Motivated institutional investors and bank debt financing

Abstract

On the basis of 460 non-financial public companies from a bank-based economy with the dominant role of bank financing as a source of debt, we find a negative relationship between the shareholdings of motivated institutional investors and the firm's reliance on bank debt. The observed relation seems to reflect the substitution effect in monitoring insiders between motivated institutional investors (playing the role of minority shareholders) and banks (as debtholders). We find this relationship to hold mostly for transparent companies as they don't benefit much from disclosing private information to banks and thus can easily replace bank debt with other sources of financing. Furhermore, it holds mostly for companies suffering from substantial agency problems and thus with greater monitoring needs. Moreover, we document that the observed effect is stronger for motivated institutions with higher monitoring effectiveness. We also confirm that firms with motivated institutional investors tend to have higher proportions of public debt, lower proportions of short-term debt and lower overall debt ratio. Additionally, we show that companies substituting bank monitoring with instututional monitoring experience firm value increase.

Keywords: institutional ownership, institutional investors, capital structure, debt structure, bank debt financing, agency theory

JEL Classification: G23; G30; G32; G34; G21

1. Introduction

In this paper, we focus on the relationship between the ownership structure and the debt structure of public companies, in particular those controlled by a majority shareholder with a dispersed minority shareholding structure and those operating in an environment where bank loans are the primary source of firms' financing (in a bank-based economy).

Existing theoretical models indicate a particular benefit of bank debt financing as opposed to public debt financing (by issuing debt securities such as bonds) in the form of effective monitoring by banks (Fama, 1985; Diamond, 1991; Rajan, 1992, Park, 2000). There are also numerous empirical studies on the role institutional investors play in corporate governance, confirming that some groups of institutional investors can also effectively monitor insiders (Brickley et al., 1988, Chen et al., 2007; Cronqvist and Fahlebrach, 2009). Institutional investors do this using two alternative channels: direct intervention or a voice channel (Shleifer and Vishny, 1986, Gillan and Starks, 2000, McCahery et al., 2016) and exit threat (Admati and Pfleiderer, 2009; Edmans, 2009). Institutional investors with shareholdings that constitute a significant part of their portfolios, called motivated monitors, have a particular incentive to monitor insider activities (Fich et al., 2015).

Based on these two research strands, we propose a hypothesis that monitoring by motivated institutional investors (playing the role of minority shareholders) substitutes monitoring by banks (as debtholders). Thus, we predict a negative relationship between the shareholdings of motivated institutions and the use of bank debt.

Our empirical results based on a sample of 460 non-financial companies listed on the Warsaw Stock Exchange in 2010–2019 (3,365 firm-year observations) confirm this relationship. We find this relationship to hold mostly for transparent companies as they don't benefit much from disclosing private information to banks and thus can easily replace bank debt with other sources of financing. Moreover, it holds mostly for companies suffering from substantial agency problems and thus with greater monitoring needs (due to excess free cash flow or specific ownership structure with controlling stakes held by families).

Not all institutional investors seem to be equally effective in monitoring, even if they are motivated to monitor. Our results show that the observed substitution effect holds for independent (motivated) institutional investors (but not for grey, that may have business relations with the companies), for long-term (motivated) institutional investors (but not for short-term investors), and motivated institutional investors with a larger number of blockholdings.

Additionally, we find that firms with motivated institutional investors tend to have higher proportions of public debt, lower proportions of short-term debt and lower overall debt ratio. All these findings support our hypothesis of the substitution effect between bank monitoring and monitoring by motivated institutional investors. To address the endogeneity issue and thus strengthen our prediction that institutional investors at least partly trigger this effect rather than simply tend to invest in firms with certain capital structure (as confirmed by Ferreira and Matos, 2008), we conduct commonly employed endogeneity tests by splitting motivated institutions into quasi-indexers and non-indexers (Harford et al., 2018). We also employ DiD research design using Polish pension funds reform as a quasi-natural experiment. All these analyses confirm our prediction. We also included some robustness tests using alternative measures and estimation methods that didn't change our conclusions.

Last but not least, using pension funds reform we provided evidence of the real benefits of the bank debt substitution effect. In particular, we document that firms with pension funds that are motivated monitors, which decreased the proportion of bank financing in their debt structures, experienced an increase in Tobin's Q.

Our study contributes to the literature on corporate debt structure and the role of bank debt financing in mitigating agency problems by showing that a similar role can be played by motivated institutional investors as minority shareholders, which weakens the need for bank debt financing. We also contribute to the literature on ownership structure and institutional ownership by showing that some groups of motivated institutional investors are more effective in monitoring than others. Last but not least, we also contribute to the corporate governance literature by showing the possible effects of increased monitoring from certain groups of shareholders.

2. Literature review and hypothesis development

The agency theory suggests that the managers of public companies - representing the majority shareholders - are reluctant to use debt in the form of bank loans due to the low flexibility in the use of funds raised in this way and close monitoring by banks. For this reason, they prefer direct financing in the form of debt securities issues, especially in developed capital markets, where this form of financing is popular because dispersed bondholders usually do not have the motivation, resources and capabilities comparable to banks to perform effective monitoring (Fama, 1985, Diamond, 1991, Rajan, 1992, Park, 2000). This creates additional opportunities for insiders to exploit the private benefits of control. This effect is stronger when there is a greater difference between voting rights and cash flow rights (Lin et al., 2013).

Moreover, this problem is particularly relevant in continental Europe, in companies where the main shareholders are families or individual shareholders who use mechanisms that increase control, such as dual-class shares, pyramid structures and cross-holdings (Aminadav and Pappaioannou, 2020).

Under certain circumstances controlling shareholders may prefer bank debt, especially when there is an information asymmetry between insiders and outside providers of capital. Pecking order theory (Myers, 1984) suggests that under information asymmetry, companies prefer internal financing (retained earnings), because the issue of equity securities is impossible due to discrepancies in determining the intrinsic (fair) value of newly issued equity securities. In particular, when managers are not interested in providing full information about the capabilities and prospects of companies due to the possibility of using this information by competitors, the issuance of debt securities is also difficult. In such a case, the insiders are left only with the bank debt due to the private nature of the information revelation.

Insiders, on the one hand, are reluctant to use bank debt due to the constraints it imposes on the disposal of funds, but they might be somewhat forced to use this form of financing if the bond market is less developed or if they are reluctant to disclose private information to the market. For Polish listed companies, bank financing accounts for almost 70% of interest-bearing debt, but many of these companies would be interested in replacing bank debt with debt securities to weaken bank monitoring.

Minority shareholders, on the other hand, are interested in using debt in general (Jensen, 1986), including in particular in the form of bank debt, due to its disciplinary nature and the monitoring function performed by banks to reduce the potential risk of expropriation by controlling shareholders. In this sense, they behave like free riders, i.e. without incurring additional costs, they benefit from the effects of monitoring provided by a third party – the bank.

Our paper refers to a special case in which such a monitoring role can be performed by other shareholders, generally institutional investors, acting as minority blockholders, who are particularly interested in monitoring if their shares in the company constitute a significant part of their portfolio: the so-called motivated monitors (Fich et al. 2015). Moreover, the extant literature confirms that institutional investors, in particular long-term independent investors (Brickley et al., 1988; Chen et al., 2007), are not only particularly motivated, but also able to conduct monitoring, especially when they engage in a company for longer periods and when they hold shares of other companies operating in the same industry in their portfolio. Both of these factors increase institutional investors' effectiveness (quality) of monitoring.

In such circumstances, controlling shareholders can limit bank financing and use other sources of debt (in line with their original preferences) without the risk that minority shareholders will take this as a negative signal and exit the company. Moreover, in such a situation, potential bondholders would also be more willing to accept the prices of debt securities issued without the need for management boards to disclose information that could be used by competitors, as institutional investors typically improve the company information environment (Boone and White, 2015; Borochin and Young, 2017; Chung et al., 2022).

Recently, empirical research has emerged on the links between bank debt financing and the ownership structure and corporate governance mechanisms. Lin et al. (2013) show that the divergence between the control rights and cash-flow rights of a borrowing firm's largest ultimate owner has a significant negative impact on the firm's reliance on bank debt financing. Additionally, they find that the relation between control-ownership divergence and debt choice is weakened by the presence of multiple large shareholders, concluding that it is more difficult and less likely for the controlling shareholder to extract private benefits in the presence of another blockholder, as observed previously by Maury and Pajuste (2005). Boubaker et al. (2017) also show that multiple large shareholders reduce the controlling owners' incentive to avoid bank monitoring, leading to greater reliance on bank debt. Cline et al. (2020) find that short-term (long-term) institutional ownership is negatively (positively) related to the firm's reliance on bank debt financing. Ben-Nasr et al. (2021), using an international sample document that major board reforms aiming at improving the effectiveness of board functions and fiduciary duties lead to a decrease in bank debt ratio, particularly in companies where bank debt is used for monitoring purposes, suggesting that bank debt and board reforms are substitutes for monitoring managers' actions.

Another strand of literature presents at the same time findings confirming that motivated institutional investors are effective monitors and their presence facilitates M&A bid completion (Fich et al., 2015), enhances the dividend payouts (Nagel et al., 2015), increases the marginal value of cash (Ward et al., 2018), ameliorates the pay-performance-sensitivity of CEO compensation (Liu and Yin, 2023) and improves firm's investment efficiency (Ward et al., 2020) and corporate innovativeness (Miller et al., 2022).

In our study, we conjecture that monitoring by motivated institutional investors may substitute bank monitoring and weaken the adverse selection problem stemming from asymmetric information, which is manifested by a lower level of bank debt and a higher level of public debt. Thus, we hypothesize that there is a negative relationship between the proportion of institutional ownership by motivated monitors and the proportion of bank debt in the debt

structure of listed companies, in particular those exposed to higher agency problems and thus in need of monitoring.

3. Main variables and empirical model

Following previous studies on debt choice (e.g., Lin et al., 2013; Cline et al., 2020; Ben-Nasr et al., 2021), we measure bank debt financing (BANK_DEBT) for a given company in a given year as the ratio of a total bank debt divided by total debt, where bank debt is the sum of term loans and revolving credit. Total debt is the sum of all types of debt, including term loans, revolving credits, senior bonds and notes, subordinated bonds and notes, commercial papers, capital leases, and other debt. In some robustness test specifications, we use alternatively bank debt scaled by total assets and bank debt scaled by the sum of bank debt and public debt, where public debt is the sum of senior bonds and notes, subordinated bonds and notes, and commercial paper.

We also compute motivated institutional ownership to verify our main hypothesis. As proposed Fich et al. (2015), we classify institutional investors as having an incentive to monitor based on their portfolio allocation to the firm. Using data on institutional investors' portfolio, we calculate their portfolio's market value and each firm's portfolio weight. Motivated institutions are institutions whose holding value in the firm is in the top 20% of the institution's portfolio.

It is noteworthy that our holding value threshold in the firm to be in the top 20% of the institution's portfolio is twice as much as the threshold used in studies based on US firms (e.g., Fich et al., 2015; Ward et al., 2018; Miller et al., 2022). However, within robustness tests, we also offer evidence that our results remain unaffected if the firm's portfolio weight is in the top decile of the institution's portfolio allocation, as originally suggested by Fich et al. (2015).

We posit that institutional investors in Poland have, on average, more concentrated portfolios than their counterparts in the United States, and their "monitoring motivation and capacity" in terms of the number and value of important stocks is different.

Warsaw Stock Exchange is dominated by local institutions, mostly the so-called open-ended pension funds (OFEs), holding about 20% of capitalization of polish listed companies and it is almost two - thirds of aggregate institutional ownership on WSE (approx. 30%).

When introduced in 1999, OFEs were forced to invest mostly in Polish treasury bonds. Investing in stocks, especially abroad, was limited. However, OFEs were allowed to invest up to 40% of their portfolio in shares traded in the domestic regulated market (Warsaw Stock Exchange). In practice, due to the firm's size and stock liquidity preferences OFEs were

alocating most of their equity sub-portfolio in stocks of companies included in the major WSE index, WIG20. During our sample period, twenty stocks from the WIG20 index (of 300 stocks held on average by all OFEs) accounted for more than 50% of the OFEs' equity sub-portfolio. On the other hand, in their study on US firms, Ward et al. (2018) show that for an average institution the number of stocks in the top decile, which includes the stocks with the top 10% holding value ranks, is about thirty and the ratio of the decile group holding value to the total institutional portfolio value is around 40%. Hence, we claim that a greater portfolio concentration of institutions that prevail on WSE expands the institution's monitoring attention to a larger number of firms.

Moreover, because the largest firms are usually well-governed, there is a natural concern that our study might suffer from self-selection problems. Using a 20% holding threshold for classifying motivated institutions reduces endogeneity concerns, as well.

Having identified the stock importance at the institutional investor level and classifying institutions according to their monitoring attention, we again take the perspective of a company from our sample. For each company in each year, we calculate the proportion of stocks held by all institutional investors classified as motivated investors, that is, the motivated institutional ownership (MM_IO). We also construct four alternative proxies to capture the strength of motivated institutional monitoring. The first one is the percentage of monitoring institutions (MM_PCNT), computed as the ratio of the number of monitoring institutions to the number of all institutions in the firm. The second one is the number of monitoring institutions (MM_NUM). The third one, PORTFWEIGHT, is a firm-level weighted average weight of the value of the equity investment in a firm in the institutional shareholder's portfolio. The last one, TMATT, is computed following Ward et al. (2018) as a weighted average of a firm's institutional ownership, with the weights being the institutional investors' monitoring motivation.

Apart from the main explanatory variables, we use a set of control variables used in prior research on debt choice and institutional investor monitoring. We control for general firm characteristics, which existing literature (e.g., Lin et al., 2013; Ben-Nasr et al., 2021) have proven to be related to BANK_DEBT around the world. These variables include firm profitability, asset tangibility, Q, leverage, company size, and financial distress risk. To catch industry effects we also control for average bank debt in the firm's industry. To better understand the role of motivated institutions in debt choice, we follow Fich et al. (2015) and include institutional blockholder ownership. Definitions of all control variables are presented in the Appendix.

As most of our dependent variables that measure debt choice are left-censored at zero and right-censored at one, we mostly use Tobit regression models to test our hypotheses. The general specification of our main model is presented below:

$$BANK\_DEBT_{i,t} = \alpha + \beta_1 \times MOTIVATED\_IO_{i,t-1} + \sum_{j=2}^{n} \beta_j \times CONTROLS_{j,i,t-1} + \alpha_t + \varepsilon_{i,t} \quad (1)$$

where $BANK\_DEBT_{i,t}$ refers to a given bank debt financing measure for company *i* in year *t*, $MOTIVATED\_IO_{i,t-1}$ is the variable measuring firm-level institutional motivated monitoring for company *i* in year *t−1*; CONTROLS are control variables, α is the intercept, α_t are year fixed effects and $\varepsilon_{i,t}$ represents the error term.

4. Data and sample overview

Our study is based on a sample of 460 non-financial companies listed on the Warsaw Stock Exchange in 2010–2019 (3,365 firm-year observations). We begin the sample selection process by obtaining institutional ownership characteristics on all nonfinancial companies listed on the WSE over the research period. We identified 379 institutional investors holding stocks in our sample companies with the availability of data on their portfolios necessary to calculate our measures of motivated institutional monitoring. To validate the representativeness of identified institutions we cross-checked our data with data from other studies. For instance, we find that the average aggregate institutional ownership, that is, the average stake held by all institutional investors in a WSE company in 2010 (at the beginning of our sample period) is app. 23% and is consistent with international studies reporting institutional ownership statistics for Poland (e.g., Ferreira et al., 2017).

We mostly derived the data on the ownership structure of our sample companies, their financial data and the data characterizing the institutional investors that hold stocks of our sample firms using three data sources: S&P Capital IQ database, Amadeus database (Bureau Van Dijk – A Moody's Analytics Company) and Notoria Serwis (Polish data provider). The missing data points on local institutions' portfolios were collected by hand from their annual reports and the database of the Polish Financial Market Supervisor (KNF).

Table 1 presents the distribution of our sample by industry. The sample spans twenty one industries, though there is some concentration in capital goods. The greatest bank debt use occurs in energy sector.

INSERT TABLE 1 HERE

The summary statistics for our sample firms are presented in Panel A of Table 2. The mean firm in our sample has a total debt of 23%, bank debt percentage of 68.3%, total assets of $88.4 million, and motivated institutional ownership of 8%. On average, firms in our sample are held by two institutions classified as monitoring institutions, and they account for only 10.8% of all institutions holding the target shares. The mean equity holding by institutional blockholders (i.e investors holding at least 5% stake in the firm) is 18.1%. Panel B of Table 2 presents statistics related to the 397 institutions that hold equity in our sample firms. As shown in Panel B, institutional investors distribute their holding value unevenly across five quantile groups. At the median, three-quarters of their total portfolio value is concentrated in the quantile 1 group. Moreover, the average (median) holding value per stock position ($281.8 million) in the quantile 1 group is almost five times as great as that in the quantile 2 group ($52.3 million). At the same time, the smallest 20% of the holding positions represent only 0,9% of institutional investors' portfolio value. Because the performance of the firms in the 1 quantile group is much more important to institutional investors than the performance of the rest of their portfolio holdings, the benefits of monitoring and thus monitoring attention to this group should be the highest.

INSERT TABLE 2 HERE

Table 3 presents the Pearson correlation coefficients between our main variables.

INSERT TABLE 3 HERE

5. Baseline results

5.1. Primary findings

To study the effect of monitoring institutions on debt choice we perform several multivariate tests. We start our analysis by focusing on the relationships between motivated institutional monitoring measures and bank debt. Table 4 displays the estimation results for Equation (1). Models 1- 5 report the results for our main dependent variable (BANK_DEBT).

INSERT TABLE 4 HERE

Model 1 of Table 4 includes the fraction of ownership held by motivated institutional investors (MM_IO), where motivated investors are institutions whose holding value in the firm is in the top 20% of the institution's portfolio. The results show a negative and significant association between motivated institutional ownership and bank debt, which confirms our main hypothesis. The coefficient on MM_IO is minus 0.117 and is significant at the 5% level (t-

statistic -2.17), indicating that a one-standard-deviation increase in the aggregate shareholding of motivated investors (equal to 0.147 - Table 2) leads to a decrease in the bank debt of -0.117 × 0.147 = -1.72%.

Most of the control variables are statistically significant and their signs are basically in line with our expectations. For instance, firms operating in industries with high use of bank financing and firms with high project liquidation values (TANG) tend to have higher bank debt. Higher institutional blockholder ownership (BLOCK_IO) seems to positively affect bank debt as well. In contrast, the negative coefficient on Q shows that firms with more growth opportunities are less likely to use bank financing.

Models 2 – 5 of Table 4 substitute the fraction of ownership held by motivated institutional investors with other motivated institutional monitoring proxies. In line with the results from Model 1, the results of Models 2 – 3 reveal a negative and significant coefficient for both the proportion (MM_PCNT) and the number (MM_NUM) of monitoring institutions. Moreover, Models 4 - 5 show that our results remain unchanged when we substitute motivated institutional ownership with a firm-level average institutional shareholder's portfolio weight (PORTFWEIGHT) and total monitoring attention index (TMATT). All in all, as seen in Models 2 – 5 of Table 4, the substitution of the motivated institutional monitoring measures has little effect on our findings. The observed relationships unambiguously confirm that firms reduce the use of bank debt with higher levels of motivated institutional monitoring.

5.2. Cross-sectional analysis

Our findings of a negative effect of motivated institutional monitoring on bank debt are consistent with the idea that motivated institutions' monitoring substitutes monitoring performed by bank lenders. Nevertheless, we acknowledge that the monitoring substitution effect may differ across firms depending on their reason for using bank financing. We argue that the observed substitution effect should be strengthened in firms where the monitoring role of bank debt is less relevant, and the needs and benefits of motivated investors monitoring are greater. In this section, we study factors likely to impact the needs and benefits of substituting bank monitoring with monitoring by motivated institutional investors. Specifically, we examine the information environment, the severity of agency problems and monitoring the effectiveness of institutional investors.

5.2.1. Information environment

Information environment plays a crucial role in determining the choice of debt source (Lin et al., 2013). It is a common belief that public debt is more sensitive to the information

environment than bank debt. That's why firms suffering from information asymmetry problems tend to rely more on bank debt. Park (2000) argues that concentrated bank debt claims allow banks to easily collect information about their customers and to easily monitor firm managers. Accordingly, some firms that do not want to disclose proprietary and other private information to public debtholders substitute away from public debt to bank debt and banks are more informed than public debtholders (Diamond, 1991). Existing research (e.g., Denis and Mihov, 2003) confirms that high information asymmetry firms tend to use more bank debt.

At the same time, several studies (Boone and White, 2015; Borochin and Young, 2017; Chung et al., 2022) indicate a link between institutional ownership and information environment. For instance, Borochin and Young (2017) show a connection between institutional ownership type and the ability to access firm-specific information. Boone and White (2015) claim that due to differences in investment and trading strategies, each type of institutional investor has varying preferences for and influence over public versus private information production. They document that at least one type of institution, like quasi-indexers, demands greater firm transparency and benefits from greater public information production by insiders and analysts. In general, existing research suggests that higher institutional ownership is associated with greater management disclosure, analyst following, and liquidity, resulting in lower information asymmetry.

A better information environment makes the value-destroying projects more visible to investors and enables them to write better contracts that can align managers' interests more closely with those of shareholders. Based on this, the monitoring role of bank debt is less relevant. Cline et al. (2020) show that more transparent firms (i.e. firms with lower information asymmetry) reduce long-term institutional investors' reliance on bank debt that secures their long-term stake in the firm. Moreover, they find that the reliance on bank debt is less beneficial and attenuated with the presence of motivated investors.

The results of previous studies motivate further exploration of whether the observed bank debt substitution effect is more pronounced in firms with better information environment enhancing institutional investors monitoring. If motivated institutional shareholders act as monitors and substitute monitoring performed by banks, their effect on bank debt should be greater for more transparent firms. To capture the information enviroment for sample firms, two dummy variables are used. First, we construct a binary variable, ADR_OPACITY_LOW, to indicate low opacity firms. We compute opacity index (ADR_OPACITY) that ranks the relative opacity of each firm in the sample. As proposed by Anderson et al. (2009) we rank four separate proxies for opacity (trading volume, bid–ask spread, analyst following, and

analyst forecast errors) into deciles with the most opaque firms taking a value of ten and the least opaque firms assuming a value of one. The four rankings are then summed and scaled by a factor of 40 (total possible points) to provide an index that ranges from 0.1 to 1.0. ADR_OPACITY_LOW takes a value of 1 for any firm that has opacity index below sample median and zero otherwise.

Second, following Ellul et al. (2016) we compute a qualitative measure of transparency based on several firm-level characteristics (QUAL_TRANSP) and construct another dummy variable, QUAL_TRANSP_HIGH. In particular, we refer to: the identity of the auditor, type of accounting standards, analyst coverage and voluntary management disclosure. For each firm characteristics and year, a binary variable is defined as follows: (a) auditor equals 1 if the firm is covered by one of the Big 5 auditors, (b) accounting standard equals 1 if the firm uses IFRS and (c) analyst coverage equals 1 if the firm has at least one analyst covering it and (d) voluntary management disclosure equals 1 if the firm isuses earnings forecasts. Then we compute our qualitative transparency index by taking the sum of these binary variables. This time, QUAL_TRANSP_HIGH takes a value of 1 for any firm that has transparency index (QUAL_TRANSP) above sample median and zero otherwise.

INSERT TABLE 5 HERE

The results of our examination are reported in Table 5. We tested whether the coefficients of MM_ IO are the same for less opaque (high-transparent) firms as for the rest of the sample by interacting our main explanatory variable from Equation (1) with ADR_OPACITY_LOW (Model 1) and QUAL_TRANSP_HIGH (Model 2). The negative coefficients on the interaction terms reported for Model 1 (MM_IO x ADR_OPACITY_LOW) and Model 2 (MM_IO x QUAL_TRANSP_HIGH) show that the effect of motivated institutional ownership is significantly larger for firms identified as being more transparent, all else equal. These results are in line with the information environment-based channel of debt structure.

5.2.2. Severity of agency problems

If motivated institutional shareholders engage in monitoring, their effect on bank debt should be greater for firms with more potential agency problems and, thereby, more monitoring needs. To capture the agency problems for sample firms, two dummy variables are used. First, we construct a binary variable, FCF_PROBLEM, to indicate firms with positive free cash flow (greater than zero) and CEO ownership below the sample median. The agency costs-based explanation of free cash flow introduced by Jensen (1986), and Stulz (1990) suggests that

managers are more willing to engage in wasteful expenditure if their personal wealth is weakly tied to company stock performance. Richardson (2006) documents that firms with positive free cash flow are more likely to over-invest, and then for each additional unit of free cash flow, they over-invest more. On the other hand, several recent studies (e.g. Fich et al., 2015; Ward et al., 2020) find that motivated monitoring by institutional investors mitigates firm investment inefficiency. Based on this, we expect that firms with more severe free cash flow problems experience a more significant decrease in bank debt with more motivated monitoring institutional ownership.

Next, we examine the effect of monitoring needs stemming from the identity of the controlling shareholder on the substitution effect between monitoring by banks and motivated institutional investors. A large body of literature (e.g., La Porta et al., 1999) emphasizes that large shareholders can use their power and discretion over key corporate decisions to extract rents from minority shareholders, and private benefits extraction is more likely if controlling shareholders' control rights are significantly in excess of their cash flow rights. Like in other continental European countries, widely held corporations are in the minority in Poland, and the predominant ownership structure model is the one with a large controlling investor (a family or an individual), which is often an active shareholder involved in the firm (Gugler et al., 2014; Aminadav and Papaioannou, 2020). Moreover, firms controlled by large individuals very often use various control-enhancing mechanisms, including pyramids and dual-class shares (Gugler et al., 2014).

Villalonga and Amit (2006) argue that when a firm's controlling shareholder is a family or an individual, the minority shareholders' expropriation incentives (e.g. tunnelling) induced by separation of ownership and control are particularly strong. Anderson et al. (2009) find that controlling individuals or families exploit firm opacity to accrue private benefits of control. As a consequence, Lin et al. (2013) suggest that the monitoring needs of family-controlled firms are high. Moreover, corporate opacity makes monitoring activities by banks more beneficial.

We posit that in the presence of motivated institutional investors, bank monitoring becomes less relevant. If motivated institutional investors improve the information environment, monitoring family firms becomes less costly and difficult. Consequently, we expect family firms to experience a more significant decrease in bank debt with more motivated institutional ownership.

To test this conjecture, we construct a dummy variable, FAMILY_CONTROL. To classify a firm as family-controlled, we use firm-level data on controlling shareholders from Amadeus (Bureau van Dijk). In each firm year with available data, we define a firm being

family-controlled if Amadeus identifies a controlling shareholder as "one or more named individuals or families" at a 25% level[1].

INSERT TABLE 6 HERE

In the next step, we augment Equation (1) with both dummy variables (FCF_PROBLEM and FAMILY_CONTROL) and their interaction with motivated institutional ownership. Table 6 reports the results on the effect of motivated institutional ownership on bank debt for firms with more potential agency problems. In Model 1, a negative and significant coefficient on interactive variable MM_IO x FCF_PROBLEM indicates that motivated monitoring institutions decrease bank debt more at firms identified as having greater potential free cash flow problems. In line with our expectations, the negative coefficient on the interaction terms reported for Model 2 (MM_IO x FAMILY_CONTROL) shows that the observed effect of monitoring institutional ownership on bank debt is significantly larger for family-controlled firms as well.

Taken together, the results reported in Table 6 support our conjecture that the severity of agency problems alters the relationship between motivated institutional ownership and bank debt reliance. Motivated institutions substitute scrutiny by bank lenders more extensively when potential agency conflicts are more severe.

5.2.3. Monitoring effectiveness of motivated institutional investors

Existing research shows that only certain types of institutional investors perform an active monitoring role and gain monitoring effectiveness. This suggests that our results for monitoring institutional ownership should be more pronounced when motivated institutions belong to the types of institutions that are likely to be effective in monitoring. In this section, we examine three channels through which "stock importance" (high portfolio weight) enables institutional investors to gain monitoring effectiveness. In particular, we use independence level, portfolio turnover and a number of blockholdings to divide motivated institutions into two subgroups according to each of these investors' characteristics.

Chen et al. (2007) argue that monitoring costs decrease and monitoring benefits increase with the size of the institutional stake, the independence of the institution, and the length of

[1] The main limitation of our analysis results from data availability. Our sample period is 2010–2019, and our majority control identifier is from 2010, 2015, and 2018. To determine whether the data availability bias affects our results, we run additional analysis (unreported) on the evolution of corporate control over time. This additional analysis shows that corporate control is relatively stable and it is thus reasonable to impute the available data on corporate control up to at least two earlier and two later years. After this imputation procedure, we reduce our initial sample from 3,365 to 2,886 firm-year observations.

time the institution has been invested in the firm. Independent institutions may challenge management decisions more extensively because they don't need to protect existing or potential business ties with the firms in which they invest. The longer the time of investment in the firm, the lower the costs of information gathering and processing and the better experience and successful influencing on management of the firm.

To address this issue in the context of debt choice, following Brickley et al. (1988) and Chen et al. (2007), we divide all motivated institutional investors into two groups: independent institutions – MM_IO_INDEP (traditional investment managers, pension funds, hedge funds, venture capital, and private equity funds) and "grey" institutions – MM_IO_GREY (banks, insurance companies, and other institutions).

Further, we use portfolio turnover as a measure of investor horizon, and to compute it, we adopt the method proposed by Derrien et al. (2013). For each institutional investor, we look at its global portfolio in year t and compare its structure with the portfolio in year t−3. Specifically, we identify stocks from the portfolio in year t−3 that were sold (totally or partly) by the investor and calculate the fraction of stocks sold for each stock in the portfolio (not limited to our sample companies). If, for a given stock, the investor is a net buyer, we assign 0 as this stock's turnover. Having the turnovers for each portfolio stock, we calculate the institutional investor's portfolio turnover in year t as the weighted average fraction of stocks sold within a three-year period, with weights being the proportions of stocks held by the investor in year t−3 in the global portfolio. Higher portfolio turnover indicates a shorter investor horizon.

We then divide institutional investors in each year into two groups using the terciles of portfolio turnover distribution. We classify motivated institutional investors as long-term investors (MM_IO_LT) if they fall into the first tercile, separately for each year. Following Harford et al. (2018) we classify all other motivated institutions as non-long-term investors (MM_IO_NON-LT).

Lastly, we examine the importance of institutions' number of blockholdings, as information advantages and governance experience obtained from multiple blockholdings improve monitoring efficiency (Kang et al., 2018). As proposed by Kang et al. (2018) we regress the log value of raw blockholding number on an institution's fund size. Then, we decompose institutional investors in each year into two groups using the residual from estimated regression. We classify motivated institutional investors as large multiple blockholders (MM_IO_LMLTB) if the residual blockholding number is above the sample median, separately for each year. All other motivated institutions we classify as small multiple blockholders (MM_IO_SMLTB).

We expect stronger effects of motivated institutions' shareholdings for independent investors as they are less likely to harm their business relationships with the investee firm. We also expect stronger effects for long-term investors as their governance activities seem to be more efficient, and they are more likely to engage in monitoring efforts. We also posit that motivated institutional investors with a larger number of blockholdings perform more active and effective monitoring roles than those with a smaller number of blockholdings.

INSERT TABLE 7 HERE

Firstly, we disentangle the effects of motivated institutional investors on the debt choice for independent and grey institutions. We find that independent, motivated institutional ownership (MM_IO_INDEP) has a negative and significant effect on bank debt use, but there is also evidence that higher grey monitoring institutional ownership (MM_IO_GREY) is associated with more bank debt, as presented by Model 1 of Table 7. Model 2 presents the results for the effects of motivated institutional investors on bank debt separately for long-term-oriented and non-long-term-oriented institutions. As expected, the results of Model 2 show a negative and significant association only between long-term motivated institutional ownership (MM_IO_LT) and bank debt. Model 3 presents the results for splitting motivated institutional ownership according to the institution's number of blockholdings. In line with our expectations, we find a negative and significant relation between MM_IO_LMLTB and our outcome variable.

Overall, our results, reported in Table 7, confirm that the effects of motivated institutional investors on bank debt are driven by institutions previously documented as effective monitors.

5.3. Alternative types of funding

In line with the monitoring substitution hypothesis, our primary findings indicate that motivated institutions as shareholders substitute the need for monitoring by bank lenders. Ben-Nasr et al. (2021) suggest that the underlying reason for firms to substitute strict bank monitoring (i.e. imposing restrictions on firm decision-making) for other monitoring mechanisms is to maintain a good governance structure that facilitates access to alternative financing sources at better terms (i.e. with less stringent constraints).

Based on this we examine the impact of monitoring institutional ownership on alternative sources of financing by re-estimating Equation (1) and replacing the dependent variable (BANK_DEBT) with different debt measures.

Firstly, we use PUBLIC_DEBT percentage, where public debt is the sum of senior bonds and notes, subordinated bonds and notes, and commercial paper. Previous studies suggest that

public lenders have fewer incentives for monitoring because of diffused ownership and free-rider problems. That's why they usually impose less stringent constraints on their borrowers. On the other hand, unlike bank lenders, public debt lenders are less informed and thus may require borrowers to disclose more information, which can be costly. We posit that motivated institutions by improving governance and transparency make access to public debt easier and less costly and expect firm's preference for public debt financing.

Next, we focus on debt maturity, as existing research has proven that it is correlated with lenders' monitoring. In particular, as suggested by banking literature (e.g., Park (2000), short debt maturity increases a bank's monitoring incentives and enhances monitoring intensity. Therefore, we predict that firms benefiting from motivated institutions' monitoring tend to rely less on short-term debt, where SHORTTERM_DEBT is a proportion of total debt maturing in less than four years.

Lastly, we investigate whether motivated institutional ownership affects debt versus equity choice. Managers prefer equity financing because it is less risky with regard to cash flow commitment. On the other hand, Jensen (1986) argues that higher leverage disciplines insiders by forcing them to disgorge excess cash instead of spending it on value-destroying projects. Moreover, Brown et al. (2019) show that institutional investors consider agency costs of free cash flow as important drivers of capital structure. Accordingly, we conjecture that improvements in governance and transparency related to motivated institutional ownership mitigate the disciplinary role of debt and make equity financing preferable for both managers and shareholders. To investigate the effect of MM_IO on the debt versus equity choice we use debt ratio (DEBT_RATIO), defined as the book value of total debt divided by the sum of the book value of total debt and the market value of equity.

INSERT TABLE 8 HERE

The results of our examination are reported in Table 8. As presented by Model 1 we find that motivated institutional ownership (MM_ IO) has a positive and significant effect on firm's use of public debt. In Model 2, where we use SHORTTERM_DEBT as dependent variable, consistent with our prediction we show a negative and significant association between MM_IO and short-term debt. Similar result is obtained in Model 3 where we examine debt versus equity choice using DEBT_RATIO. All these findings are in line with our expectations and imply that firms with greater motivated institutional ownership tend to rely more on public debt and equity, and less on short-term debt. This supports our conjencture that motivated institutions' – driven

monitoring allows firms to switch from bank debt to alternative financing sources with less stringent constraints.

5.4. Endogeneity concerns

There is a natural concern that our findings suffer from an endogeneity problem. Although we find a negative relationship between motivated institutional ownership and the use of bank debt, the results so far do not warrant a causal inference. Existing research (e.g. Giannetti and Simonov, 2006) suggests that institutions do not invest randomly and favour firms with certain characteristics, such as strong corporate governance. In this case, institutional ownership is rather the effect instead of the cause of the firm's governance. Using a similar logic in our setting, one can argue that even if institutions have incentives (due to large stockholdings) and skills, they prefer to invest in well-governed and transparent companies where bank monitoring might not be necessary (reverse causality interpretation). Moreover, some unobservable factors may affect both monitoring institutional ownership and bank debt, which remain uncontrolled and bias our findings (omitted variable bias).

We do not ignore these concerns and adopt several independent tests to address this endogeneity issue. First, we split the overall monitoring institutional ownership into quasi-indexers and non-indexers. Next, we use pension fund reform as a plausibly exogenous shock to motivated institutional ownership in DiD framework.

5.4.1. Quasi-indexers vs. non-quasi-indexers

Previous studies (e.g., Appel et al., 2016) document that indexing institutions affect corporate governance and a wide range of corporate outcomes (Harford et al., 2018), including debt structure (Cline et al., 2020). Derrien et al. (2013) argue that splitting long-term investor ownership into two components, one that is plausibly exogenous (indexer ownership) and another that is possibly endogenous (non-indexer ownership), provides a useful identification strategy. We follow previous research on debt choice (e.g., Cline et al., 2020) and posit that indexers' investment decisions are exogenous to the debt structure because their portfolio composition is largely determined by the constituents of their relative benchmark index.

We classify motivated investors into quasi-indexers and non-indexers using active share measure proposed by Cremers and Petajisto (2009). Active share is the distance between the weights on each firm in the investor's portfolio and the weights in the relevant index. Following Cremers et al. (2016), we use WIG for the index, which is the main index on the Warsaw Stock

Exchange. In line with Harford et al. (2011), we classify investors with an active share of up to 30% as quasi-indexers and all other investors as non-indexers[2].

INSERT TABLE 9 HERE

Table 9 displays the results of our test of association between these split measures of motivated institutional ownership and our measure of the use of bank debt (BANK_DEBT). The coefficients on both MM_IO_QUASI-INDEXER and MM_IO_NON-INDEXER are negative and significant. Nevertheless, the effects are both statistically and economically more significant for quasi-indexers (t-statistic -2.59 and the coefficient -0.317) than non-indexers (t-statistic -1.66 and the coefficient -0.098). To sum up, possibly endogenous motivated institutional ownership (non-indexers) and plausibly exogenous quasi-indexers ownership are associated with lower bank debt. However, the greater magnitude of MM_IO_QUASI-INDEXER than the magnitude of MM_IO_NON-INDEXER at least partly contradicts the self-selection concern and supports our causal interpretation of the effects of motivated institutional investors.

5.4.2. Pension funds reform as a quasi-natural experiment

Furthermore, we address endogeneity concerns by using a natural experiment based on the Polish pension funds (OFEs) reform that occurred in 2013. Recent research (e.g., Kałdoński and Jewartowski, 2024) suggests that the reform provides a plausibly exogenous shock to monitoring incentives of pension funds.

Before the reform of 2013, OFEs invested mostly in Polish treasury bonds and stocks traded in the domestic regulated market (Warsaw Stock Exchange). One of the most significant changes implemented in the reform of 2013 was a ban on investments in treasury bonds. All Polish treasury bonds (amounting to about half of the aggregated OFE portfolio) held by OFEs at the end of 2013 were redeemed and their cash equivalent was converted into "I owe you's" (IOUs) and transferred to the a pay-as-you-go system operated by a state-owned entity (ZUS). This transformed OFEs in one day (Monday, February 3, 2014) from relatively passive balanced funds into equity funds.

To avoid a rapid sell-off of domestic shares, OFEs were forced to hold at least 75% of their portfolios in domestic shares in the first year after the reform (2014). The lower bound was gradually reduced in the next years and at the same time the reform substantially increased

[2] Our results are not sensitive to the use of 25% cutoff.

the flexibility of their investment strategies, allowing for much higher involvement in international stock markets.

We posit that these changes transforming OFEs from balance funds to equity funds and forcing them to invest mostly in shares encouraged pension funds to allocate more monitoring efforts to their portfolio firms, especially those with high relative importance in their portfolios.

We employ a DiD design to test whether the increase in monitoring attention stemming from pension funds reform has differential effects on the use of bank debt for treated and corresponding control firms.

A firm is classified as a treated (TREAT) if the pension funds (OFEs) being motivated institutions hold more firm's shares outstanding than non-pension funds motivated institutions in the year immediately before the reform (i.e., 2013). The POST_REFORM indicator takes the value of 1 from 2014 to 2019, and 0 from 2009 to 2013. We use the same set of control variables as in Equation (1). Additionally, following Borochin and Young (2017) we include the firm's level of motivated institutional ownership to account for any actual changes in institutional ownership that may occur. For the same reason, in some specifications, we additionally include other institutional investors' characteristics representing their motivation and skills for monitoring. In particular, we control for total institutional ownership, investors' portfolio turnover and multiple blockholding.

INSERT TABLE 10 HERE

We start our analysis by examining whether the pension fund reform of 2013 led to any significant reduction in bank debt for treated companies in comparison with corresponding control firms. Table 10 presents the estimation results for our diffeference-in-differences model of Equation (1) for the full sample. In Model 1, the coefficient on the interaction term POST_REFORM × TREAT is −0.088 and significant at the 5% level (t-statistic 2.09). This finding indicates that the treatment firms experienced a statistically significant decrease in bank debt after the reform relative to control firms. Moreover, the economic significance is also meaningful. The decrease in BANK_DEBT of 8.8 percentage points for treatment firms represents 25.2% of one standard deviation of the full sample BANK_DEBT (34.9 percentage points).

The results controlling for additional institutional monitoring proxies are reported in Model 2 of Table 10. We obtained results comparable to our primary specification for the treatment effects measure. After controlling for additional institutional ownership

characteristics, our findings remain unaffected and suggest a negative and significant association between our interaction variable and BANK_DEBT.

One of the major challenges of our identification strategy is the nonrandom assignment of firms to the treatment and control groups. Anything that attracts pension funds or discourages them from concentrating their shareholdings before the pension fund reform, which also affects BANK_DEBT after the reform, may bias our results. To address this concern, we use propensity score matching (PSM).

We match the treatment and control firms based on the firm characteristics included on the right side of Equation (1). We conduct one-to-one matching without replacement and require a minimum calliper distance of 0.05. PSM results in 402 firm-years of matched treatment and control firms. The results of PSM are also presented in Table 10. Panel A reports the mean values of firm characteristics for the treatment and control groups, as well as p-values from t-tests of differences. No significant difference in both individual firm characteristics and overall propensity score indicates a successful matching.

After we ensure covariate balance along almost all firm characteristics, we validate our primary analysis using the matched sample. The results of this investigation (Models 3-4) are shown in Panel B of Table 10. The coefficients on all interactive variables are negative and statistically significant. In addition, the treatment effects obtained using this sample are in line with those reported in Models (1) - (2), implying that differences in firm characteristics are not likely to drive our findings on BANK_DEBT changes affected by pension fund reform.

Overall, the results reported in Table 10 indicate that the pension fund reform led to a meaningful decrease in BANK_DEBT in firms with pension funds as prevailing motivated institutional investors relative to other firms and provide support for institutions' monitoring attention as a governance mechanism substituting monitoring by banks[3].

5.5. Robustness tests

5.5.1. Alternative explanations

Our tests have controlled for many firm characteristics likely to affect a firm's debt choice. However, the observed relationship between monitoring institutional ownership and

[3] Our results are robust (tests unreported) for excluding from analysis the reform year (2013) and for changing the definition of treated firm (firm has at least one pension fund ("OFE") as motivated institution in year 2013). Moreover, the unreported results of additional tests indicate that there is no treatment effect of the placebo events.

bank debt might still be driven by some unobservable firm characteristics correlated with both MM_IO and bank debt financing. In other words, endogeneity concerns may arise because of omitted unobservable firm characteristics that could lead to spurious correlations between bank debt and institutional ownership. To address this concern, we augment Eq. (1) with additional controlling variables.

Below, we report the results of our investigation of three alternative explanations for a lower level of bank debt in firms with motivated institutions as shareholders, which could potentially weaken our conclusion that bank debt decrease is the result of the enhanced monitoring.

INSERT TABLE 11 HERE

Boubaker et al. (2018) find that competitive pressure from the product market reduces firm reliance on bank debt. Moreover, they suggest that the observed negative relation between competition and the use of bank debt is stronger for poorly governed firms (i.e. firms less extensively monitored by institutional investors). Our tests presuppose that "stock importance" encourages institutional investors to monitor selected companies within their portfolios and thus rely less on monitoring by bank lenders. However, one can still argue that some institutional investors are sensitive to corporate governance, and instead of engaging in costly monitoring, they can simply invest in firms with existing, preferred governance mechanisms like a product market competition. To explore this possible scenario in which product market competition plays a major governance role that decreases the need for bank monitoring, we augment Eq. (1) with the Herfindahl-Hirschman Index (HHI_IND), which measures industry concentration. In Model 1, the coefficient of MM_IO remains negative and significant, confirming that our previous findings on the relationship between monitoring institutional ownership and bank debt are not biased by governance quality and institutional investors' self-selection.

Furthermore, we report the results of our second investigation for a lower level of bank debt in firms with higher stakes held by motivated institutions: firms' controlling shareholders using control-enhancing mechanisms insulate themselves from bank monitoring. Lin et al. (2013) show that control-ownership divergence has a significant negative impact on the firm's reliance on bank debt financing. Thus, firms with excess control rights, instead of being monitored by motivated institutions, might prefer public debt financing over bank debt financing as a way of avoiding bank scrutiny. Hence, we define a firm using dual-class shares as a firm with control-ownership divergence and augment Eq. (1) with DUALCLASS. The

results of our analysis are reported in Model 2 of Table 11. Anyhow, the association between MM_IO and bank debt remains negative and significant, confirming our primary results.

We believe that controlling in Eq. (1) for BANK_DEBT_IND ensures that our documented results are indeed driven by motivated monitoring rather than by an overall industry trend in bank debt usage. However, we acknowledge that some unobservable factors at the industry level may still affect both motivated institutional ownership and bank debt, and therefore, we additionally control for industry-fixed effects. After controlling for industry fixed effects, we obtain the same results as in our primary analysis (Model 3), confirming the negative association between motivated institutions' stakes and bank debt financing.

5.5.2. Alternative measures and estimation methods

Table 12 presents the robustness of our findings for alternative definitions of our basic explanatory variables (Models 1-3) and alternative measures of bank debt financing (Models 4-5), respectively.

INSERT TABLE 12 HERE

So far, in our study, we define monitoring institutions as those whose holding value in the firm is in the top 20% of their portfolio. However, we also examine whether our results continue to hold when we change the holding value threshold to be in the top 10% of the institution's portfolio, as proposed by Fich et al. (2015). We obtained similar results. The sign on the coefficients on MM10_IO, MM10_PCNT and MM10_NUM remains the same as in Table 4, confirming the robustness of our findings.

In additional analyses, we replaced BANK_DEBT with BANK_DEBT2, which is equal to total bank debt divided by the sum of total bank debt and total public debt. The negative relation between monitoring institutional ownership and bank debt financing from Table 4 remains unaffected. Our results also remain unchanged when we alternatively scale bank debt by the book value of assets (BANK_DEBT3) as the dependent variable.

6. Bank debt substitution effect and firm value

In the previous sections of our paper, we provided evidence that when there are motivated institutions as shareholders, firms tend to substitute away from bank debt. Ben-Nasr et al. (2021) argue that substituting bank debt firms are likely to trade-off benefits and costs of alternative governance mechanisms aiming at a governance structure that facilitates access to external financing at better terms (documented in Section 5.3). If this is the case, one would expect that the observed change in debt structure (i.e., the decrease in BANK_DEBT) would be beneficial for the borrowing firm.

On the other hand, existing literature studying the effects of bank debt on corporate performance indicates that very intensive use of bank debt adds to firm value (Berger et al., 2020). Theoretical studies suggest that this value derives primarily from the comparative advantages of banks over other debt providers in generating private information about the firms and thus making the firm's monitoring more effective. Based on this, one would argue that a decrease in bank debt could be harmful to the firm's value. Yet, if the strengthened monitoring by motivated institutions offsets the decreased bank monitoring, it remains an empirical issue.

To study the value implications of the observed change in capital structure, we examine the effects of the change in bank debt following Polish pension funds reform of 2013. We believe that using an exogenous shock to study the effects of substituting bank debt-related monitoring with institutional monitoring by using other sources of financing, allows at least partly for addressing endogeneity concerns.

We measure firm value by using Tobins Q. Since we have shown in Section 5.4.2 that treated firms experienced a statistically significant decrease in bank debt after the reform relative to control firms, we expect to observe an increase in Tobins Q following the reduced use of bank debt in the post-reform period. We are particularly interested in the sign of the interaction term between BANK_DEBT and POST_REFORM × TREAT.

In addition to including in regression analysis basic interactive variables, we control for our primary institutional monitoring proxies (i.e motivated institutional ownership and institutional blockholdings). To support our inference we also control for additional institutional monitoring characteristics following from previous research: total institutional ownership, institutional investors's portfolio turnover and the multiple blockholding. As additional controls, we include several firm characteristics used in prior studies. In particular, we include: size, capex, cash holdings, assets tangibility, profitability and sales growth. We also use time and industry fixed effects.

INSERT TABLE 13 HERE

Model 1 of Table 13 displays the primary estimation results with Tobins Q as a dependent variable. The coefficient on the triple interaction term POST_REFORM × TREAT × BANK_DEBT is negative and significant at the 5% level, indicating that treated firms are more likely to experience a positive performance effect when they decrease bank debt post-reform. The results of Model (2) show that after controlling for additional institutional monitoring characteristics, our results remain unchanged. All in all, by showing that firm value increases significantly when treated companies decrease bank debt use in the post-reform period, we

provide evidence of the real benefits of the bank debt substitution effect. We interpret this result as consistent with the view that motivated institutions' monitoring allowing for the substitution of bank debt with other financing sources is a value-enhancing activity.

7. Conclusions

In companies with concentrated ownership, two distinct groups of capital providers play a crucial role in monitoring insiders: banks, acting as debtholders, and motivated institutional investors, as (minority) shareholders. Our research demonstrates that the monitoring role of institutional investors, to a certain extent, substitutes that of banks. This facilitates the utilization of diverse debt financing sources, even in a bank-oriented economy, thereby benefiting all capital providers.

Our empirical findings contribute to the literature on capital structure and ownership, indicating their interdependencies. Moreover, the results of our study have practical implications not only for the insiders who control companies and decide about their capital structure but also for minority shareholders and bondholders—two groups of capital providers who usually don't have sufficient resources and possibilities to monitor insiders and thus protect themselves from expropriation.

While our research has provided valuable insights, we acknowledge its limitations and the potential for further research. It would be worthwhile to explore the monitoring channels of institutional investors and the additional opportunities for monitoring insiders provided by corporate governance mechanisms. Additionally, interconnections between capital providers operating within related groups present an intriguing avenue for future research.

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Appendix - Variable Definitions

Variable	Variable Definition
Debt Variables	
BANK_DEBT	bank debt divided by total debt, where bank debt is the sum of term loans and revolving credit.
PUBLIC_DEBT	public debt divided by total debt, where public debt is the sum of senior bonds and notes, subordinated bonds and notes, and commercial paper.
TOTAL_DEBT	sum of all types of debt, including term loans, revolving credits, senior bonds and notes, subordinated bonds and notes, commercial papers, capital leases, and other debt divided by total asssets.
SHORTTERM_DEBT	proportion of total debt maturing in less than four years.
DEBT_RATIO	total debt divided by the sum of the total debt and the market value of equity.
BANK_DEBT2	bank debt divided by the sum of bank debt and public debt.
BANK_DEBT3	bank debt divided by total assets.
Institutional Investor Characteristics Variables	
MM_IO	fraction of shares owned by monitoring motivated institutions, where motivated institutions are institutions whose holding value in the firm is in the top 20% of the institution's portfolio.
MM_PCNT	proportion of monitoring motivated institutions among all institutions holding firm's shares.
MM_NUM	number of monitoring motivated institutions.
PORTFWEIGHT	firm-level weighted average weight of the value of the equity investment in a firm in the institutional shareholder's portfolio.
TMATT	firm-level weighted average of a firm's institutional ownership, with the weights being the institutional investors' monitoring motivation. See Ward et al. (2018) for complete details.
BLOCK_IO	fraction of shares owned by blockholders, where blockholder is defined as holding at least the 5 % of the firm's shares outstanding.
IO	aggregate institutional ownership.
TURNOVER	firm-level weighted average three-year portfolio turnover rate by institutional investors. Portfolio turnover is computed as the fraction of the investor's portfolio that is no longer held at the end of the three year period. See Derrien et al. (2013) for computing investor portfolio turnover.
MULTIBLOCK	firm-level weighted average multiple blockholding residual, where residual is calculated from the regression of ln (1 + raw blockholding number) on the value of total equity holdings of the institutional investor. See Kang et al. (2018) for complete details.
MM_IO_INDEP	fraction of shares owned by independent monitoring motivated investors, where independent institutions are defined as traditional investment managers, hedge funds, VC and pension funds. See Chen et al. (2007) for complete details.
MM_IO_GREY	fraction of shares owned by non-independent monitoring motivated investors.
MM_IO_LT	fraction of shares owned by long-term monitoring motivated investors, where long-term institutional investors are defined as those with overall three-year portfolio turnover rate in the bottom tercil.
MM_IO_MT	fraction of shares owned by mid-term monitoring motivated investors, where long-term institutional investors are defined as those with overall three-year portfolio turnover rate in the mid tercil.
MM_IO_ST	fraction of shares owned by short-term monitoring motivated investors, where long-term institutional investors are defined as those with overall three-year portfolio turnover rate in the top tercil.
MM_IO_LMLTB	fraction of shares owned by monitoring motivated investors being large multiple blockholders, where large multiple blockholders are defined as those with multiple blockholding residual above sample median.
MM_IO_SMLTB	fraction of shares owned by monitoring motivated investors being non-large multiple blockholders.
MM _IO_QUASI-INDEXERS	fraction of shares owned by institutional investors that are both monitoring motivated investors and quasi-indexers. Investors with active share of 30% or less are classified as "quasi-indexers". Active share is computed as half of the sum across all firms of the distance between the weight of a firm in the portfolio minus its weight in the main index on Warsaw Stock Exchange. See Cremers et al. (2009) for complete details.
MM _IO_NON-QUASI-INDEXERS	fraction of shares owned by institutional investors that are both monitoring motivated investors and non-quasi-indexers.

MM10_IO	fraction of shares owned by monitoring motivated institutions, where motivated institutions are institutions whose holding value in the firm is in the top 10% of the institution's portfolio.
MM10_PCNT	proportion of alternatively defined monitoring motivated institutions among all institutions holding firm's shares.
MM10_NUM	number of alternatively defined monitoring motivated institutions.
General Control Variables	
PROFIT	return on assets computed as EBITDA scaled by total assets.
TANG	net property, plant, and equipment scaled by total assets
Q	total assets less the book value of equity plus the market value of equity scaled by total assets
LEV	sum of long-term debt and debt in current liabilities scaled by total assets.
SIZE	natural logarithm of total assets.
ZSCORE	=1 if a firm's Altman Z-score is less than 1.881 and 0 otherwise.
BANK_DEBT_IND	average (median) bank debt in the firm's industry, where industry is classified on the basis of 4-digit Global Industry Classification System.
Cross Sectional Analysis and Corroborating Analysis Additional Variables	
ADR_OPACITY	opacity index that ranks the relative opacity of each firm in the sample. Each of four separate proxies for firm's opacity (trading volume, bid–ask spread, analyst following, and analyst forecast errors) are ranked into deciles with the most opaque firms taking a value of ten and the least opaque firms assuming a value of one. The four rankings are then summed and scaled by a factor of 40 (total possible points) to provide an index that ranges from 0.1 to 1.0. See Anderson et al. (2009) for complete details.
ADR_OPACITY_LOW	=1 if the opacity index is below sample median and zero otherwise.
QUAL_TRANSP	qualitative transparency index which refers to following firm characteristics: identity of the auditor, type of accounting standards, analyst coverage and voluntary management disclosure. For each firm characteristics and year, a binary variable is defined as follows: (a) auditor equals 1 if the firm is covered by one of the Big 5 auditors, (b) accounting standard equals 1 if the firm uses IFRS and (c) analyst coverage equals 1 if the firm has at least one analyst covering it and (d) voluntary management disclosure equals 1 if the firm isuses earnings forecasts. The qualitative transparency index is the sum of these binary variables. See Ellul et al. (2016) for complete details.
QUAL_TRANSP_HIGH	=1 if the qualitative transparency index is above sample median and zero otherwise.
FCF_PROBLEM	=1 if for any firm that simultaneously has positive free cash flow (greater than zero) and CEO ownership below the sample median and zero otherwise.
FAMILY_CONTROL	=1 if the firm is controlled by one or more individuals or families at the 25% threshold of control and zero otherwise.
IND_HHI	Herfindahl-Hirschman Index calculated as the sum of the squared market shares using firm sales, based on 4-digit (GICS) industry classification.
DUALCLASS	=1 if the firm uses dual-class shares and 0 otherwise.
POST_REFORM	=1 for the post pension funds reform period (2014-2019) and zero otherwise.
TREAT	=1 if the pension funds (OFE) being motivated institutions hold more firm's shares outstanding than non-pension funds motivated institutions at the end of 2013 and 0 otherwise
CAPEX	capital expenditures scaled by total assets.
CASH	cash holdings scaled by total assets.
GROWTH	annual percentage change in sales.

Table 1. Sample distribution by industry

INDUSTRY	4 GICS CODE	ALL FIRMS		BANK DEBT
		No	%	
Energy	1010	102	3%	0.965
Materials	1510	426	13%	0.880
Capital Goods	2010	742	22%	0.850
Commercial & Professional Services	2020	135	4%	0.490
Transportation	2030	71	2%	0.640
Automobiles & Components	2510	38	1%	0.945
Consumer Durables & Apparel	2520	299	9%	0.830
Consumer Services	2530	112	3%	0.885
Retailing	2550	134	4%	0.940
Food & Staples Retailing	3010	57	2%	0.930
Food, Beverage & Tobacco	3020	256	8%	0.940
Household & Personal Products	3030	27	1%	0.800
Health Care Equipment & Services	3510	108	3%	0.795
Pharmaceuticals, Biotechnology & Life Sciences	3520	55	2%	0.550
Software & Services	4510	217	6%	0.630
Technology Hardware & Equipment	4520	142	4%	0.925
Semiconductors & Semiconductor Equipment	4530	1	0%	0.930
Communication Services	5010	78	2%	0.860
Media & Entertainment	5020	189	6%	0.740
Utilities	5510	13	0%	0.410
Real Estate	6010	163	5%	0.800
Total		**3,365**	**100%**	**0.840**

The table reports the sample distribution by industry and average (median) bank debt in the firm's industry classified on the basis of 4-digit Global Industry Classification System (GICS).

Table 2. Variable distributions - summary statistics

Panel A. Sample firms' characteristics						
VARIABLES	**No**	**Mean**	**Std**	**25th**	**Median**	**75th**
Debt Characteristics						
BANK_DEBT	3,365	0.683	0.349	0.440	0.840	0.980
PUBLIC_DEBT	3,365	0.111	0.243	0.000	0.000	0.000
TOTAL_DEBT	3,365	0.230	0.199	0.090	0.200	0.310
Motivated Institutional Monitoring Variables						
MM_IO	3,365	0.080	0.147	0.000	0.000	0.100
MM_PCNT	3,365	0.108	0.183	0.000	0.000	0.170
MM_NUM	3,365	1.585	3.768	0.000	0.000	1.000
PORTFWEIGHT	3,365	0.073	0.195	0.000	0.000	0.020
TMATT	3,365	2.657	2.487	0.300	2.200	4.170
General Control Variables						
PROFIT	3,365	0.072	0.123	0.040	0.080	0.130
TANG	3,365	0.304	0.223	0.110	0.290	0.470
Q	3,365	1.283	0.820	0.840	1.050	1.410
LEV	3,365	0.160	0.166	0.020	0.120	0.240
SIZE (Mio USD)	3,365	88.388	5.026	29.666	81.451	249.635
ZSCORE	3,365	0.317	0.466	0.000	0.000	1.000
BANK_DEBT_IND	3,365	0.801	0.158	0.740	0.840	0.920
BLOCK_IO	3,365	0.181	0.209	0.000	0.110	0.280

Panel B. Institutional stock holdings by quantile portfolios			
VARIABLES	**Average (median) number of stocks per institution**	**Average (median) holding value (Mio USD)**	**Average (median) quantile portfolio value to total portfolio value**
QUANTILE_1	25	281.763	0.742
QUANTILE_2	24	52.301	0.111
QUANTILE_3	24	22.912	0.037
QUANTILE_4	24	9.989	0.012
QUANTILE_5	25	6.732	0.009

A detailed description of the variables can be found in the Appendix.

Table 3. Pearson Correlations Matrix

		1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	*BANK_DEBT*	1,00													
2	*MM_IO*	0,01	1,00												
3	*MM_PCNT*	-0,02	**0,65**	1,00											
4	*MM_NUM*	-0,02	**0,55**	**0,58**	1,00										
5	*PORTFWEIGHT*	-0,01	**0,27**	**0,15**	**0,06**	1,00									
6	*TMATT*	0,02	**0,61**	**0,46**	**0,34**	**0,70**	1,00								
7	*PROFIT*	0,01	**0,10**	**0,10**	**0,18**	-0,01	**0,09**	1,00							
8	*TANG*	**0,11**	**0,11**	**0,11**	**0,12**	**0,07**	**0,08**	**0,10**	1,00						
9	*Q*	**-0,08**	**0,11**	**0,15**	**0,16**	**0,03**	**0,09**	**0,10**	**-0,03**	1,00					
10	*LEV*	**0,10**	**0,05**	**0,04**	**0,03**	**0,06**	0,03	**-0,12**	**0,16**	**-0,02**	1,00				
11	*SIZE*	**0,10**	**0,34**	**0,32**	**0,56**	**0,10**	**0,32**	**0,16**	**0,16**	**-0,21**	**0,21**	1,00			
12	*ZSCORE*	**0,05**	**-0,09**	**-0,07**	**-0,14**	**0,06**	**-0,06**	**-0,38**	**0,10**	**-0,20**	**0,37**	0,01	1,00		
13	*BANK_DEBT_IND*	**0,28**	0,00	-0,02	**0,04**	**-0,03**	-0,01	0,02	**0,19**	**-0,11**	**0,09**	**0,14**	**0,04**	1,00	
14	*BLOCK_IO*	**0,06**	**0,60**	**0,28**	**0,16**	**0,39**	**0,74**	**0,04**	**0,07**	0,01	0,01	**0,15**	**-0,03**	0,02	1,00

Bolded coefficients are statistically significant at least at the 10% level.

Table 4. Motivated institutional monitoring and bank debt

	BANK_DEBT				
	(1)	**(2)**	**(3)**	**(4)**	**(5)**
Intercept	0.106**	0.106**	0.058	0.123**	0.118**
	(2.02)	(2.02)	(1.08)	(2.34)	(2.25)
Motivated Institutional Monitoring					
MM_IO_{t-1}	−0.117**	X	X	X	X
	(−2.17)	X	X	X	X
MM_PCNT_{t-1}	X	−0.010***	X	X	X
	X	(−2.67)	X	X	X
MM_NUM_{t-1}	X	X	−0.010***	X	X
	X	X	(−4.76)	X	X
$PORTFWEIGHT_{t-1}$	X	X	X	−0.068**	X
	X	X	X	(−1.98)	X
$TMATT_{t-1}$	X	X	X	X	−0.010***
	X	X	X	X	(−2.62)
Control Variables					
$PROFIT_{t-1}$	0.005	0.006	0.011	0.005	0.008
	(0.08)	(0.10)	(0.17)	(0.07)	(0.14)
$TANG_{t-1}$	0.078***	0.080***	0.083***	0.077***	0.076**
	(2.62)	(2.68)	(2.78)	(2.59)	(2.54)
Q_{t-1}	−0.024**	−0.022**	−0.014**	−0.026***	−0.022**
	(−2.40)	(−2.23)	(−1.44)	(−2.68)	(−2.29)
LEV_{t-1}	0.163***	0.159***	0.145***	0.165***	0.158***
	(3.70)	(3.64)	(3.28)	(3.78)	(3.61)
$SIZE_{t-1}$	0.014***	0.015***	0.025***	0.011***	0.015***
	(2.91)	(3.04)	(4.31)	(2.48)	(3.13)
$ZSCORE_{t-1}$	0.005	0.006	0.002	0.009	0.007
	(0.35)	(0.42)	(0.14)	(0.57)	(0.49)
$BANK\_DEBT\_IND_t$	0.555***	0.554***	0.555***	0.554***	0.551***
	(11.34)	(11.33)	(11.42)	(11.31)	(11.23)
$BLOCK\_IO_{t-1}$	0.134***	0.107***	0.099***	0.113***	0.175***
	(3.61)	(3.67)	(3.47)	(3.77)	(4.07)
Year Fixed Effects	YES	YES	YES	YES	YES
Obs.	3,365	3,365	3,365	3,365	3,365

The table presents the results of pooled Tobit regressions of firm's use of bank debt on motivated institutional monitoring proxies. The sample consists of 3,365 firm-year observations of firms listed on WSE over the period 2010 – 2019 with required data for the regressions. Bank debt is measured as total bank debt divided by total debt, where bank debt is the sum of term loans and revolving credit. Motivated institutions are institutions whose holding value in the firm is in the top 20% of the institution's portfolio. Motivated institutional ownership (MM_IO) is measured as a fraction of firm's shares owned by all motivated instititutions. MM_PCNT is computed as a proportion of monitoring institutions among all institutions holding firm's shares. MM_NUM is the number of monitoring institutions. PORTFWEIGHT is a firm-level weighted average weight of the value of the equity investment in a firm in the institutional shareholder's portfolio. TMATT is computed following Ward et al. (2018) as a weighted average of a firm's institutional ownership, with the weights being the institutional investors' monitoring motivation.
A detailed description of the variables can be found in the Appendix. We estimate t-statistics (in parentheses) using robust standard errors clustered at the firm level. ***, ** and * indicate significance at the 1%, 5% and 10% level, respectively.

Table 5. Information enviroment and the effect of motivated institutional ownership on bank debt

	BANK_DEBT	
	(1)	**(2)**
Intercept	0.091*	0.108**
	(1.73)	(2.01)
Motivated Institutional Ownership and Information Environment		
MM_IO_{t-1}	−0.006	−0.025
	(−0.09)	(−0.36)
$ADR\_OPACITY\_LOW_{t-1}$	0.002	X
	(0.11)	X
MM_IO_{t-1} x $ADR\_OPACITY\_LOW_{t-1}$	−0.166**	X
	(−2.16)	X
$QUAL\_TRANSP\_HIGH_{t-1}$	X	0.021
	X	(1.25)
MM_IO_{t-1} x $QUAL\_ TRANSP\_HIGH_{t-1}$	X	−0.145**
	X	(−1.99)
Control Variables		
$PROFIT_{t-1}$	−0.019	0.006
	(−0.28)	(0.09)
$TANG_{t-1}$	0.078***	0.080***
	(2.61)	(2.68)
Q_{t-1}	−0.023**	−0.024**
	(−2.36)	(−2.47)
LEV_{t-1}	0.157***	0.163***
	(3.55)	(3.73)
$SIZE_{t-1}$	0.016***	0.013**
	(3.06)	(2.06)
$ZSCORE_{t-1}$	0.004	0.005
	(0.28)	(0.35)
$BANK\_DEBT\_IND_t$	0.564***	0.555***
	(11.50)	(11.32)
$BLOCK\_IO_{t-1}$	0.124***	0.123***
	(3.36)	(3.24)
Year Fixed Effects	YES	YES
Obs.	3,365	3,365

The table presents the results of pooled Tobit regressions of the effects of the information environment on the relation between motivated institutional ownership and the use of bank debt. The sample consists of 3,365 firm-year observations of firms listed on WSE over the period 2010 – 2019 with required data for the regressions. Bank debt and motivated institutional ownership are defined as in Table 4.

To capture the effect of motivated monitoring on bank debt for most transparent firms we interact ADR_OPACITY_LOW (QUAL_TRANSP_HIGH) with motivated institutional ownership where ADR_OPACITY_LOW (QUAL_TRANSP_HIGH) takes a value of 1 for any firm that has opacity index (ADR_OPACITY) and transparency index (QUAL_TRANSP) below (above) sample median and zero otherwise.

We compute an opacity index that ranks the relative opacity of each firm in the sample, as proposed by Anderson et al. (2009). We rank four separate proxies for opacity (trading volume, bid-ask spread, analyst following, and analyst forecast errors) into deciles, with the most opaque firms taking a value of ten and the least opaque firms assuming a value of one. The four rankings are then summed and scaled by a factor of 40 (total possible points) to provide an index that ranges from 0.1 to 1.0.

Following Ellul et al. (2016), we construct a qualitative transparency index, which refers to the following firm characteristics: the identity of the auditor, type of accounting standards, analyst coverage and voluntary management disclosure. For each firm characteristics and year, a binary variable is defined as follows: (a) auditor equals 1 if the firm is covered by one of the Big 5 auditors, (b) accounting standard equals 1 if the firm uses IFRS and (c) analyst coverage equals 1 if the firm has at least one analyst covering it and (d) voluntary management disclosure equals 1 if the firm issues earnings forecasts. The qualitative transparency index is the sum of these binary variables.

A detailed description of the variables can be found in the Appendix. We estimate t-statistics (in parentheses) using robust standard errors clustered at the firm level. ***, ** and * indicate significance at the 1%, 5% and 10% level, respectively.

Table 6. Severity of agency problems and the effect of motivated institutional ownership on bank debt

	BANK_DEBT	
	(1)	**(2)**
Intercept	0.105**	0.083
	(1.98)	(1.14)
Motivated Institutional Ownership and Agency Problems		
MM_IO_{t-1}	−0.002	−0.068
	(−0.03)	(−1.17)
$FCF\_PROBLEM_{t-1}$	0.027*	X
	(1.70)	X
MM_IO_{t-1} x $FCF\_PROBLEM_{t-1}$	−0.178**	X
	(−2.30)	X
$FAMILY\_CONTROL_{t-1}$	X	0.003
	X	(0.17)
MM_IO_{t-1} x $FAMILY\_CONTROL_{t-1}$	X	−0.425**
	X	(−2.35)
Control Variables		
$PROFIT_{t-1}$	−0.003	0.041
	(−0.05)	(0.62)
$TANG_{t-1}$	0.082***	0.104***
	(2.73)	(3.12)
Q_{t-1}	−0.023**	−0.025**
	(−2.42)	(−2.49)
LEV_{t-1}	0.164***	0.203***
	(3.74)	(4.05)
$SIZE_{t-1}$	0.012**	0.014***
	(2.36)	(2.81)
$ZSCORE_{t-1}$	0.005	0.004
	(0.37)	(0.26)
$BANK\_DEBT\_IND_{t}$	0.553***	0.587***
	(11.27)	(10.88)
$BLOCK\_IO_{t-1}$	0.126***	0.147***
	(3.39)	(3.59)
Year Fixed Effects	YES	YES
Obs.	3,365	2,886

The table presents the results of pooled Tobit regressions of the effects of the severity of agency problems on the relation between motivated institutional ownership and the use of bank debt. The sample consists of 3,365 (2,886) firm-year observations of firms listed on WSE over the period 2010 – 2019 with required data for the regressions. Bank debt and motivated institutional ownership are defined as in Table 4.
To capture the effect of motivated monitoring on bank debt for firms with high monitoring needs driven by agency problems we interact dummy variables FCF_PROBLEM and FAMILY_CONTROL with motivated institutional ownership. FCF_PROBLEM takes a value of 1 for any firm that simultaneously has positive free cash flow (greater than zero) and CEO ownership below the sample median and zero otherwise. FAMILY_CONTROL takes a value of 1 for any family-controlled firm and zero otherwise.
A detailed description of the variables can be found in the Appendix. We estimate t-statistics (in parentheses) using robust standard errors clustered at the firm level. ***, ** and * indicate significance at the 1%, 5% and 10% level, respectively.

Table 7. Motivated institutional ownership and bank debt: the effect of institutional investor heterogeneity

	BANK_DEBT		
	(1)	**(2)**	**(3)**
Intercept	0.106**	0.100*	0.108**
	(2.01)	(1.89)	(2.05)
Motivated Institutional Ownership Heterogeneity			
$MM\_IO\_INDEP_{t-1}$	−0.123**	X	X
	(−2.28)	X	X
$MM\_IO\_GREY_{t-1}$	0.820*	X	X
	(1.87)	X	X
$MM\_IO\_LT_{t-1}$	X	−0.174**	X
	X	(−2.40)	X
$MM\_IO\_NON\_LT_{t-1}$	X	−0.109	X
	X	(−1.25)	X
$MM\_IO\_LMLTB_{t-1}$	X	X	−0.127**
	X	X	(−2.32)
$MM\_IO\_SMLTB_{t-1}$	X	X	0.367
	X	X	(0.65)
Control Variables			
$PROFIT_{t-1}$	0.005	0.008	0.005
	(0.08)	(0.12)	(0.07)
$TANG_{t-1}$	0.076**	0.080***	0.078***
	(2.52)	(2.65)	(2.62)
Q_{t-1}	−0.023**	−0.023**	−0.023**
	(−2.36)	(−2.37)	(−2.43)
LEV_{t-1}	0.163***	0.160***	0.160***
	(3.71)	(3.65)	(3.64)
$SIZE_{t-1}$	0.014***	0.015***	0.014***
	(2.87)	(3.02)	(2.80)
$ZSCORE_{t-1}$	0.004	0.005	0.005
	(0.28)	(0.35)	(0.36)
$BANK\_DEBT\_IND_t$	0.557***	0.555***	0.556***
	(11.50)	(11.36)	(11.34)
$BLOCK\_IO_{t-1}$	0.131***	0.127***	0.133***
	(3.52)	(3.61)	(3.63)
Year Fixed Effects	YES	YES	YES
Obs.	3,365	3,365	3,365

The table presents the results of pooled Tobit regressions of bank debt on heterogenous motivated institutional ownership. The sample consists of 3,365 firm-year observations of firms listed on WSE over the period 2010 – 2019 with required data for the regressions. Bank debt and motivated institutional ownership are defined as in Table 4. Following Chen et al. (2007), we classify institutions according to the potential for business ties to a corporation as independent from corporate management and grey as defined by Brickley et al. (1988). We split institutional investors into long-term and non-long-term using a three-year portfolio turnover. Long-term institutional investors are defined as those with an overall three-year portfolio turnover rate in the bottom tier. Portfolio turnover is computed following Derrien et al. (2013) as the fraction of the investor's portfolio that is no longer held at the end of the three-year period. We partition institutions according to the number of their blockholdings. Following Kang et al. (2018) we compute firm-level weighted average multiple blockholding residual, where residual is calculated from the regression of ln (1 + raw blockholding number) on the value of total equity holdings of the institutional investor. Institutions with above (below) sample median multiple blockholding residual are classified into large (small) multiple blockholders.
A detailed description of the variables can be found in the Appendix. We estimate t-statistics (in parentheses) using robust standard errors clustered at the firm level. ***, ** and * indicate significance at the 1%, 5% and 10% level, respectively.

Table 8. Motivated institutional ownership and alternative types of funding

	PUBLIC_DEBT	SHORTTERM_DEBT	DEBT_RATIO
	(1)	(2)	(3)
Intercept	−0.657***	1.053***	0.056
	(−5.75)	(19.09)	(1.34)
Motivated Institutional Ownership			
MM_IO_{t-1}	0.317**	−0.023**	−0.013**
	(2.50)	(−2.52)	(−2.39)
Control Variables			
$PROFIT_{t-1}$	−0.509***	−0.011*	−0.330***
	(−4.11)	(−1.71)	(−7.35)
$TANG_{t-1}$	−0.676***	−0.010**	0.025
	(−9.40)	(−2.23)	(0.72)
Q_{t-1}	0.057***	−0.002***	−0.046***
	(2.75)	(−2.70)	(−7.00)
LEV_{t-1}	1.232***	−0.034***	X
	(13.98)	(−5.90)	X
$SIZE_{t-1}$	0.141***	−0.011***	0.027***
	(13.53)	(−15.97)	(5.06)
$ZSCORE_{t-1}$	0.151***	0.004*	0.219***
	(4.16)	(1.83)	(12.95)
$BANK\_DEBT\_IND_t$	−0.089***	−0.004*	0.078
	(−8.20)	(−1.66)	(1.40)
$BLOCK\_IO_{t-1}$	−0.109	0.001	0.009
	(−1.20)	(0.21)	(0.23)
Year Fixed Effects	YES	YES	YES
Obs.	3,365	3,365	3,365
Adjusted R2	-	-	0.356

The table presents the results of pooled Tobit/OLS regressions of other types of debt funding on motivated institutional ownership. The sample consists of 3,365 firm-year observations of firms listed on WSE over the period 2010 – 2019 with required data for the regressions. Motivated institutional ownership are defined as in Table 4. Public debt is measured as total public debt divided by total debt, where public debt is the sum of senior bonds and notes, subordinated bonds and notes, and commercial paper. Short-term debt is a proportion of total debt maturing in less than four years. Debt_Ratio is measured as total debt divided by the sum of the total debt and the market value of equity.
A detailed description of the variables can be found in the Appendix. We estimate t-statistics (in parentheses) using robust standard errors clustered at the firm level. ***, ** and * indicate significance at the 1%, 5% and 10% level, respectively.

Table 9. Motivated institutional ownership and bank debt: Quasi - indexers vs Non - indexers

	BANK_DEBT
	(1)
Intercept	0.092*
	(1.73)
Motivated Institutional Ownership	
MM _IO$_{t-1}$_QUASI-INDEXER	−0.317***
	(−2.59)
MM _IO$_{t-1}$_NON- INDEXER	−0.098*
	(−1.66)
Control Variables	
PROFIT$_{t-1}$	0.007
	(0.12)
TANG$_{t-1}$	0.079***
	(2.65)
Q$_{t-1}$	−0.021**
	(−2.12)
LEV $_{t-1}$	0.161***
	(3.67)
SIZE$_{t-1}$	0.017**
	(3.21)
ZSCORE$_{t-1}$	0.004
	(0.27)
BANK_DEBT_IND$_t$	0.555***
	(11.36)
BLOCK_IO$_{t-1}$	0.131***
	(3.53)
Year Fixed Effects	YES
Obs.	3,365

The table presents the results of pooled Tobit regression of bank debt on motivated institutional ownership partitioned into quasi - indexers and non- indexers. The sample consists of 3,365 firm-year observations of firms listed on WSE over the period 2010 – 2019 with required data for the regressions. Bank debt types and motivated institutional ownership are defined as in Table 4.

We classify motivated institutions into quasi-indexers and non- indexers using active share measure proposed by Cremers and Petajisto (2009). Active share is the distance between the weights on each firm in the investor's portfolio and the weights in the relevant index. For the index, we use WIG, which is the main index on Warsaw Stock Exchange. We classify investors with active share of up to 30% as quasi-indexers, and all other investors as non-indexers.

A detailed description of the variables can be found in the Appendix. We estimate t-statistics (in parentheses) using robust standard errors clustered at the firm level. ***, ** and * indicate significance at the 1%, 5% and 10% level, respectively.

Table 10. Motivated institutional ownership and bank debt: DiD using pension funds reform in 2013

Panel A - Univariate Test of Differences of Subsamples

Covariates from Selection Equation

	FULL SAMPLE				PSM SAMPLE			
	Treatment (n=267)	**Control (n=3,098)**	**Mean diff.**	**p-value**	**Treatment (n=201)**	**Control (n=201)**	**Mean diff.**	**p-value**
PROFIT	0.128	0.067	0.061	0.00	0.123	0.127	-0.003	0.62
TANG	0.408	0.295	0.113	0.00	0.386	0.400	-0.014	0.47
Q	1.494	1.265	0.229	0.00	1.450	1.459	-0.008	0.92
LEV	0.188	0.158	0.030	0.00	0.185	0.197	-0.012	0.47
SIZE	6.972	4.267	2.705	0.00	6.774	6.704	0.070	0.30
ZSCORE	0.157	0.331	-0.174	0.00	0.194	0.174	0.020	0.61
BANK_DEBT_IND	0.847	0.797	0.049	0.00	0.838	0.851	-0.012	0.34
BLOCK_IO	0.250	0.175	0.075	0.00	0.231	0.245	-0.014	0.53
PROPENSITY SCORE	-	-	-	-	0.371	0.368	0.003	0.16
DEBT STRUCTURE								
BANK_DEBT	0.691	0.682	0.009	0.65	0.669	0.689	-0.020	0.55
Motivated Institutional Ownership								
MM_IO	0.242	0.066	0.176	0.00	0.197	0.196	0.001	0.95

Panel B – Multivariate analysis

	BANK_DEBT			
	FULL SAMPLE		PSM SAMPLE	
	(1)	**(2)**	**(3)**	**(4)**
Intercept	0.080	0.081	0.740***	0.746***
	(1.50)	(1.50)	(3.50)	(3.53)
Treatment Effects				
POST_REFORM x TREAT	−0.088**	−0.086**	−0.123**	−0.110*
	(-2.09)	(-2.02)	(-1.97)	(-1.85)
TREAT	−0.010	−0.012	0.048	0.042
	(-0.30)	(-0.36)	(1.13)	(0.93)
Motivated Institutional Ownership				
MM_IO_{t-1}	−0.083	−0.091	0.000	−0.062
	(-1.50)	(-1.61)	(0.00)	(-0.39)
Control Variables				
$PROFIT_{t-1}$	0.002	0.000	0.471	0.468
	(0.03)	(0.00)	(1.60)	(1.53)
$TANG_{t-1}$	0.084***	0.087***	0.080	0.096
	(2.84)	(2.91)	(0.96)	(1.09)
Q_{t-1}	−0.021**	−0.021**	−0.049	−0.051
	(−2.07)	(−2.17)	(−1.60)	(−1.62)
LEV_{t-1}	0.157***	0.159***	−0.193	−0.194
	(3.58)	(3.63)	(−1.49)	(−1.50)
$SIZE_{t-1}$	0.019***	0.018***	−0.051***	−0.051***
	(3.49)	(3.00)	(−2.69)	(−2.70)
$ZSCORE_{t-1}$	0.003	0.004	−0.014	−0.012
	(0.22)	(0.27)	(−0.28)	(−0.23)
$BANK\_DEBT\_IND_t$	0.557***	0.559***	0.364**	0.359*
	(11.40)	(11.43)	(1.96)	(1.94)
$BLOCK\_IO_{t-1}$	0.120***	0.011	−0.011	−0.301
	(3.22)	(0.09)	(-0.10)	(-1.38)
IO_{t-1}	X	0.106	X	0.309
	X	(0.98)	X	(1.45)
$PORTFTURN_{t-1}$	X	0.009	X	0.023
	X	(0.28)	X	(0.20)

MULTIBLOCK$_{t-1}$	X	−0.007	X	−0.025
	X	(-0.75)	X	(-1.04)
Year Fixed Effects	YES	YES	YES	YES
Obs.	3,365	3,365	402	402

The table presents the results of pooled Tobit regression of bank debt on motivated institutional ownership using pension funds reform in 2013 as an exogenous shock. The full (propensity score matched) sample consists of 3,365 (402) firm-year observations of firms listed on WSE over the period 2010 – 2019 with required data for the regressions. Bank debt and motivated institutional ownership are defined as in Table 4. TREAT is an indicator variable coded as one if the pension funds (OFEs) being motivated institutions (as defined in Table 4) hold more firm's shares outstanding than non-pension funds motivated institutions at the end of 2013. POST_REFORM is an indicator variable coded as one for the post pension funds reform period (2014-2019) and zero otherwise.
Panel A reports a univariate test of differences of the basic dependent and independent variables for both full and propensity score-matched treatment and control samples. The table in panel B presents the results of regressions of changes in a firm's bank debt following pension funds reform in 2013 using full and propensity score-matched samples. Model 2 and Model 4 control for additional institutional monitoring characteristics.
A detailed description of the variables can be found in the Appendix. We estimate t-statistics (in parentheses) using robust standard errors clustered at the firm level. ***, ** and * indicate significance at the 1%, 5% and 10% level, respectively.

Table 11. Motivated institutional ownership and bank debt – alternative explanations

	BANK_DEBT		
	(1)	**(2)**	**(3)**
Intercept	0.088	0.081	0.123*
	(1.61)	(1.53)	(1.72)
Motivated Institutional Ownership			
MM_IO_{t-1}	−0.121**	−0.111**	−0.131**
	(−2.24)	(−2.05)	(−2.38)
Control Variables			
$PROFIT_{t-1}$	0.007	0.001	0.003
	(0.10)	(0.02)	(0.05)
$TANG_{t-1}$	0.078***	0.067**	0.084***
	(2.60)	(2.25)	(2.41)
Q_{t-1}	−0.024**	−0.024**	−0.026**
	(−2.52)	(−2.48)	(−2.61)
LEV_{t-1}	0.163***	0.166***	0.152***
	(3.72)	(3.80)	(3.25)
$SIZE_{t-1}$	0.014***	0.017***	0.015**
	(2.88)	(3.39)	(2.90)
$ZSCORE_{t-1}$	0.005	0.006	0.004
	(0.34)	(0.38)	(0.25)
$BANK\_DEBT\_IND_{t}$	0.570***	0.562***	0.542***
	(11.35)	(11.40)	(7.81)
$BLOCK\_IO_{t-1}$	0.132***	0.118***	0.144***
	(3.58)	(3.16)	(3.81)
IND_HHI_{t-1}	0.047	X	X
	(1.23)	X	X
$DUALCLASS_{t-1}$	X	0.061***	X
	X	(4.47)	X
Industry Fixed Effects	NO	NO	YES
Year Fixed Effects	YES	YES	YES
Obs.	3,365	3,365	3,365

The table presents the results of pooled Tobit regressions of bank debt on monitoring institutional ownership including additional controls. The sample consists of 3,365 firm-year observations of firms listed on WSE over the period 2010 – 2019 with required data for the regressions. Bank debt and motivated institutional ownership are defined as in Table 4.
Model 1 includes Herfindahl-Hirschman Index as a mesure of product market competition. In Model 2, we control for using dual - class shares as a proxy for control-ownership divergence. Model 3 controls for industry fixed effects.
A detailed description of the variables can be found in the Appendix. We estimate t-statistics (in parentheses) using robust standard errors clustered at the firm level. ***, ** and * indicate significance at the 1%, 5% and 10% level, respectively.

Table 12. Motivated institutional ownership and bank debt – alternative definitions

	BANK_DEBT			BANK_DEBT2	BANK_DEBT3
	(1)	**(2)**	**(3)**	**(4)**	**(5)**
Intercept	0.111**	0.118**	0.082	0.445***	−0.026**
	(2.13)	(2.25)	(1.54)	(4.33)	(−2.05)
Motivated Institutional Ownership					
MM10_IO$_{t-1}$	−0.111**	X	X	X	X
	(−1.97)	X	X	X	X
MM10_PCNT $_{t-1}$	X	−0.050*	X	X	X
	X	(−1.65)	X	X	X
MM10_NUM$_{t-1}$	X	X	−0.012***	X	X
	X	X	(−3.65)	X	X
MM_IO$_{t-1}$	X	X	X	−0.099**	−0.055***
	X	X	X	(−2.38)	(−2.88)
Control Variables					
PROFIT$_{t-1}$	0.003	0.004	0.007	0.182***	−0.148***
	(0.06)	(0.07)	(0.10)	(3.84)	(−3.23)
TANG$_{t-1}$	0.078***	0.077***	0.083***	0.196***	0.049***
	(2.62)	(2.58)	(2.77)	(8.36)	(4.08)
Q$_{t-1}$	−0.024**	−0.025**	−0.019*	−0.031***	0.006
	(−2.57)	(−2.62)	(−1.91)	(−4.34)	(1.32)
LEV $_{t-1}$	0.163***	0.162***	0.150***	−0.304***	0.544***
	(3.72)	(3.71)	(3.40)	(−7.92)	(20.83)
SIZE$_{t-1}$	0.013***	0.012**	0.020***	−0.033***	0.002
	(2.78)	(2.56)	(3.65)	(−9.23)	(1.06)
ZSCORE$_{t-1}$	0.006	0.007	0.005	−0.022*	0.019***
	(0.39)	(0.45)	(0.30)	(−1.85)	(2.78)
BANK_DEBT_IND$_t$/ BANK_DEBT2_IND$_t$ / BANK_DEBT3_IND$_t$	0.554***	0.556***	0.553***	0.633***	0.393***
	(11.29)	(11.32)	(11.31)	(6.31)	(8.44)
BLOCK_IO$_{t-1}$	0.120***	0.094***	0.093***	0.043*	0.028**
	(3.55)	(3.27)	(3.90)	(1.69)	(2.08)
Year Fixed Effects	YES	YES	YES	YES	YES
Obs.	3,365	3,365	3,365	3,365	3,365

The table presents the results of pooled Tobit regressions of bank debt on motivated institutional ownership using alternative definitions of the dependent and basic independent variables. The sample consists of 3,365 firm-year observations of firms listed on WSE over the period 2010 – 2019 with required data for the regressions.
Models 1 - 3 present the results when motivated institutions are defined as institutions whose holding value in the firm is in the top 10% of the institution's portfolio. In Model 4, we measure bank debt as total bank debt divided by the sum of total bank debt and total public debt, where public debt is defined as in Table 8. Model 5 reports the results where we use the bank debt ratio computed as: the total bank debt divided by the book value of total assets.
A detailed description of the variables can be found in the Appendix. We estimate t-statistics (in parentheses) using robust standard errors clustered at the firm level. ***, ** and * indicate significance at the 1%, 5% and 10% level, respectively.

Table 13. The effect of motivated institutional ownership and bank debt on firm value: DiD using pension funds reform in 2013

	Q	
	(1)	**(2)**
Intercept	1.248***	1.355***
	(8.88)	(9.24)
Treatment Effects		
POST_REFORM x TREAT x BANK_DEBT	−0.797**	−0.785**
	(−2.26)	(−2.17)
TREAT x BANK_DEBT	0.852**	0.827**
	(2.51)	(2.40)
POST_REFORM x BANK_DEBT	0.063	0.077
	(0.57)	(0.71)
BANK_DEBT	−0.088	−0.101
	(−1.19)	(−1.36)
POST_REFORM x TREAT	0.550**	0.545**
	(2.30)	(2.25)
TREAT	−0.157	−0.201
	(−0.73)	(−0.91)
Motivated Institutional Ownership		
MM_IO_{t-1}	0.668***	0.651***
	(3.37)	(3.24)
Control Variables		
$CEOOWN_{t-1}$	0.032	0.067
	(0.23)	(0.48)
$DEBT\_RATIO_{t-1}$	1.113***	1.113***
	(7.32)	(7.40)
$SIZE_{t-1}$	−0.142***	−0.164***
	(−5.76)	(−6.28)
$CAPEX_{t-1}$	1.360***	1.292***
	(3.72)	(3.57)
$CASH_{t-1}$	1.779***	1.692***
	(5.53)	(5.47)
$TANG_{t-1}$	−0.276**	−0.228*
	(−2.05)	(−1.75)
$PROFIT_{t-1}$	0.126	0.073
	(0.34)	(0.19)
$GROWTH_{t-1}$	0.123**	0.126***
	(2.52)	(2.64)
$BLOCK\_IO_{t-1}$	−0.145	−1.470***
	(−1.01)	(−3.41)
IO_{t-1}	X	1.296***
	X	(3.27)
$PORTFTURN_{t-1}$	X	−0.218**
	X	(−2.29)
$MULTIBLOCK_{t-1}$	X	−0.004
	X	(−0.15)
Industry Fixed Effects	YES	YES
Year Fixed Effects	YES	YES
Obs.	3,331	3,331
Adjusted R2	0.259	0.268

The table presents the results of pooled OLS regressions of Tobins Q on bank debt and motivated institutional ownership using Polish pension funds reform in 2013 as an exogenous shock. Bank debt and motivated institutional ownership are defined as in Table 4. TREAT and POST_REFORM are defined as in Table 10. The sample consists of 3,331 firm-year observations of firms listed on WSE over the period 2010 – 2019 with required data for the regressions. Model 2 controls for additional institutional monitoring characteristics.

A detailed description of the variables can be found in the Appendix. We estimate t-statistics (in parentheses) using robust standard errors clustered at the firm level. ***, ** and * indicate significance at the 1%, 5% and 10% level, respectively.