reuters databases.

I retrieve managers' forecast data from Thomson Reuters First Call database from 2000 to 2011, when the database was discontinued. Institutional investor classification data is downloaded from Brian Bushee's website for 2000 to 2013. Panel C of Table 2 shows the number of unique facilities for each type of institutional investor. Most non-bank dual-holders

are investment companies or investment advisors, followed by bank trusts. Panel D shows the distribution of the dual-holders by their investment horizon. 26% of non-bank dual-holders vs. 37% of banking dual-holders are categorized as transient investors who are more inclined to trade on private information and follow short-term trading strategies.

Table 3 displays the summary statistics of variables. Similar to Lim, Minton, and Weisbach (2014), I demonstrate that non-bank dual-holding facilities are also larger than bank dual-holding facilities. Non-bank dual-holding facilities have more lenders per facility and their facilities have longer maturity. Borrowers with bank dual-holding facilities have higher assets, slightly lower Altman's Z-score, higher leverage, higher 3-year sales growth, and are larger and have higher liquidity. Furthermore, the borrowing firms with non-bank dual-holders have higher number of analysts, and lower analyst disagreement. The statistics in this table are not consistent with Lim, Minton, and Weisbach (2014) that borrowers with non-bank dual-holders are firms with higher risk. The differences between facilities (and borrowers) with non-bank dual-holder participation vs. non-bank non-dual-holder participation are similar to the differences between non-bank and bank dual-holding facilities (and borrowers).

V. EMPIRICAL ANALYSES

Financial Reporting Quality and Dual-Holding

In this section, I explore whether financial reporting quality is associate with increased probability of dual-holding. In particular, I am interested to examine whether a firm's financial reporting quality is negatively associated with the likelihood of institutional investors' dual-holding in the firm. As a robustness test, I repeat all tests for banking institutional investors. If

institutional investors' motivation for dual-holding is access to better information in firms with poor financial reporting quality, I expect to find no significant relation between banking dual-holding and a firm's financial reporting quality. Table 4 displays the univariate analyses of H1, examining the relation between financial reporting quality and institutional investors' dual-holding. Because accruals quality of a firm is highly correlated with its size, in each year I first sort firms into size deciles and then into accruals-quality quintiles within each size decile (dependent sort). The accruals quality measure is multiplied by -1 so that a lower (more negative) value represents a lower financial reporting quality. Panel A displays the results for facilities with non-bank and bank-only participants, and panel B repeats the results for facilities with non-bank and bank investors' dual-holding. Panel A shows that while institutional investors' participation is higher in facilities of firms with lower accruals quality, the number of bank participants does not vary greatly based on accruals quality of the borrower. I conduct the same analysis in panel B for dual-holders. While non-bank investors are more likely to be dual-holders in firms with poor accruals quality, banks actually display a reverse pattern and are more likely to hold dual-positions in firms with high accruals quality. The results also hold using different measures of accruals quality. Overall, the univariate analysis in Table 4 is consistent with the hypothesis that non-bank investors' incentive for dual-holding in a firm is to gain access to better information on firms with poor financial reporting quality.

Next, I examine the relation between financial reporting quality and institutional investors' participation in the syndicated loan using Probit regression analyses. Table 5, panel A presents the results of the Probit regression of institution investors (columns 1 and 2) and banks (columns 3 and 4) participation in the syndicated loan of a firm. All regressions are run at loan

facility level. The dependent variable of interest is FRQ, which is the accruals quality of the borrower lagged by one year to avoid look-ahead bias. The accruals quality measure is multiplied by -1 so that a lower (more negative) value represents a lower financial reporting quality. In columns (1) and (2), the coefficient on FRQ is negative and significant for institutional investor participation and major participation, indicating that as the accruals quality of the firm decreases (becomes more negative), the probability of institutional investor participation in the syndicated loan increases, and these participants are also more likely to assume major roles in the syndicate. Using marginal probabilities, a one-percentage point improvement in the firm's accruals quality reduces the probability of non-bank institution's participation (major participation) in the firm's syndicated loan by 89 (84) basis points (significant at 1% level), keeping all other variables at their mean. Thus there is an almost a one-to-one relation between the decrease in accruals quality and increase in the marginal probability of non-bank institution's participation in the syndicated loan. In contrast, the coefficient of FRQ is not statistically significant for banking institutions participation, which is consistent with such investors either (1) having prior access to private information through past lending relations, and/or (2) having different incentives for participating in the syndicate loan of a firm, such as cross-selling fees from non-credit venues (e.g., cash and pension-fund management, and M&A advisory of the borrower).

Table 5, panel B displays the results of Probit regressions of institutional investor dual-holder participation (columns 1 and 2) and bank dual-holder participation (columns 3 and 4) indicator variables on the borrower's accruals quality. The coefficient on the accruals quality is negative and statistically significant in both columns (1) and (2), meaning that as the financial

reporting quality of a borrower decreases, the probability of non-bank dual-holder and non-bank dual-holder major participation in the syndicated loans of the firm increases. I also examine the marginal probabilities of financial reporting quality in columns (1) and (2): a one-percentage point increase in the firm's accounting quality decreases the probability of institutional investor dual-holder participation (institutional investor dual-holder major participation) in the firm's syndicated loan by 84 (34) basis points (significant at 1% level), keeping all other variables at their mean. More importantly, and consistent with banks having different incentives for lending to a firm, accruals quality of the borrower is not a significant determinant of bank dual-holding. In summary, the results presented in this section confirm the hypothesis that the probability of institutional investors' dual-holding in a firm is negatively associated with the firm's financial reporting quality. In the next section I further investigate how non-commercial dual-holders exploit their access to better firm-specific information.

Dual-Holders' Utilization of Material Non-Public Information

In the previous section I demonstrated that institutional investors are more likely to become dual-holders in firms with poor financial reporting quality (as measured by the firm's accruals quality). In this section I examine the incentives of institutional investors for dual-holding. I consider two possibilities: (1) dual-holders align the incentives of shareholders and creditors (incentive-alignment hypothesis), and (2) dual-holders use their access to the borrower's material non-public information to make profitable trades in the firm's equity and extract rent from other (less-informed) shareholders (rent-extraction hypothesis).

I first illustrate how dual-holder participation affects the terms of the loan. I examine the effect of dual-holding on loan characteristics, namely the facility amount, loan maturity, and all-in-drawn spread using a similar test. The results are shown in Table 6, panel A. Because dual-holding is conditioned on the institutional investor's participation in the loan, I include an indicator variable for institutional investor participation. The independent variable of interest is the indicator variable for dual-holder participation. I also control for firm-specific variables and industry and year fixed effects.[9] Columns (1) and (3) show that facilities with non-bank dual-holder participation are larger and have lower cost, while dual-holder participation has no effect on the loan maturity (column 3). Particularly, the results in column (3) show that facilities with non-bank dual-holder participation have lower cost compared to facilities with just non-bank participation. Overall the results suggest that dual-holder participants offer the borrower loans with more favorable terms. In order to control for any private information subsequent to a dual-holder's previous lending relations with the firm that could result in more favorable lending terms, I also repeat the regression in panel A but include a control variable, *Non-bank Lender-Borrower Relation,* calculated as the total number of times the non-bank institution has acted as the lender to the firm in the past five years. If the dual-holder participation in the syndicated loan affects the characteristics of the loan due to the dual-holder's superior knowledge of the borrower gained from prior lending relations, I expect the coefficient of the interaction of *Non-bank Lender-Borrower Relation* with non-bank dual-holder participation to result in more favorable loan-terms for the borrower. However in panel B, the coefficient on the interaction variable is negative (positive) for the regression with facility amount (all-in-drawn) as the

[9] I do not control for facility-specific variables because I am using a facility specific variable as the dependent variable in the regression. However the results do not change when I do include facility level controls (untabulated).

dependent variable, meaning that a non-bank financial institution's past lending relation with the borrower actually results in less favorable lending terms to the firm. Hence I can reject the possibility that the better terms offered by dual-holders to the borrower is the result of prior lending relation with the borrower.

Thus the next question is why non-bank dual-holders are willing to offer better terms to the borrower? Is it because (1) dual-holders align the incentives of shareholders and creditors and therefore lowering the cost of the loan (similar to Jiang, Li, and Shao 2010), or (2) dual-holders extract rent from other sources (namely other shareholders) and are willing to offer better terms to gain access to such information? If dual-holders mitigate the conflict of interest between shareholders and creditors, then the borrower's investment and financial operations should improve following the dual-holders' participation in the syndicated loan. I determine whether dual-holders aid in incentive-alignment between shareholders and creditors using: (1) changes in the borrower's investment (changes in total assets, plant, property, and equipment, and capital expenditure), (2) changes in the borrower's financial health (changes in total debt, total cash, and shareholder payout), and (3) changes in the borrower's operating performance (changes in operating cash flow, sales, and SG&A) in the year following the syndicated loan origination (see Nini, Smith, and Sufi 2012). I run an OLS regression of the changes of each variable mentioned above on indicator variables for institutional investor participation and dual-holding.[10] I also include controls for the borrower's financial health because when a borrower is in financial distress its lenders increase their monitoring and have more control over the firm's operations compared to its shareholders. The control variables used are ones that are most often used in

[10] I also repeat the test using panel data at firm level. Results remain unchanged.

financial covenants, namely operating cash flow to assets, leverage, interest expense to assets, net worth to assets, and current ratio. I further include book to market ratio to control for growth vs. value firms. The results are shown in Table 7. The coefficient on indicator variable for dual-holding is only significant for changes in assets and PPE, and is not statistically significant in any of the other regressions. The results illustrate that the borrower becomes slightly more conservative in its investments by reducing assets and capital investments, and the firm's financial and operating performance do not changes. Thus, I do not find any improvements in the borrower's financial or operational performance and reject the incentive-alignment hypothesis.

Next, I explore whether dual-holders align the incentives between the borrower and lenders further by using the changes in firm's book-to-market, return on assets (ROA), operating margin (EBITDA/Sales), and return on equity following the syndicate origination with dual-holder participant as dependent variables. I run an OLS regression of changes of the above variables on the indicator variable for firms with dual-holding syndicates while controlling for firm-specific factors similar to the tests in Table 6 panel A and Table 7 . The results (untabulated) however indicate no statistically significant improvement in the firm's operations following dual-holder's participation in the syndicate. As a second measure, I also examine whether R&D and advertising expenses change following syndicates with dual-holder participation and again observe no significant change. Thus the results provide no proof of incentive-alignment between shareholders and creditors due to dual-holder's participation the firm's loan.

Finally, I examine whether dual-holders extract rent from other shareholders. If dual-holders use the material non-public information obtained through the syndicate to make informed

trades in the borrower's equity, I expect these trades to generate abnormal returns. I calculate abnormal returns using the methodology described in the research design section from syndicate origination date to the next firm quarterly earnings announcement date. I select this time period as the event period since I can be sure that (1) syndicate participants have access to private information not available to other shareholders, and (2) the syndicate participants have not disposed of their position in the syndicate in the secondary market.[11]

Following Ivashina and Sun (2011b), I weigh the abnormal returns during the event period by the trade direction. If the dual-holder decreased (increased) their position in the borrower, I multiply the abnormal returns by -1 (1). I treat unchanged positions in two ways: first, as weight equal to zero (called "excluding unchanged holding"), and second, as weight equal to 1 (called "including unchanged holding") since no change in the equity position could also be interpreted as a positive signal. Because the number of days in the event period is different between facilities and firms, I annualize all returns. The returns of non-bank dual-holder's portfolio returns are displayed in Table 8, column 1. Non-bank dual-holders on average gain an abnormal return of approximately 6% during the event period. By comparison, bank dual-holders (column 2) do not achieve an abnormal return during the event period. Overall, the results in this table confirm that non-bank dual-holders participate in the syndicated loans of firms in order to use the material non-public information to make profitable trades in the firm's equity and are thus willing to offer more favorable terms to the borrower. As a robustness check, and to ensure that firms with dual-holding participants do not simply experience excess returns following the syndicate origination, I also calculate the abnormal return on the firm using a

[11] Since institutional investors' equity holdings are disclosed through quarterly 13f filings, I cannot observe the exact timing of the changes in dual-holder's equity position.

simple buy-and-hold strategy. The abnormal return generated following this strategy is not statistically different from zero, highlighting the importance of managers' trading strategy in generating abnormal returns.

VI. CONCLUSION

In this study, I investigate the effect of informativeness of a firm's publicly available information on the incentive of institutional investors to simultaneously participate in the firm's equity and syndicated loans. I demonstrate that institutional investors are more likely to become dual-holders in firms with poor financial reporting quality. Next, I explore how dual-holders use their unique position and access to non-public information. First, I test whether dual-holders mitigate the conflict of interest between shareholders and creditors and align the incentives of the two stakeholders in the firm. I show that dual-holders participation in the syndicated loan of a firm is associated with more favorable borrowing terms for the barrower, namely a larger facility amount and lower cost of debt, which prior studies such as Jiang, Li, and Shao (2010) have interpreted as the result of incentive-alignment between shareholders and creditors. I further examine the changes in the borrower's investments, valuation, financial health, and operating performance in the year following the syndicated loan origination, and find that the borrower becomes more conservative in its investment and the firm's financial and operating performance do not improve. As a result, the more favorable terms cannot be attributed to the incentive-alignment between shareholders and creditors. Lastly, using changes in the equity portfolios of dual-holders from their 13f filings, I illustrate that dual-holders achieve an abnormal return of approximately 6% in the borrower's equity (on an annualized basis) from the syndicate origination date to the announcement date of the firm's next quarterly report. These results lend

strong support to dual-holders extracting rent from other less-informed shareholders by using the material private information gained through syndicate participation in making superior trading decisions in the borrower's equity.

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Appendix: Variable Definitions

Variable	Description
CA_{it}	Total current accrual, measured as the change in non-cash current assets minus the change in current non-interest bearing liabilities, scaled by lagged total assets.
OCF_{it}	Cash flow from operations measured as the sum of nest income, depreciation and amortization and change in current liabilities, minus change in current assets, scaled by lagged total assets.
ΔRev_{it}	Change in annual revenues scaled by lagged total assets
PPE_{it}	Property, plant, and equipment scaled by lagged total assets.
$TAcc_{it}$	Total accruals, measured as the change in non-cash current assets minus the change in current non-interest bearing liabilities, minus depreciation and amortization expense for firm i in year t, scaled by lagged total assets.
ROA_{it}	Return on assets for firm i in year t.
AQ	The absolute value of the standard deviation of the residual from the regression following Dechow and Dichev (2002) multiplied by -1.
IO	Log of 1+ total institutional ownership in the firm as a percentage of total shares outstanding.
$Size$	Total value of the equity of the firm (millions) calculated as share price at the end of calendar year multiplied by number of shares
$ZScore$	Altman's Z-Score calculated as $3.3\text{EBIT}_{it} + 0.99\text{Rev}_{it} + 0.6\text{MarketCap}_{it} + 1.2\text{WC}_{it} + 1.4\text{Re}_{it}$, all scaled by total assets.
Re_{it}	Retained earnings
$Analyst_{it}$	Total number of analysts of firms, calculated as 1+log of number of analysts from IBES.
$Disagree$	Standard deviation of analysts' 2-year EPS forecast of the firm divided by the average forecasted EPS.
$Accuracy$	Average annual absolute value of analyst error (predicted minus actual value) as a percentage of actual value, multiplied by -1.
$\log(Facility)$	Natural log of facility amount
$Maturity$	Syndicated loan maturity measured in months
$SecuredFlag$	Indicator variable equal to 1 if the syndicated loan is secured
$RevolverFlag$	Indicator variable equal to 1 if the syndicated loan is a revolver
$LBOFlag$	Indicator variable equal to 1 if the primary purpose of the loan is an LBO
$Log(NumLenders)$	Natural log of number of lenders in the syndicate
$Asset$	Total asset value of the firm (millions)
$Amihud$	Amihud (2002) illiquidity measure calculated as the annual average of monthly return divided by monthly dollar trading volume, multiplied by 1000
$Leverage$	Long-term debt scaled by total assets
IO	% of firm's shares held by institutional investors

Variable	Description
BM	Book to market ratio calculated as total assets divided by the sum of market value of equity and total debt
$Industry\ Adjusted\ Return$	Annual firm return adjusted by the industry return
$spread$	All-in-drawn spread of the loan (in excess of LIBOR)
$badNews$	Indicator variable equal to 1 if the firm's stock return is negative
$lossFirm$	Indicator variable equal to 1 if the firm has experienced a loss as net income
ΔSales-3yr	The firm's sales growth over the past 3 years
$fcast$	Indicator variable that is equal to 1 if the manager provides an earnings forecast from the FirstCall database and 0 otherwise. If the firm's management has never provided an earnings forecast the variable is set to null.

Borrower Controls	
$numPastBorrowerLoans$	Natural log of 1+ number of borrower's prior loans (**proxy for borrower reputation**)
$borrowerLenderPrevRelation$	Number of past loans issued by the lender to the borrower
$numFacilities$	Number of borrower's facilities in year t
$leadLenderReputation$	Dollar amount of loans issued by all lead participants in the year t-1, scaled by total loan issuance by all lenders in year t-1**(lender reputation proxy)**

Table 1: Participation of non-bank investors in syndicated loans

Year	Number of NB lenders	NB dual-holders as % of non-bank lenders	Total # of facilities	Total $ facilities (millions)	NB Participation-% of # facilities	NB Participation-% of $ facilities	NB Dual-Holder participation-% of # facilities	NB Dual-Holder participation-% of $ facilities
2006-2007	934	22.80%	685	443,102	61.45%	75.55%	21.31%	35.98%
2007-2008	931	29.00%	962	557,724	52.49%	68.57%	19.54%	41.71%
2008-2009	421	23.75%	562	182,831	42.17%	68.94%	11.92%	30.33%
2009-2010	532	19.54%	648	231,458	46.29%	67.32%	13.73%	30.98%
2010-2011	969	28.99%	1144	536,890	48.60%	64.08%	20.89%	36.27%
2011-2012	948	29.00%	1218	692,958	46.22%	60.95%	19.13%	34.29%
2012-2013	870	27.81%	1065	651,657	47.98%	58.81%	20.94%	33.78%
2013-2014	338	27.51%	537	365,998	40.40%	47.44%	16.57%	24.15%
average	742.875	26.05%	852.625	457,827	48.20%	63.96%	18.00%	33.44%

NB stands for non-bank institution.

Table 2: Sample selection

Panel A: DealScan- Number of borrowing firms and facilities at each stage of sample selection

	Firms	**Facilities**
Overall DealScan sample (from 2007)	32,762	98,842
Company name or syndication dates are missing	31,031	93,737
Exclude non-US syndicates	12,114	35,179
Exclude facilities that are not lines of credit or term-loans	11,733	33,495
Exclude facilities with missing all-drawn-in spread	10,669	29,758
Exclude facilities without LIBOR base rate	10,560	29,436
Exclude non-US lenders	3,417	13,126
Exclude borrowers without GVKEY	3,182	11,698

Panel B: Dual-holding funds

	Facility-Lender	**Facilities**	**Borrowers**	**Lenders**
Overall Sample	63,338	11,698	3,417	1,271
Borrowers with data from CRSP-Compustat	41,376	6,821	2,211	912
Lenders that exist in 13f database				
• Non-bank lenders		2,281	1,005	201
• Bank lenders		6,537	2,123	245
Dual-holding (same quarter-year)				
• Non-bank lenders		1,375	640	75
• Bank lenders		4,639	1,551	138
Dual-holders who are major participants				
• Non-bank lenders		549	257	36
• Bank lenders		4,122	1,435	81
Major Participant Dual-holders with significant equity ownership*				
• Non-bank lenders		433	200	
• Bank lenders		2,931	1,003	

*****significant equity-holding is defined as holdings with a dollar value equal to $2M or more, or more than 2% of the firm's total shares outstanding.

Panel C: Dual-holding Non-bank facilities by type

	Facilities
1. Bank Trust	430
2. Insurance Company	11
3. Investment Company /Independent Investment Advisor	1043
4. Corporate (Private) Pension Fund	29
5. Public Pension Fund	0
6. University and Foundation Endowments	0
7. Miscellaneous	56

Panel D: Dual-holding facilities by investment horizon of the dual-holder

	Facilities
Non-bank dual-holders	
• Dedicated	2
• Quasi-indexer	1,120
• Transient	412
• Not classified	10
bank dual-holders	
• Dedicated	93
• Quasi-indexer	4,399
• Transient	1,364
• Not classified	101

Table 3: Summary statistics

	Non-bank Facilities		Bank-Only Facilities		Non-bank Dual-holders		Bank Dual-holders	
Variable	**N**	**Mean**	**N**	**Mean**	**N**	**Mean**	**N**	**Mean**
FRQ (DD)	3299	-0.0313	3284	-0.0347	1324	-0.0284	4506	-0.0304
FRQ(STUB)	2954	-0.0182	3092	-0.0229	1276	-0.0168	4174	-0.0189
FRQ(KO)	2954	-0.0396	3092	-0.0422	1276	-0.0379	4174	-0.0385
Log(Analysts)	2485	2.2470	2576	2.0160	1235	2.3800	4028	2.2360
Disagree	2429	0.1720	2499	0.1750	1213	0.1450	3969	0.1570
Log(FacilityAmt)	2955	5.8630	3092	5.0830	1277	6.2780	4174	5.7800
Maturity	2955	3.9100	3092	3.7830	1277	3.8910	4174	3.8570
Secured Flag	2266	0.6420	2002	0.6950	982	0.5110	2836	0.5740
Revolver Flag	2955	0.6600	3092	0.6870	1277	0.6790	4174	0.6960
LBO Flag	2955	0.0085	3092	0.0048	1277	0.0055	4174	0.0031
Number of Lenders	2955	2.3620	3092	1.7050	1277	2.5870	4174	2.2260
Asset	2955	8.2010	3092	7.3030	1277	8.8680	4174	8.1410
Leverage	2946	0.3000	3083	0.2500	1273	0.3000	4160	0.2710
Book-to-market ratio	2808	1.0435	2903	1.0246	1203	1.0486	3927	0.9993
IO	2738	0.8360	2883	0.7840	1272	0.8330	4139	0.8420
Z Score	2641	2.0410	2731	2.3390	1117	2.1100	3675	2.3600
Size	2955	7.8000	3082	6.9870	1277	8.5050	4167	7.8550
ΔSales-3yr	2791	0.3810	2958	0.3330	1213	0.3910	4022	0.3430
Log(Amihud) ($*10^4$)	2857	0.9630	3017	1.8500	1264	0.4260	4138	0.7650
Industry Adjusted Return	2858	0.0460	3019	0.0856	1264	0.0202	4138	0.0546

See appendix for the variables' descriptions.

Table 4: Univariate analysis

Panel A: The effect of financial reporting quality on non-bank and bank investors' participation

	Facilities with non-bank participation			Facilities with bank-only participation		
Variable	**Low**	**High**	**Low-High**	**Low**	**High**	**Low-High**
Number of facilities	363	334	29	306	309	-3
FRQ (DD)	-0.0905	-0.0055	-0.0849***	-0.1025	-0.0059	-0.0966***
FRQ (STUB)	-0.0314	-0.0099	-0.0214***	-0.0426	-0.0131	-0.0294***
FRQ (KO)	-0.0935	-0.0229	-0.0706***	-0.0929	-0.0252	-0.0677***
Log(analysts)	2.3015	2.0673	0.2342***	2.0442	1.7996	0.2445***
Disagree	0.1257	0.1370	-0.0112	0.1627	0.1469	0.0158
All-in-drawn	240.04	221.15	18.89**	212.73	208.45	4.2854
Log(facility amount)	5.7818	5.9694	-0.1875**	5.0359	5.2527	-0.2167**
Log(maturity)	3.9022	3.8915	0.0107	3.6547	3.8252	-0.1705***
Log(number of lenders)	2.2629	2.4453	-0.1823***	1.5921	1.8268	-0.2347***
Log(asset)	7.7839	8.3652	-0.5812***	6.8700	7.5084	-0.6384***
Leverage	0.2401	0.3607	-0.1205***	0.1887	0.3029	-0.1141***
Book-to-market ratio	0.8750	1.1990	-0.3240***	0.9510	1.115	-0.1634***
IO	0.7977	0.7242	0.0735***	0.7002	0.6871	0.0131
Z Score	2.5820	1.5946	0.9874***	2.8745	1.8945	0.9799***
ΔSales-3yr	0.6218	0.2627	0.3591***	0.5670	0.2194	0.3476***
Log(Amihud)(*10^4)	0.7880	0.7830	0.0046	1.7570	1.4970	0.2600

The table above provides univariate analyses of variables by sorting facilities first into deciles based on borrower size in order to control for size and then by accounting quality. t-statistics in parentheses, *** p<0.01, ** p<0.05, * p<0.1. See appendix for the variables' descriptions.

Panel B: The effect of financial reporting quality on non-bank and bank investors' dual-participation

	Non-bank dual-holder			Bank Dual-holder		
Variable	**Low**	**High**	**Low-High**	**Low**	**High**	**Low-High**
Number of facilities	162	125	37	191	203	-12
FRQ (DD)	-0.0822	-0.0051	-0.0770***	-0.0919	-0.0056	-0.0862***
FRQ (STUB)	-0.0225	-0.0099	-0.0126***	-0.0389	-0.0137	-0.0251***
FRQ (KO)	-0.0821	-0.0181	-0.0639***	-0.0887	-0.0212	-0.0212***
Log(analysts)	2.4400	2.4400	0.2056***	2.1411	1.8874	0.2536***
Disagree	0.1178	0.1280	-0.0102	0.1495	0.1429	0.0066
All-in-drawn	220.06	183.68	36.37***	189.58	182.39	7.1896
Log(facility amount)	6.1828	6.5226	-0.3398***	5.4657	5.4863	-0.0205
Log(maturity)	3.9169	3.8190	0.0978	3.7004	3.8500	-0.1496***
Log(number of lenders)	2.4925	2.5971	-0.1045	1.8138	1.9836	-0.1698***
Log(asset)	8.3032	9.0712	-0.7679***	7.4132	7.8110	-0.3977***
Leverage	0.2732	0.3236	-0.0503**	0.2115	0.2655	-0.0539***
Book-to-market ratio	0.8887	1.2524	-0.3636***	0.9046	1.1385	-0.2339 ***
IO	0.8621	0.7477	0.1143***	0.7621	0.7328	0.0293
Z Score	2.8980	1.8516	1.0464***	3.1900	2.1521	1.0378***
ΔSales-3yr	0.6335	0.2697	0.3637***	0.5190	0.2568	0.2622***
Log(Amihud)(*10^4)	0.3120	0.2190	0.00937	1.0480	0.9530	0.0954
Industry-adjusted return	0.0207	0.0331	-0.0124	0.0741	0.0556	0.0184

The table above provides univariate analyses of variables by sorting facilities first into deciles based on borrower size in order to control for size and then by accounting quality. t-statistics in parentheses, *** p<0.01, ** p<0.05, * p<0.1. See appendix for the variables' descriptions.

Table 5-Effect of accounting quality on syndicated-loan participation and dual-holding

Panel A: Determinants of non-bank vs. bank investors' participation in the facility

VARIABLES	(1) Non-bank participation	(2) Non-bank Major participation	(3) Bank participation	(4) Bank major participation
FRQ	-2.27***	-2.63***	2.25	1.87
	(-2.61)	(-3.14)	(1.44)	(1.51)
Secured flag	0.27***	0.55***	-0.80***	-0.69***
	(4.79)	(9.34)	(-3.42)	(-3.92)
Revolver flag	-0.20***	-0.32***	0.36**	0.27**
	(-3.77)	(-6.43)	(2.22)	(2.26)
LBO flag	0.92***	1.00***	-0.53	0.10
	(3.92)	(5.54)	(-1.48)	(0.31)
M&A flag	-0.21	-0.20	0.69	0.45
	(-1.46)	(-1.40)	(1.57)	(1.27)
Log(number of lenders)	0.98***	0.17***	1.97***	1.01***
	(22.57)	(4.38)	(7.77)	(8.20)
Log(sales)	0.12***	0.15***	-0.14**	-0.10**
	(5.12)	(6.24)	(-2.02)	(-2.01)
Leverage	0.31**	0.67***	-0.74*	-0.35
	(2.17)	(4.78)	(-1.96)	(-1.21)
Book-to-market ratio	0.02	0.03	-0.01	0.01
	(0.71)	(0.98)	(-0.16)	(0.16)
IO	-0.04	0.12	0.36	0.23
	(-0.34)	(0.99)	(1.19)	(1.04)
Z Score	-0.08***	-0.04**	0.04**	0.01
	(-4.60)	(-2.06)	(2.03)	(0.22)
S&P-rated Firm	0.05	0.10	0.53**	0.40**
	(0.89)	(1.57)	(2.39)	(2.35)
ΔSales-3yr	0.02	0.08	0.01	-0.04
	(0.48)	(1.60)	(0.05)	(-0.40)
Log(Amihud)	206.22	167.02	271.88	208.49
	(1.25)	(1.01)	(0.74)	(0.77)
Industry-adjusted return	-0.03	-0.04	0.31**	0.24**
	(-0.78)	(-1.02)	(2.21)	(2.48)
Constant	-2.46***	-2.42***	0.52	0.97**
	(-10.58)	(-10.30)	(0.88)	(2.15)
Year fixed-effects	Yes	Yes	Yes	Yes
Observations	3,703	3,703	3,703	3,703
Pseudo R-squared	0.227	0.101	0.392	0.261

This table presents the results of the Probit regression of non-bank investor participation indicator variable on accruals quality of the firm and other control variables. Robust z-statistics in parentheses. *** p<0.01, ** p<0.05, * p<0.1. See appendix for the variables' descriptions. Results also hold using R&D expense of the firm as a measure of firm opacity, and including loan type.

Panel B: Determinants of non-bank vs. bank investors' dual-holding

VARIABLES	(1) Non-bank dual-holding	(3) Non-bank major participant dual-holding	(3) Bank dual-holding	(3) Non-bank major participant dual-holding
FRQ	-3.66***	-3.02***	0.66	1.07
	(-3.47)	(-2.68)	(0.75)	(1.23)
Secured flag	-0.13**	0.30***	-0.51***	-0.41***
	(-2.06)	(3.97)	(-6.87)	(-6.67)
Revolver flag	-0.13**	-0.34***	0.21***	0.11*
	(-2.14)	(-5.23)	(3.31)	(1.92)
LBO flag	-0.67**	-0.40	-2.52***	-2.16***
	(-2.24)	(-1.56)	(-7.60)	(-7.06)
M&A flag	-0.19	-0.23	-0.21	-0.28*
	(-1.14)	(-1.15)	(-1.22)	(-1.87)
Log(number of lenders)	0.84***	0.21***	1.07***	0.61***
	(16.51)	(4.15)	(19.41)	(13.26)
Log(sales)	0.21***	0.18***	0.17***	0.13***
	(7.84)	(6.27)	(5.54)	(5.00)
Leverage	0.78***	1.00***	-0.38**	0.00
	(4.63)	(5.76)	(-2.47)	(0.03)
Book-to-market ratio	-0.05	-0.04	-0.13***	-0.10***
	(-1.34)	(-0.85)	(-3.03)	(-2.67)
IO	0.11	0.29*	0.87***	0.80***
	(0.79)	(1.88)	(5.64)	(5.84)
Z Score	-0.06**	-0.04**	-0.03	-0.00
	(-2.39)	(-2.29)	(-1.60)	(-0.07)
S&P-rated firm	0.22***	0.29***	-0.01	0.13**
	(2.93)	(3.04)	(-0.15)	(2.09)
ΔSales-3yr	0.18***	0.15**	-0.07	-0.08
	(3.14)	(2.23)	(-1.10)	(-1.55)
Log(Amihud)	-413.06*	-207.58	-681.37***	-767.40***
	(-1.69)	(-0.83)	(-3.61)	(-4.47)
Industry-adjusted return	-0.16**	-0.11*	-0.03	-0.04
	(-2.55)	(-1.66)	(-0.68)	(-0.81)
Constant	-4.12***	-3.67***	-2.11***	-1.41***
	(-14.50)	(-11.77)	(-7.49)	(-5.65)
Year fixed-effects	Yes	Yes	Yes	Yes
Observations	3,703	3,703	3,703	3,703
Pseudo R-squared	0.279	0.164	0.427	0.305

This table presents the results of the Probit regression of non-bank dual-holder indicator on accruals quality of the firm and other control variables. Robust z-statistics in parentheses. *** p<0.01, ** p<0.05, * p<0.1. See appendix for the variables' descriptions. Results also hold using R&D expense of the firm as a measure of firm opacity, and including loan type.

Table 6-Dual-holders and Loan Characteristics

Panel A: Effect of non-bank investors' participation on loan characteristics

VARIABLES	(1) Log(Facility Amount)	(2) Log(Maturity)	(3) All-in-drawn
Non-bank dual-holder participation	0.13***	0.00	-28.48***
	(3.87)	(0.22)	(-6.52)
Non-bank participation	0.20***	0.13***	47.20***
	(7.42)	(9.53)	(12.06)
Log(EBITDA/Sales)	0.45***	0.19***	-58.55***
	(3.75)	(3.56)	(-4.42)
S&P-rated firm	0.17***	0.10***	47.67***
	(5.82)	(6.96)	(11.78)
Log(assets)	0.49***	-0.05***	-28.20***
	(43.49)	(-9.37)	(-21.86)
Constant	1.88***	4.07***	313.38***
Year fixed-effects	Yes	Yes	Yes
Industry fixed-effects	Yes	Yes	Yes
Observations	6,463	6,463	6,463
Adjusted R-squared	0.322	0.145	0.204

Robust t-statistics in parentheses. *** p<0.01, ** p<0.05, * p<0.1. See appendix for the variables' descriptions. Results are similar if all other controls from the previous section are included

Panel B: Channels of influence of non-bank participation on loan characteristics-Past lending relations

VARIABLES	(1) Log(Facility Amount)	(2) Log(Maturity)	(3) All-in-drawn
Non-bank dual-holder participation	0.17***	0.02	-36.31***
	(4.44)	(1.20)	(-7.25)
Non-bank participation	0.18***	0.12***	50.77***
	(5.83)	(8.34)	(10.99)
Non-bank lender-borrower Relation	0.06*	0.02	-8.01**
	(1.92)	(1.18)	(-2.09)
Non-bank lender-borrower relation* Non-bank dual-holder participation	-0.11**	-0.05**	21.13***
	(-2.38)	(-2.00)	(3.70)
Log(EBITDA/Sales)	0.45***	0.19***	-59.10***
	(3.74)	(3.56)	(-4.40)
S&P-rated firm	0.17***	0.09***	47.96***
	(5.77)	(6.90)	(11.88)
Log(assets)	0.49***	-0.05***	-28.34***
	(43.52)	(-9.27)	(-22.01)
Constant	1.88***	4.07***	313.76***
	(19.73)	(82.99)	(28.16)
Year fixed-effects	Yes	Yes	Yes
Industry fixed-effects	Yes	Yes	Yes
Observations	6,463	6,463	6,463
Adjusted R-Squared	0.532	0.160	0.270

Robust t-statistics in parentheses. *** p<0.01, ** p<0.05, * p<0.1. See appendix for the variables' descriptions.

Table 7-The effect of dual-holders on the borrower

	Change in Investment			Change in Financial Health			Change in Operating Performance		
VARIABLES	(1) ΔLogAssets	(2) ΔLogPPE	(3) ΔCAPEX	(4) ΔDebt	(5) ΔCash	(6) ΔS/h Payout	(7) ΔCFO	(8) ΔLogSales	(9) ΔSGA
Non-bank dual-holder participation	-0.03**	-0.02*	-0.00	-0.03	-0.00	-0.00	0.00	-0.01	-0.00
	(-2.30)	(-1.91)	(-0.09)	(-0.95)	(-0.16)	(-0.06)	(1.07)	(-0.71)	(-0.85)
Non-bank participation	0.04***	0.02***	-0.00	0.10***	0.00	0.00	-0.00	0.00	-0.00
	(4.28)	(3.18)	(-1.32)	(3.08)	(0.48)	(0.96)	(-1.16)	(0.03)	(-0.51)
Operating cash flow	-0.40***	-0.19***	-0.01	-0.93***	0.00	0.03**	-0.34***	-0.59***	0.02
	(-5.76)	(-4.51)	(-1.11)	(-4.09)	(0.18)	(2.07)	(-9.35)	(-7.81)	(1.30)
Leverage ratio	0.55***	0.41***	0.04***	0.34***	0.01	0.01*	0.01	0.39***	0.04***
	(8.39)	(10.87)	(5.64)	(2.90)	(0.97)	(1.72)	(0.71)	(9.87)	(4.23)
Interest expense ratio	-8.09***	-4.81***	-0.35***	-7.97***	-0.01	-0.10	-0.10	-4.99***	-0.49***
	(-9.49)	(-10.89)	(-4.07)	(-7.66)	(-0.06)	(-1.59)	(-0.58)	(-10.97)	(-6.17)
Net worth ratio	0.18***	0.19***	0.03***	0.75***	0.02***	0.01	0.02**	0.14***	0.04***
	(4.72)	(7.58)	(4.94)	(6.56)	(2.86)	(0.95)	(2.02)	(5.03)	(5.12)
Current ratio	-0.00	-0.00	-0.00	0.02	-0.01***	-0.00	-0.00	-0.00	0.00***
	(-0.50)	(-0.68)	(-1.47)	(0.81)	(-5.99)	(-0.60)	(-1.49)	(-0.26)	(2.93)
Book-to-market ratio	-0.07***	-0.04***	-0.00***	-0.14***	-0.00***	-0.00***	-0.01***	-0.05***	-0.01***
	(-7.63)	(-7.44)	(-5.22)	(-6.28)	(-4.16)	(-3.85)	(-4.40)	(-6.80)	(-4.50)
Constant	0.12***	0.05***	0.00	0.08	0.01	-0.00	0.04***	0.14***	0.00
	(5.21)	(2.72)	(1.04)	(1.11)	(1.47)	(-1.59)	(6.46)	(7.89)	(0.16)
Year fixed-effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	5,270	5,262	5,270	4,946	5,268	5,270	5,270	5,267	5,270
Adjusted R-squared	0.159	0.124	0.0511	0.0811	0.0277	0.0127	0.153	0.190	0.0883

Robust t-statistics in parentheses. *** p<0.01, ** p<0.05, * p<0.1. See appendix for the variables' descriptions.

Table 8- Return on equity portfolios of syndicated-loan participants

VARIABLES	(1) Non-bank dual-holders		(2) Bank dual-holders	
	Mean	Median	Mean	Median
Including unchanged holding				
• Abnormal Return	0.062	0.064	0.019	-0.003
	(1.86)*		(0.92)	
• Observations	1,148		7,976	
Excluding unchanged holding				
• Abnormal Return	0.059	0.052	-0.012	0
	(1.78)*		(0.48)	
• Observations	1,148		7,976	

Robust t-statistics in parentheses. *** p<0.01, ** p<0.05, * p<0.1. See appendix for the variables' descriptions.