Chilean Pension Fund Managers and corporate governance: The impact on corporate debt[1]

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Abstract:

In this paper we analyze the relationship between the investment of Pension Funds Managers (AFPs) and the cost of corporate debt (public and private). Using a sample of 93 non-financial Chilean listed firms between 2009 and 2014, we find that AFP's increases the probability to issue bonds. Moreover, according to our crowding-out hypothesis, we show that AFPs increases the cost of bank borrowing. In line with the monitoring view, we find that AFPs decrease bond yields. On average, our results suggest that AFP's improve corporate governance by influencing the information disclosure and reducing the intensity of lending relationships with banks.

Keywords: Pension Fund Managers (AFP); cost of debt; corporate finance; institutional investors; corporate governance; Chile.

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1. Introduction

In the latest decades the capital markets in emerging countries have experienced significant improvements in investors sophistication, and particularly in the role of the institutional investors (Amihud and Li, 2006; Chung, Firth and Kim, 2002; Elyasiani and Jia, 2010; Elyasiani, Jia and Mao, 2010; Gillan and Starks, 2003; Gompers and Metrick, 2001). In words of the OECD (2011), the institutional investors have been "the largest and most influential minority shareholders in many listed companies" in Latin America. In this vein, the net asset value of the funds under management of institutional investors in Latin America has reached US$1,500 billion and has grown at an average annual rate of around 16% between 1999 and 2006 These investors contribute to the development of capital markets by stimulating efficient transactions, good risk evaluation, and a better corporate governance system.

In this paper, we focus on the role of a particular institutional investor in Chile, the Pension Funds Managers (hereafter, AFPs from their Spanish acronym of *Administradoras de Fondos de Pensiones*). Chile provides a unique setting to study the role of pension funds since in 1981 a change in the regulation made the pension system switch from a public system to a private one. The AFPs have become the managers of the funds capitalized through the individual contribution system which involves the entire Chilean workforce (Lefort and González, 2008; Walker and Lefort, 2002).

Despite the improvements in capital markets, firms in emerging countries still face some lack of access to credit (Campello and Larrain, 2015). In turn, a plausible explanation for the relevance of institutional investors is that they increase market liquidity through greater participation as minority investors (Bhide, 1993; Catalan, 2004; Demsetz, 1968) and

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reduce asymmetric information in those firms in which they participate (Elyasiani, Jia and Mao, 2010; Ferreira and Matos, 2008), allowing firms to have better access to credit.

These institutions manage diversified assets portfolios (e.g. shares, corporate bonds, government bonds, among others) both locally and overseas on behalf of the workforce. The literature has shown the relevant impact of European pension funds and how they have oriented their traditional investment strategies including environmental, social, corporate governance and ethical criteria (Sievänen, Rita and Scholtens, 2013). As shown by Thomas, Spataro and Mathew (2014), American pension funds as institutional investors dampen stock market volatility. Nevertheless, the pension funds are not a totally homogeneous group, and public and private pension funds have remarkable differences in terms of investment strategy (Kurtbegu and Nguyen, 2018), While the American public pension funds have increased their portfolios into riskier alternative investments and their activism as shareholders is affected by political incentives (Choudary and Papanikolau, 2017; Wang and Mao, 2015), we know still little about the role of private pension funds. In addition, UK pension funds give primary emphasis to investment performance and display little concern for matters of ownership and corporate governance (Tilba and McNulty, 2013), which reinforces the need of gaining new insights from other institutional environments such as Chile.

In the last three decades, pension fund managers has become the most important independent institutional investors in Chilean capital markets. As of December of 2017, AFPs managed more than US$ 210 billion, representing about 85% of Chilean GDP. They are independent institutional investors since, under the pension funds law N°3.500 of 1980, pension funds managers can only participate in the ownership of firms as minority

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shareholders and cannot establish business ties with controllers (De-la-Hoz and Pombo, 2016), so they play an external monitoring role by spending resources and time supervising and assessing the quality of firms' decision and their governance (Fernandez, 2014; Lefort and González, 2008; OECD, 2011; OECD, 2013).

Previous evidence suggests that the monitoring incentives of the AFPs result in greater efficiency and quality of the capital markets, improving the firms' market value and reducing their cost of capital (Acuña and Iglesias, 2001; Iglesias, 2000; Vittas, 1996; Walker and Lefort, 2002). This is relevant because AFPs serve as an important piece in order to protect minority shareholders in an environment characterized by weak protection of shareholder rights and highly concentrated ownership structures, where the expropriation risk tends to be higher than in developed economies (Buchuk, Larraín, Muñoz and Urzúa, 2014; Gillan and Starks, 2003; Khanna and Palepu, 2000; Lefort and Walker, 2000).

We study the relation between AFPs as shareholders and bondholders and the cost of both private and public debt. Our empirical analysis is focused on two different perspectives: firm-level (cost of bank debt) and bond-level (cost of public debt). The firm-level analysis is developed with a hand-collected sample of 93 listed non-financial Chilean firms and 417 firm-year observations for the 2009-2014 period. The bond-level data comprises a sub-sample of bond issuer firms compounded by 104 bonds from 52 non-financial firms for the same period of analysis, creating a sample of 440 bond-year observations.

Our results show that, first, the participation of AFPs both in the ownership and the board of directors positively explains the decision of firms to issue public debt. Second, after controlling for several firm-level variables and industry-year fixed effects, we observe

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a positive relationship between the presence of pension funds (AFPs) and the cost of bank debt. These findings suggest that an increment of 10% of AFPs' ownership increases the cost of bank debt in 52 to 65 basis points. This finding is in line with the idea that the AFPs, in their role as independent institutional shareholders and as bondholders, influence firms to issue public debt as a tool for information disclosure, and hence these firms have less intensive lending relationships with banks compared to other similar firms that are less monitored by AFPs.

Third, bond-level analysis shows a negative relationship between AFPs' participation and the bonds' yield-to-maturity. In terms of magnitude, our results suggest that an increment of 10% in AFPs' ownership reduces the cost of public debt in about 14 to 21 basis points. This could imply that AFPs have a positive effect on the investor perception of company risk, suggesting that these institutional investors improve the corporate governance through monitoring. However, given that average elasticity of bond yields to AFP ownership changes, the effects are somewhat limited compared to the effect over the cost of bank debt. This fact can be explained by the mandatory regulation that forces AFPs to invest only in "investment grade" bonds.

Fourth, the average elasticity masks important heterogeneity and asymmetry. AFP's effect on bond yields is more prominent in smaller size firms and firms with lower levels of leverage. More importantly, bond yields of firms with lower levels of tangibility are reduced when AFPs increase their participation in ownership. This is consistent with the arguments related to the role of AFP in raising and providing firm's information to the market, reducing informational asymmetries.

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This research contributes to the existing literature in three ways. First, we analyze the relation between Chilean pension funds managers, as specific independent institutional investors, and the cost of a wide range of financial resources such as bank and public debt. We provide novel evidence that AFPs as institutional investors have different agendas and incentives for corporate governance depending on their ownership dynamics, and consequently they are asymmetrically related with the cost of bank and public debt. Second, this study extends the previous empirical literature by modelling the role of AFPs as shareholders, members of the board of directors and bondholders and their relation with the borrowing cost (Gillan and Starks, 2003; Roberts and Yuan, 2010). And finally, unlike most of the previous literature, this ground-breaking study is focused on the liability side of the balance sheet rather than on the equity side. Particularly, our interest is in the analysis of the cost of private and public debt which, so far, has not been properly analyzed in emerging economies, and less in the specific case of the Chilean corporate sector.

The rest of this paper is organized as follows: in the second section we contextualize the Chilean pension system to develop the theoretical framework and the research hypotheses, section three describes the methodology and sources of information used in the empirical analysis, in the fourth section the main results are presented and discussed, and finally, in section five, the paper concludes.

2. Theoretical Framework

2.1. Contextualizing the facts

From a background perspective, until early 70s, the Chilean pension system was structured predominantly around a pay-as-you-go common fund regime (without reserves or with partial reserves). At the end of the 70s, Chile's public pension system was

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fragmented into 35 funds or schemes with significant differences in coverage, conditions, and contributions, although most of them suffered financial imbalances (Arenas de Mesa and Mesa-Lago, 2006). Consequently, in 1979 the Government unified the existing public pension funds and raised and standardized the retirement age and the level of contributions, which was the starting point of the pension system reform put in place in May 1981 by replacing the state managed system by a privately, compulsory, fully funded, defined contribution pension system (Borzutzky and Hyde, 2016). This newly created system based on individual capitalizations was supposed to be managed privately but supervised by the state. The transition to the private sector involved the creation of Pension Fund Managing Administrators (AFPs). These were the only for-profit entities empowered to manage the pension funds.

Central to the fully funded, defined contribution pension system was the elimination of the social solidarity principle and its replacement by the notion of individual responsibility, and mandatory for the entire workforce after December 1981. Under this new private system, the individual pension funds, or saving accounts, are financed by a 10% of taxable wage of employees and the employers as well as the state are exempt from contributing to these saving accounts.[2] The Superintendence of Pension Fund Administrators is the technical and administrative unit which is in charge of licensing, supervising, oversighting, regulating, and dissolving the malfunctioning AFPs.

The founders authorities of the Chilean pension system assumed that market mechanisms such as the freedom to choose among the prevailing AFPs and competition among them would lead to greater efficiency, lower competitive administrative costs and

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[2] The state takes a subsidiary role in providing the minimum pension to those in the private pension system who did not have enough funds to make the statutory minimum pension.

maximization of capital returns for retirees (Larraín Villanueva, 2012). The starting number of AFPs was 12 and peaked up to 21 in mid 90s. However, recurrent mergers in the industry have led to a significant decline in the number of AFPs operating in the country, with the subsequent industry concentration and restrictions to competition. Gill, Packard and Yermo (2005) reported that AFPs' profitability in the early years of the twentieth century was estimated to be over 50%. Nowadays, there are only six AFPs responsible for managing worker´s saving accounts.

The private capitalization pension system underwent through a major reform in 2008, focused on the expansion of the pension system toward low income groups, young workers and women. This reform was understood as more inclusive strategy in benefit for workers to obtain higher pensions and higher replacement rates and reducing the state´s fiscal burden (Borzutzky and Hyde, 2016).

Regarding the investment of pension fund resources, legislation requires that they may invest only in instruments that have been specifically authorized by law, the Central Bank of Chile or the Superintendence of Pension Fund Administrators. The regulated financial instruments include treasury securities, time deposits, promissory notes, mortgage-backed securities, bonds and shares of stock from public companies, mutual funds, commercial papers, and foreign instruments. Pension funds can also trade derivative instruments for hedging financial risks. The aim of the regulation is giving stability to the types of assets in which social security resources are invested. The pension system is endowed with a risk-rating process to distinguish between eligible and non-eligible financial instruments. The overall risk-rating process is carried out by private companies and supervised by the Superintendence of Securities and Insurance. These private risk-

rating companies were introduced formally intro the risk-rating process of AFPs' instruments by the so-called Capital Market Reform Law in 1994.

The composition of the pension funds' investment portfolio is subject to various types of investment limits per financial instrument and per issuer, determined by the Central Bank of Chile with categories laid down in the law. All the trading carried out by AFPs take place in the formal secondary market, unless debt and capital offered for first time and channeled through the formal primary market. Although in the early years of the reform AFPs had little diversification in their portfolios, basically focused on public debt and mortgage bonds; their investment portfolios have observed a gradual increase in their diversification with more predominance of variable income, equity securities as well as fixed income securities issued in the domestic market and abroad (Arenas de Mesa and Mesa-Lago, 2006).

AFPs can invest in shares approved by the Risk Assessment Committee. Additionally, the current legislation prevents AFPs from investing more than 7% in shares of one firm and where the controlling shareholder holds more than 65% of the outstanding shares –such a restriction is called the concentration factor. Overall, the nature and the restrictions to the AFPs' investments are regulated basically by the Law 3500 of 1980, as well as by its more than forty subsequent updates. Additionally, the investments must fulfil the requirements of both the complimentary regulation named Pension Funds Investment Regulation and the rules dictated by the Chilean Pensions Supervisor –the technical authority responsible for the supervision and control of the institutions involved in the Chilean Pension System.

Regarding the AFPs role in the capital markets integration, pension funds have contributed actively to reinforce confidence in the stock market both, locally and abroad, and they also have quickened the growth of insurance companies (Arenas de Mesa and Mesa-Lago, 2006).Fernandez (2014) states that AFPs do not have a destabilizing impact on the domestic stock market but AFPs' stock holdings translate into a mild effect on stock return volatility, highlighting the AFPs' preference for safe securities in their portfolios. Hence, pension fund managers have contributed to enhance the liquidity, value and profitability of the Chilean capital markets (Santillán Salgado, López and Montenegro, 2010).

2.2. AFPs as institutional investors

The main arguments for the influence of institutional investors as external shareholders suggest that institutions enhance corporate systems with their voting and influence controllers' value maximizing decisions. This governance system is referred to as the voice mechanism (Ayres, 1971). Alternatively, they also use indirect influence through their ability to sell their shares, which is known as the threat to exit mechanism (Edmans and Manso, 2011).

Previous studies also suggest that institutional ownership stability reduces firms' cost of capital. Elyasiani, Jia and Mao (2010), for instance, show that institutional ownership reduces the financial risk, or the cost of debt measured by the credit rating or by the bond yield spreads relative to the closest sovereign yield. They also show that an increase in investor stability results in a better credit rating or in lowers bond yields.

The literature has confirmed the beneficial role of institutions in improving corporate governance (Grier and Zychowicz, 1994). In a traditional view, institutional investors use

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their resources and skills to effectively monitor firm's managers by collecting information about the firms quality (Chung, Firth and Kim, 2002). In addition, their role as blockholders allows them to participate in the board of directors, or to use the threat of selling their equity stakes (Edmans, 2014).

Institutional investors' behavior has changed over the last decades from being passive investors towards a more active role in corporate governance (Silva, Azúa, Díaz and Pizarro, 2008). For instance, some arguments suggest that the trend toward increased activism by institutional investors can be explained by the fact that the voice monitoring mechanism has become less costly, as a consequence of their significant equity ownership in firms and their resulting increased capacity for collective action (Coffee, 1991; Ferreira and Matos, 2008; Jara-Bertin, López-Iturriaga and López-de-Foronda, 2012). At the same time, following an exit policy has become increasingly more expensive because institutional investors must accept substantial discounts when liquidating their holdings.

Chilean pension fund managers have certain particularities that make them especially capable to impact on the efficiency of firms' governance mechanisms. First, the AFPs are minority shareholders by law, and they have restrictions to invest in firms that do not comply with certain features as mentioned in the previous section, so their actions are largely visible in terms of their role as minority investors that attract great public interest. Second, although AFPs are minority shareholders, they have great capacity to deal with the potential opportunistic behavior of controlling shareholders. For instance, in illiquid capital markets such as in Chile, the AFPs cannot *vote with their feet*, as short-term traders do in other contexts, which encourages the AFPs to both hold a long-term orientation in their investment profile and to build a relationship with the firm. Third, the incentives of AFPs to

engage in active corporate governance could be considered critical to the well-functioning of Chilean capital markets because their participation in firms can take the form of minority shareholders, members of the board of directors and/or bondholders, known in the literature as dual holding (Jiang, Li and Shao, 2010).

According to the classification of Bhattacharya and Graham (2009), Dong and Ozkan (2008), and Brickley, Lease and Smith (1988), the AFPs are pressure resistant investors in the sense that they do not maintain business ties with controlled firms[3] and, consequently, act more independently than the so-called pressure sensitive institutional investors such as banks, insurance companies, and endowments.

Previous empirical studies have shown a positive impact of the AFPs on the corporate governance in the Chilean context (Iglesias, 2000; Lefort and Walker, 2007a; Lefort and Urzúa, 2008; Walker and Lefort, 2002). Among other facts, the evidence suggests that pension reform in Chile is associated with a lower cost of capital as a consequence of less direct costs of debt issuance and greater liquidity in the capital markets (Walker and Lefort, 2002). In addition, the reduction in the cost of capital is explained by improvements in the governance system of firms where the AFPs have an active monitoring role. Lefort and Walker (2007b) and Lefort and Urzúa (2008) show that the presence of AFPs in Chile as minority shareholders positively impacts the firm value and negatively impacts its cost of capital.

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[3] In order to ensure the independence of the AFPs, the Law 3500 requires the financial securities to become target investments of the AFPs must have a score of at least BBB or equivalent of at least two rating agencies. Additionally, the investment in bonds and promissory notes cannot exceed 35% of the total issuance. Moreover, such investment cannot be greater than 12% of the total assets of the issuer firm. In addition, the investment in securities of the same company cannot exceed the 15% of the corresponding fund manager (A, B, C, D, and E).

Although there is certain consensus about the positive impact of the AFPs in Chile on firms' governance; there is no evidence regarding their impact on the cost of debt. On the one hand, the relationship between pension funds' stock holdings and the cost of private debt could be negative if AFPs effectively engaged in monitoring (we call that *monitoring hypothesis*). If firm's managers are subject to a tight control by pensions funds, they will make better financial and investment decisions which reduce the default risk and therefore, the cost of debt. In addition, AFPs can improve the transparency and the oversight on the discretionary decisions made by the controlling shareholders (Araya, Jara, Maquieira and San Martín, 2015), and particularly, the supervision of the opportunistic earnings of management (Chung, Firth and Kim, 2002). Therefore, the cost of external funding and marginal interest rates should be reduced. Furthermore, as a consequence of the active monitoring of AFP's, banks creditors might charge lower marginal rates in bank debt financing due to less expected informational asymmetries (Roberts and Yuan, 2010).

Similarly, a wide literature has suggested that independent directors generally perform a better monitoring role than affiliated or inside directors (Hermalin and Weisbach, 1991; Hermalin and Weisbach, 2003; Lorca, Sánchez-Ballesta and García-Meca, 2011). Consequently, considering the AFPs role as board members, it is plausible to expect an inverse relationship between AFPs board membership and the cost of bank debt. Empirically, most studies find that board independence is negatively related to the cost of bank debt (Anderson, Mansi and Reeb, 2004; Bhojraj and Sengupta, 2003) suggesting that, on average, the benefits of independence outweigh its costs (Bradley and Chen, 2015).

On the other hand, AFPs as board members can use their voice monitoring mechanism, or the threat of leaving the company in their role as shareholders, as tools to

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demand for more and better information. Hence, a strategy followed by AFPs to reduce such informational asymmetries is to pressure the firm to issue public debt (e.g. corporate bonds and promissory notes), which involves a greater information disclosure in the issuance process. James (1987) state that strong banking relationships are valuable when the client has no or limited access to public debt and equity markets, suggesting that the public traded debt weakens the banking lending relationship. Moreover, Rauterkus (2009) concludes that tight bank lending leads to a lower cost of financial distress, which increases the chances of successful debt restructurings. Therefore, if further public debt is issued, the bank lending relationship is eroded with the subsequent weakening of the company's bargaining power which causes an increase in the relative cost of bank debt. Hence, these arguments suggest a counter-effect on the cost of bank debt triggered by the public debt, which is represented by higher banking lending rates when AFPs foster the companies to issue public debt. This relationship suggests that these types of institutional directors provide financial resources to the firms on whose board they sit, supporting the view that boards manage the uncertainty associated with strategic decision making and provide firms with preferential access to resources and financial expertise.

However, AFPs serve as minority equity investors as well as the most important bondholders in the Chilean corporate sector. Therefore, it is necessary to contrast their role as public creditors (bondholders) with that played by private creditors (banks). This particular role allows us to state a *crowding out hypothesis* which suggests a negative association between the AFPs' ownership participation and the bond's yields, and a positive relationship with the cost of bank debt caused by weaker banking lending relationships when public debt is issued.

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It is worth mentioning that banks are the main source of external funds for Chilean firms. The predominance of intensive long-term lending relationships with banks are the result of capital markets frictions and a weak institutional setting to protect shareholders (Fernández, 2005; Lefort and Walker, 2002). In addition, private creditors are more specialized monitors because they have access to private information about the firms' future prospects; whilst public creditors –such as AFPs in their role as bondholders, must trust the publicly available information alone (Krishnaswami and Subramaniam, 1999). Accordingly, the AFPs in their role as the most important minority shareholders as well as board members exercise their voting rights by supporting the issuance of public debt, rather than private debt, as a disciplining and informative device. This incentive to issue public debt instead of private debt is rooted in the desire of the AFPs to reduce the informational gap with outsiders.

In turn, as the equity stake of AFPs in the company increases, the *crowding out* effect takes place, so that the pension fund managers push the company toward greater amounts of public borrowing to reduce asymmetries of information, with the subsequent weaker bank lending relationship which involves higher expected cost of bank debt. Of course, it is more likely that the higher cost of bank debt occurs when one of two similar firms (in terms of size, industry, etc.) issue more public debt than the other. Similarly, according to Bhojraj and Sengupta (2003), greater institutional ownership intertwined with stronger outside control of the board leads to lower bond yields and higher ratings on their new bond issues. Therefore, as the public debt level increases relative to private debt, the firm can no longer take advantage of the economies of scale on the cost of bank debt and the relations with banks is debilitated. As a result, these arguments show that the increasing presence of AFPs

as shareholders and board members of the firm impacts positively on the marginal cost of bank debt borrowing and negatively on the marginal cost of public debt borrowing.

Therefore, following the monitoring and the crowding out hypotheses, we state that:

H_1: *If the crowding out hypothesis predominates, there is a positive relationship between the cost of bank borrowing and the participation of AFPs in the firms' corporate governance.*

H_2: *If monitoring hypothesis predominates, there is a negative relationship between the bond yields and the participation of AFPs in the firms' corporate governance.*

3. Sample, Data, and Method

3.1 Sample and Data

The dataset used in this study includes firm-level information and bond-level information. Firm-level data is composed of 93 non-financial firms listed on the Santiago Stock Exchange for the period 2009-2014, with a total sample of 417 observations. Firm-level information was obtained from several sources. First, the cost of bank debt was hand-collected from the firm's annual reports, and is defined as the weighted average interest rate of new bank loans issued within a year.[4] Second, the information on AFPs' ownership dynamics was also hand-collected from the Chilean Pension Regulator's annual report entitled "Participation of AFP and AFC in Boards and Meetings" from 2009 to 2014. AFPs are required to report the composition of their investment portfolios, including corporate bonds, to the Pension Regulator. In this way, AFPs regulatory framework provides a unique opportunity to assess the AFPs' ownership dynamics in publicly held companies and its impact on the cost of debt.

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[4] Some firms present different bank loans at different currencies. To deal with this, we have converted all the foreign currency interest rates to rates in Chilean pesos using the interest rate parity formula.

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Bond-level data is obtained from the *Thomson Reuters Eikon* dataset (SDC Module), comprising 104 bonds from a subsample of 52 non-financial firms, for the same period, with a total of 440 observations. *Thomson Reuters Eikon* allows identifying several features of bonds' issuances like issue date and maturity, currency, coupon rate, the seniority type (from senior secured to unsecured bonds), bond credit rating, yield-to-maturity (YTM), bid and ask prices, among others. Following Datta, Iskandar-Datta and Patel (1999) and Elton, Gruber, Agrawal and Mann (2001), we do not consider bonds with special features, like bonds with options (callable or sinking fund bonds), floating rate bonds, zero coupon bonds, as well as bonds with maturities below three years. The latter is because we mainly center our analysis in medium to long term debt rather than short term liquidity management.

The variables considered in the empirical analysis are directly related to the theoretical framework. Since we analyze separately the cost of bank debt and public debt, our dependent variables are linked to each type of instrument. On the one hand, the marginal cost of bank debt (CBD) is measured as the average interest rates of new bank loans issued within a year, weighted by the total amount of new bank loans. On the other hand, the cost of public debt (YTM) is measured through the yield-to-maturity at the end of the fiscal period. Additionally, we also included the average years to maturity, the issued amount, and a set of currency control variables.

According to the main goal of this paper, our first explanatory variable is the ownership participation of the AFPs ($AFPOwn$), computed as the fraction of shares held by the pension fund managers as a proportion of the total number of outstanding shares. We also use a dummy variable ($AFPBoard$) which takes the value 1 if the pension funds are

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represented in the board of directors, and 0 otherwise. According to law, a single AFP cannot hold more than 7% of the outstanding shares in the companies where it invests. Nevertheless, all the AFPs may invest in the same company, and since there are six AFPs in Chile, their joint participation may not exceed 42% of the firm's ownership. Such joint ownership allows the AFPs to play a more active role in corporate governance by coordinated monitoring and choosing their representatives in the board of directors. Such coordination is handled through the AFPs Federation[5] in Chile. Consequently, as a blockholder, the AFPs can choose the directors who represent them on the boards of the firms where they invest.

As we stated above, AFPs participate in firms as shareholders and, in some cases, as bondholders. In turn, to control for such dual holding, we enter the variable *AFPBondholder* that takes value 1 if the pension funds are bondholders, and zero otherwise.

Moreover, since AFPs are not the only institutional investors supposed to engage in monitoring activities, we also introduce as control variable other types of institutional investors (*Inv. Advisor Own*) that could actively participate in corporate governance (e.g. mutual funds, hedge funds, investment advisors, among others).

Following to previous comparable research, we include several firm-level control variables (Lin, Ma, Malatesta and Xuan, 2011; Roberts and Yuan, 2010), such as firm size, age, debt level and public debt, growth opportunities, assets tangibility or collateral, credit rating, the ownership concentration, as well as a set of dummy variables controlling for industry and time.

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[5] *Asociación Gremial de Administradoras de Fondos de Pensiones*, www.aafp.cl

Firm size ($Size$) is measured as the natural logarithm of total assets. It is important to use a control variable for firm size since larger firms will be more willing to use less bank debt when financing growth opportunities. As such, firms can choose financing which does not involve active monitoring (such as retained earnings); inexpensive debt (such as debt with related parties); debt whose cost can be minimized through economies of scale (such public debt); or debt whose cost can be arbitraged in international capital markets (e.g., such as Eurobonds) (Jara and Sánchez, 2012). Similarly, it is important to include the age of the firm (Age), because older companies have more reputation that involves less asymmetries of information which facilitates borrowing (Hadlock and Pierce, 2010).

The Tobin's Q ratio ($Tobin's\ Q$) is used as a proxy variable of growth opportunities (Adam and Goyal, 2008). We control for this variable because theory suggests that firms with valuable growth opportunities are more prone to have problems of asymmetries of information. Therefore, it is expected that firms with more growth opportunities have a higher cost of debt. The firm leverage ($Liabilities/Assets$) is measured as total debt over total assets and is used as a proxy of insolvency risk. Consequently, the higher the debt level, the higher the risk of the investment projects, and because of that, a positive relationship between leverage and the cost of debt is expected. Public debt ratio ($Public\ Debt/Total\ Debt$) is defined as the public debt (corporate bonds and promissory notes) as a share of total interest-bearing debt. This variable was included in the analysis to account for the fact that those firms that issue public debt are usually companies with a sound reputation and widely known in the capital markets. However, these firms will also maintain a lower intensity in lending relationship with banks because they will have lower cost of raising public debt. Therefore, compared to firms that mainly depends on the

lending relationship with banks, the cost of bank debt increases in firms that issue higher levels of public debt.

Asset tangibility or collateral ($Tangibility$) is computed as net property, plant, and equipment over total assets (Rajan and Zingales, 1995; Rajan and Winton, 1995). The better the firm's capacity to offer collaterals to guarantee borrowed funds, the lower the expected default risk and borrowing interest rates. An alternative explanation for this relationship is provided by Lin, Ma, Malatesta and Xuan (2011). They suggest that those firms with more tangible assets may offer higher recovery values in default states, which may imply lower spreads on their loans, all else being equal. Thus, a negative relationship between the asset tangibility and the cost of debt can be expected.

We also control for the default risk by incorporating to all our estimations a credit rating fixed effect. We also include an ownership concentration variable ($CashFlowRights$), the fraction of shares in hands of the majority shareholder, to take into consideration the effect of the power concentration within the firm. Finally, industry and time dummy variables were included as control variables in the econometric models.

3.2 Method

The empirical design examines separately the impact of the AFPs ownership over firms' cost of bank debt and bond's YTM. The firm-level baseline equation (cost of bank debt) follows the next panel specification (equation 1):

$$CBD_{i,t} = \propto + \beta_1\, AFPOwn_{i,t-1} + \beta_2\, AFPBondholder_{i,t-1} + CV_{i,t-1} + ysc_{t,j} + cr_{i,t} + \varepsilon_{i,t} \qquad (1)$$

Where CBD, $AFPOwn$, and $AFPBondholder$ have been defined above for the firm i at time t in an industry j; CV is a set of firm-level control variables, defined in Appendix A. In

addition, we include a set of fixed effects to control for unobservable time-invariant and time effects. Particularly, fixed effects are included at industry-year level (ysc_t). This fixed effect captures industry time-variant variables, such as industry specific growth and economic cycles. We also introduce a credit rating fixed effect in order to control for default probability ($cr_{i,t}$). In addition, in equation (1) standard errors are clustered at firm-level.

In the bond-level specification we follow Collin-Dufresne, Goldstein and Martin (2001) and the extended empirical model proposed by Campbell and Taksler (2003) and Long, David and Jason (2007). The bond-level baseline equation (cost of public debt) follows the next panel specification (equation 2):

$$YTM_{B,t} = \propto +\beta_1\, AFPOwn_{i,t-1} + \beta_2\, AFPBondholder_{i,t-1} + BCV_{B,t-1} + CV_{i,t-1} + ysc_{t,j,k} +$$
$$cr_{i,t} + \varepsilon_{B,t} \tag{2}$$

Where YTM, $AFPOwn$, and $AFPBondholder$ have been defined above for time t of bond b issued by firm i from industry j in currency k. For a shorter notation, we use the sub-index B to denote the previous quarter $B \equiv b, i, j, k$. Quantities are at the end of year t. BCV is a set of bond-level control variables and $CV_{i,t-1}$ is a set of firm-level control variables, defined in Appendix A. We use panel data regressions for our estimations with industry-currency-time fixed effects ($ysc_{t,j,k}$), credit rating fixed effect ($cr_{i,t}$) and clustering standard errors at the firm level.

4. Results

4.1 Descriptive statistics

In Panel A of Table 1 we report the main descriptive statistics of the variables at the firm-level. In Panel B the bond-level information is displayed.

[Insert Table 1 about here]

Table 1 Panel A shows that banks in Chile charge firms with an average annual interest rate (CBD) of 4.9% whilst the bond yields (YTM) are relatively lower, at a level of 4.2%. Concerning ownership structure, the table shows that AFPs as equity investors keep on average 5.7% of the outstanding shares ($AFPOwn$); while the largest investor hold about 46.6% of the ownership ($CashFlowRights$). AFPs show a non-negligible representation in the board of directors of listed firms. In fact, they sit in the board of director of 40% of the firms included in the sample.

[Insert Table 2 about here]

Table 2 shows the Pearson correlation matrix. As expected, institutional participation ($AFPOwn$) is positively and significantly correlated with the cost of bank debt (CBD). A priori, these results support our second research hypothesis that the higher the AFPs' ownership participation is in firms, the higher the costs of bank borrowing. The dummy variable $AFPBoard$ leads toward the same results. Similarly, it can be observed that there is a positive and statistically significant relationship between the participation of AFPs in public firms ($AFPOwn$) and public debt ($Public\ Debt/Total\ Debt$), and a significant negative relationship with bank debt ($Bank\ Debt/Total\ Debt$). These preliminary

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findings seem to support the hypothesis that the AFPs have incentives to push managers toward issuing corporate bonds and promissory notes instead of private, bank debt.

4.2. Multivariate analysis

4.2.1 Propensity to Issue Public Debt

First, in Table 3 we perform a probit regression to determinate the marginal effect of AFP's involvement in the governance of the firms on the firms' propensity to issue bonds. In this case, the dependent variable is a dummy variable which takes the value 1 if firms have issued bonds in the year t, and zero if otherwise. Columns 1 through 3 of Table 3 shows that the marginal effect of AFPs' ownership participation increase the probability to issue bonds between 8.9% and 23%; whilst columns 4 to 6 shows that the AFP participation on board of directors increase the probability to issue bonds between 11.5% and 16.5%. In addition, columns 3 and 6 shows that when AFPs also act as bondholders, it increases the probability to issue bonds in 7.3% and 6.7%, respectively. These results confirm the preliminary intuition that the AFPs acting as shareholders ($AFPOwn$) or bondholders ($AFPBondholder$) positively influence companies to issue bonds.

[Insert Table 3 about here]

4.2.2 Cost of Bank Debt

Table 4 displays the results of the equation (1). All the specifications on Table 4 show a positive and statistically significant relationship between $AFPOwn$ and the cost of bank debt, with an elasticity between 0.052 and 0.065. This means when an AFP ownership participation changes 10%, the associated average cost of bank debt moves in the same direction around 65 basis points. It is important to note that the elasticity is almost

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unchanged when we include additional covariates like AFP-Bondholder role (Column2) and the ownership in hands of other institutions investors (Column 3). This positive relationship is explained by the *crowding out* effect, since AFPs can take advantage of their informative power to encourage firms to issue public debt rather than moving toward bank borrowing. Compared to similar firms in the same industry and credit rating, this causes weaker bank lending relationships which press up the cost of bank debt. In bank-dominated financial systems like in Chile, the cost of bank borrowing is quite sensitive to the bank lending relationship. Consequently, when such relationship becomes worse given the substitution of bank borrowing for public borrowing, the cost of bank debt becomes more expensive due to the debilitated company´s bargaining power. From an empirical point of view, Bharath, Dahiya, Saunders and Srinivasan (2011) finds that close bank lending relationships, measured by the number of repeated borrowing, leads to lowering the loan spreads and that the lending relationship is particularly valuable when borrower transparency is low. Therefore, whenever such relationship is worsen given the substitution of private bank borrowing by public bonds fostered by AFPs, banks take actions, pressing upward the cost of debt.

However, when AFP fulfill the role of bondholder ($AFPBondholder$), the cost of bank debt decreases. In turn, pension fund managers by being bondholders disclose a comparative positive signal about the firms' credit quality that allows the companies to issue bank debt at a relatively lower cost. This effect can be motivated by lending relations with AFPs empower the firms and enhances their negotiation power with banks. Additionally, another plausible explanation comes from the inherent characteristics of the Chilean capital markets, in which most of the firm are affiliated to some local business

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group. Firms affiliated to a business group are generally controlled by family ties through pyramidal corporate ownership structures which allow the creation of internal capital markets within the conglomerates (Saona, San Martín and Jara, 2018). Therefore, if the firm increased its public borrowing, it would become less financially constrained given the financial support of the business group, which allows the firm to improve its bargaining power to press down the cost of bank borrowing.

In consistency with the crowding out effect, note that the Table 4 also shows that the public debt to total debt ratio ($Public\ Debt/Total\ Debt$) is positively related to the cost of bank debt. Since firms with high levels of public debt cannot take advantage of the economies of scale of private debt, the relative cost of bank debt is consequently higher.

[Insert Table 4 about here]

Moreover, Table 5 shows the estimated results of equation (1) replacing the main explanatory variable for the pension fund managers representation in the firm's board of directors. The results show that, when AFP's are represented by a board member, the relationship with the cost of bank debt remains positive. Board composition is one of the most important attributes of corporate governance. To enhance the effectiveness of the board, policy directives usually require a greater proportion of outside or independent directors in the board. But outside, unrelated directors may become effective monitors only if they have proper incentives. Indeed, Monks and Minow (2011) argue that directors become effective, not just because they have no economic ties to the company beyond their duties as directors, but because they are significant shareholders, as is the case described by Chilean pension fund managers, who have equity interests in the company in addition to their representation as independent board members. Hence, the findings show that the

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crowding out effect causes the cost of bank borrowing to increase because of higher support by AFP's board members to issue public debt. This crowding out effect erodes bank lending relationships which eventually causes an increase of the cost of bank borrowing.

[Insert Table 5 about here]

4.2.3 Cost of Public Debt

Table 6 provides the estimates of equation (2) in which we measure the effect of AFP's ownership participation over the bond yields (or public debt). All the specifications in table 6 show a negative and statistically significant relation between $AFPOwn$ and bond yields. The estimations in columns (1) to (5) include interactive year-industry-currency fixed effects, as well as bond-seniority fixed effects and credit-rating fixed effect. The elasticity of the $AFPOwn$ is between -0.013 and -0.020. This means when a 10% change in the AFP ownership participation implies a decrease in the associated *yield-to-maturity* around 17 basis points. It is important to note that the elasticity falls around 6 basis points when we include the AFP-Bondholder role (Columns 4 and 5).

These results are in line with the monitoring arguments. Thus, pension funds ownership acts as a device to reduce the asymmetries of information at least in two different ways. First, AFPs encourage companies to disclose more information about prospects whenever new public debt is issued; and second, the mere fact that these institutional investors invest in corporate bonds is perceived as a positive signal about the companies' credit scores that reduces the cost of public debt.

One concern about our results is the magnitude of the economic effect. Compared to the average effect of AFP ownership on the cost of bank debt (61 basis points), the effect

on bond's yields is four times lower (17 basis points), suggesting that this effect is somewhat limited. This fact can be explained by the mandatory regulation that forces AFP's institutions to invest only in investment grade bonds. In any case, we include credit-rating fixed effects as additional controls, so that the elasticity captures the variation in ownership.

[Insert Table 6 about here]

Finally, the AFP board of directors' representation also is negatively associated with the yield to maturity of corporate bonds, as observed in Table 7. This governance system grants companies with the suitable characteristics to reduce asymmetries of information and lower financing costs when issuing public debt.

The conjunction of all these findings allows us to state that the dynamics of pension fund managers' ownership and the cost of debt are elements that cannot be dissociated. The evidence reported in the Chilean corporate sector supports both the crowding out and the monitoring effects in which firms substitute bank borrowing for public borrowing. This switch in the capital structure is fostered by the benefits that AFPs as institutional investors cause by reducing asymmetries of information and by enhancing firms' governance. As a consequence of this switch, the involvement of AFPs in the governance of the firms results in a decrease of the public debt cost and an increase of the bank debt cost.

[Insert Table 7 about here]

4.2.4 Heterogeneity Analysis

The previous estimations provides the average relationship of AFP ownership participation on the cost of bank and public debt. However, these effects can be more fully

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analyzed by exploiting the heterogeneous response of firms. In this sense, prior corporate finance literature has shown that some firms are more financially constrained (Claessens, Ueda and Yafeh, 2014; Fazzari, Hubbard and Petersen, 1988; Lin, Ma, Malatesta and Xuan, 2011). Thus, our underlying intuition is that the relation of AFPs on the cost of funds should be more relevant for the firms under more financial constraints.

Among the multiple criteria to identify the financial constraints, the literature suggests that the cost of debt could be dependent on firm characteristics such as firms size (Hadlock and Pierce, 2010; Lin, Ma, Malatesta and Xuan, 2011; Titman and Wessels, 1988; Van Binsbergen, Graham and Yang, 2010), leverage (Roberts and Yuan, 2010), or assets tangibility (Almeida and Campello, 2007). Therefore, to shed some light on asymmetric effect of AFPs on the cost of bank debt and public debt, we use three criteria to split the sample and provide separate regressions: firm size, leverage and asset tangibility.

Small size firm and lower proportion of tangible assets are variables related to the absence of collateral and greater opaqueness (Almeida and Campello, 2007). Thus, we assume that the monitoring and crowding out effects induced by the AFPs involvement should be more important for small, highly leveraged firms and for those firms with a lower proportion of tangible assets.

Tables 8 and 9 report the results. In Table 8 the dependent variable is the average interest rate of bank lending. It can be seen that the crowding out (positive effect over cost of bank debt) is more prominent in larger firms (column 1) and in firms with lower levels of tangibility (column 5). More important, Table 9 shows the estimated results of equation (2), in which the dependent variable is the bond yield to maturity. Consistently with the monitoring hypothesis, the effect of AFP ownership participation is more important in

those firms that are supposed to be more financially constrained. Specifically, the impact of AFP ownership over the cost of public debt is more prominent in smaller firms and firms with lower levels of tangibility.

[Insert Tables 8 and 9 about here]

5. Conclusions

In this paper we analyze how the involvement of pension fund managers in the corporate governance of Chilean firms may affect the corporate finance. Chile is a unique setting to study the role of pension funds since the pension system has switched from a public system to a private one, with the AFPs being the managers of the funds capitalized through the individual contribution system which involves the entire Chilean workforce. Thus, AFP are influential institutional investors that both have non-negligible fraction of shares and sit at the board of directors. Specifically, we argue that the involvement of AFPs in the corporate governance modifies the debt preferences and is related with the cost of debt (both bank and public debt). We provide two possible theoretical rationales: the monitoring effect and the crowding out effect.

We first find that the involvement of AFPs in the corporate governance increases the probability of the firm to issue bonds; this effect being stronger when AFPs are shareholders than when they are directors. Our main findings show that, on the one hand, institutional ownership increases the cost of bank borrowing. This is supported by what we call the crowding-out view, which suggests that as the equity stake of AFPs in the company increases, there will be a crowding out effect of private debt for public debt. In turn, AFP participation could damage lending relationships with banks by influencing firms' managers to issue public debt, because AFP also acts in some cases as bondholders.

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Therefore, as the public debt level increases relative to private debt, the firm can no longer take advantage of the economies of scale on bank borrowing and consequently the cost of bank debt increases.

On the other hand, our results show that the investors price positively the monitoring role of AFPs. Specifically, we find that while AFPs' participation in the ownership or in the board of directors increases, the bond's yields to maturity are reduced. This is consistent with the role played by AFPs in the corporate governance that allows the reduction of asymmetries of information, and consequently the firms cost of public debt are reduced.

Taken together, our results support the improvement of the corporate governance that the AFPs can bring. These institutional investors seem to alleviate the problems of financial constraints and asymmetric information, and enable the firms to raise cheaper public debt.

Finally, there are several possible extensions for this work. Another approach could be the analysis of pension funds' participation in listed firms and its impact on the debt structure –not the cost of debt– may shed light on the capital structure decisions of nonfinancial firms. Similarly, other kinds of institutional investors not considered in this study might be included. This may clarify some ideas which are still in darkness concerning the investment decisions of pension funds as well as the finance decisions made by the Chilean corporate sector.

TABLE 1. Descriptive Statistics

A. Firm Level Statistics

Variable	Mean	Std. Dev.	Min	Max
CBD	0.049	0.017	0.024	0.129
AFPOwn	0.057	0.070	0.000	0.305
AFPBoard	0.400	0.491	0.000	1.000
Size	26.631	1.535	22.736	31.014
Age	3.497	0.785	0.000	4.977
Liabilities/Assets	0.536	0.158	0.162	0.936
Public Debt/Total Debt	0.370	0.341	0.000	0.997
Tobin's Q	1.258	0.473	0.580	3.304
Cash Flow Rights	0.466	0.238	0.033	1.063
Tangibility	0.452	0.204	0.017	0.881
AFPBondholder	0.405	0.492	0.000	1.000
Business Group	0.674	0.468	0.000	1.000
Inv. Adv. Own	0.131	0.116	0.000	0.548
Obs.	417			
n° firms	93			

B. Bond Level Statistics

Variable	Mean	Std. Dev.	Min	Max
YTM	0.042	0.010	0.022	0.077
Years to Mat.	2.510	0.436	1.099	4.094
Issue Amount	18.321	1.059	15.392	20.906
Obs.	440			
n° bonds	104			
n° firms	52			

Notes: This table displays the mean, standard deviation, minimum and maximum values of all variables included in baseline regressions from Eq.1 and Eq.2. Panel A includes variables at firm level for the whole sample, Whilst Panel B shows the bond level variables. Firm's level variables are CDB defined as the marginal interest rate of new bank's lending within a year, AFPOwn as the total ownership in hands of AFP, AFPBoard is a dummy that takes value 1 if AFPs votes at least one director on board, and zero otherwise. Bond's level variables includes YTM defined as the yield to maturity. Complete definitions for the remaining control variables are in Appendix A.

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TABLE 2: Correlation Matrix: Firm-level data

Variables	Cost Bank Debt	AFP Own	AFP Board	Public Debt	Size	Liabilities / Assets	Tobin's Q	Business Group	Cash Flow Rights	Tangibility	Age	AFP-Bondholder	Non-Bond Issuer
AFPOwn	0.090**												
AFPBoard	0.015**	0.767***											
Public Debt/Total Debt	0.067*	0.273***	0.259***										
Size	-0.105*	0.411***	0.314***	0.486***									
Liabilities/Assets	0.105**	0.030	0.040	0.251***	0.342***								
Tobin's Q	0.009	0.101**	0.124**	0.049	0.128***	0.038							
Business Group	-0.122***	0.158***	0.052	0.202***	0.261***	0.094**	0.030						
Cash Flow Rights	0.036	-0.150***	-0.124**	0.022	0.124**	0.100**	-0.171***	0.016					
Tangibility	-0.011	-0.005	-0.052	-0.142***	0.010	-0.139	0.088*	0.158***	-0.100**				
Age	-0.113**	-0.009	-0.026	0.034	0.109**	-0.071	0.014	0.165***	-0.129***	0.214***			
AFPBondholder	-0.046	0.407***	0.339***	0.499***	0.554***	0.128***	0.157***	0.152***	0.020	0.006	0.092*		
Non-Bond Issuer	-0.015	-0.058	-0.069	-0.464***	-0.171***	-0.140**	0.004	-0.075*	-0.039	0.122***	0.103*	-0.167***	
Inv. Adv. Own	0.054	0.161***	0.202***	0.175***	0.016	0.112	0.196***	-0.069	-0.246***	-0.188***	-0.153***	0.017	-0.084*

This table presents the Pearson's correlation matrix. *Cost Bank Debt* represents the marginal cost of bank debt. *AFP Own* is the ownership participation of the AFPs. *AFP Board Dir* is a dummy variable which take value 1 if the pension funds are represented in the board of directors, and 0 otherwise. *Public Debt/Total Debt* is the proportion of public debt over the total interest-bearing cost. *Size* is the natural logarithm of total assets. *Liabilities/Assets* is the total debt over total assets. *Tobin's Q* is the Tobin's Q ratio. *Business Group* is a dummy variable which take value 1 if the firm belongs a business group, and 0 otherwise. *Cash Flow rights* refer to the total number of shares in hands of the majority shareholder as a proportion of the total number of outstanding shares. *Tangibility* is a ratio of the net property, plant, and equipment over the total assets. *Age* refer to the Ln of years of the firm. *AFPBondholder* is a dummy variable which take value 1 if the AFP is a bondholder, and 0 otherwise. *Non-Bond Issuer* is a dummy variable which take value 1 if the firm is a non-bond issuer, and 0 otherwise. *Inv.Adv.Own.* represent the proportion of shares in hands of institutional investors' advisors. The significance level is denoted at *** less than 1%, ** less than 5%, and * less than 10%.

TABLE 3. AFP and the Propensity to issue Bonds

	Dependent variable: Dummy new bonds issued (1 if firm issue bonds in year t)					
	(1)	(2)	(3)	(4)	(5)	(6)
Dummy AFP	0.230***	0.106***	0.089**			
	(0.034)	(0.040)	(0.040)			
AFPBoard				0.165***	0.115***	0.115***
				(0.042)	(0.043)	(0.043)
AFPBondholder			0.073*			0.067*
			(0.044)			(0.040)
Public Debt/Total Debt		0.029	0.001		-0.000	-0.000
		(0.066)	(0.063)		(0.062)	(0.062)
Size		0.096***	0.085***		0.080***	0.080***
		(0.018)	(0.018)		(0.018)	(0.018)
Liabilities/Assets		0.235*	0.265*		0.329**	0.329**
		(0.133)	(0.140)		(0.138)	(0.138)
Tobin's Q		0.040	0.039		0.032	0.032
		(0.042)	(0.041)		(0.040)	(0.040)
Cash Flow Rights U. Own.		0.007	-0.018		-0.031	-0.031
		(0.088)	(0.087)		(0.077)	(0.077)
Tangibility		0.078	0.090		0.093	0.093
		(0.130)	(0.123)		(0.113)	(0.113)
Age		-0.012	-0.011		-0.014	-0.014
		(0.020)	(0.020)		(0.018)	(0.018)
Business Group		-0.138**	-0.137**		-0.121**	-0.121**
		(0.059)	(0.057)		(0.053)	(0.053)
Observations	417	416	416	417	416	416
Pseudo-R-squared	0.851	0.371	0.379	0.387	0.391	0.391
Chi-squared	30.39	112.8	114	16.23	116.1	116.1

Notes. This table displays the marginal effect probit regressions of propensity to issue bonds. Dependent variable takes value 1 if firms have issued bonds in the year t, and zero otherwise. AFPOwn is the total ownership in hands of AFP, AFPBoard is a dummy that takes value 1 if AFPs votes at least one director on board, and zero otherwise. All the independent variables are included in lag (t-1). Complete definitions for the remaining control variables are in Appendix A. The results are controlled with year fixed effects and industry fixed effects. Robust standard errors in parentheses. *, **, and *** indicate significance at the 10%, 5% and 1% levels, respectively.

TABLE 4. Pension Funds Ownership (AFP) and the Cost of Bank Debt

	Dependent variable: Average interest rate of new bank lending's – converted to CLP (as fraction, e.g. 0.03=3%)		
	(1)	(2)	(3)
AFP Own	0.052***	0.066***	0.065***
	(0.020)	(0.019)	(0.019)
AFPBondholder		-0.005*	-0.005*
		(0.003)	(0.003)
Public Debt/Total Debt	0.011***	0.011**	0.010**
	(0.004)	(0.004)	(0.004)
Size	-0.006***	-0.004***	-0.004***
	(0.001)	(0.001)	(0.001)
Liabilities/Assets	0.030***	0.021***	0.021***
	(0.007)	(0.006)	(0.006)
Tobin's Q	-0.001	-0.004	-0.004
	(0.003)	(0.002)	(0.002)
Cash Flow Rights	0.002	0.006	0.006
	(0.005)	(0.004)	(0.004)
Tangibility	-0.006	-0.007	-0.007
	(0.006)	(0.006)	(0.006)
Age	-0.002*	0.000	0.000
	(0.001)	(0.001)	(0.001)
Non-Bond Issuer	0.001	0.001	0.001
	(0.003)	(0.003)	(0.003)
Business Group	-0.008**	-0.010***	-0.010***
	(0.003)	(0.002)	(0.002)
Inv. Advisor Own			0.002
			(0.009)
Intercept	0.191***	0.140***	0.139***
	(0.025)	(0.022)	(0.023)
Observations	417	417	417
R-squared	0.574	0.336	0.336
Adj. R-Squared	0.376	0.266	0.264
VIF	1.65	1.72	1.73

Notes. This table displays the results of the firm level OLS regressions of Eq.1. Dependent variable is the Cost of Bank Debt (CBD). AFPOwn is the total ownership in hands of AFP. AFPBondholder is a dummy that takes value 1 if the pension funds are bondholders, and zero otherwise. Complete definitions for the remaining control variables are in Appendix A. Interacted year-industry fixed effects are included in the models as well as Credit Rating fixed effects. Robust standard errors in parentheses. VIF (Variance inflation factor) is a test of multicollinearity. *, **, and *** indicate significance at the 10%, 5% and 1% levels, respectively.

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TABLE 5. AFP on Board and the Cost of Bank Debt

VARIABLES	Dependent variable: Average interest rate of new bank lending's – converted to CLP (as Fraction, e.g. 0.03=3%)		
	(1)	(2)	(3)
AFPBoard	0.005**	0.006**	0.006**
	(0.002)	(0.002)	(0.002)
AFPBondholder		-0.005*	-0.005*
		(0.003)	(0.003)
Public Debt/Total Debt	0.008*	0.010**	0.010**
	(0.004)	(0.004)	(0.004)
Size	-0.004***	-0.004***	-0.004***
	(0.001)	(0.001)	(0.001)
Liabilities/Assets	0.021***	0.021***	0.020***
	(0.006)	(0.006)	(0.006)
Tobin's Q	-0.004	-0.004	-0.004
	(0.002)	(0.002)	(0.003)
Cash Flow Rights	0.004	0.004	0.005
	(0.004)	(0.004)	(0.004)
Tangibility	-0.008	-0.008	-0.007
	(0.006)	(0.006)	(0.006)
Age	-0.001	-0.001	-0.000
	(0.001)	(0.001)	(0.001)
Non-Bond Issuer	0.001	0.001	0.001
	(0.003)	(0.003)	(0.003)
Business Group	-0.010***	-0.010***	-0.010***
	(0.003)	(0.003)	(0.003)
Inv. Advisor Own			0.005
			(0.009)
Intercept	0.142***	0.129***	0.127***
	(0.020)	(0.022)	(0.022)
Observations	417	417	417
R-squared	0.315	0.322	0.323
Adj. R-Squared	0.246	0.252	0.250
VIF	1.64	1.68	1.70

Notes. This table displays the results of the firm level OLS regressions of Eq.1. Dependent variable is the Cost of Bank Debt (CBD). AFPBoard is a dummy that takes value 1 if AFPs votes at least one director on board, and zero otherwise. AFPBondholder is a dummy that takes value 1 if the pension funds are bondholders, and zero otherwise. Complete definitions for the remaining control variables are in Appendix A. Interacted year-industry fixed effect are included in the models as well as Credit Rating fixed effects. Robust standard errors in parentheses. VIF (Variance inflation factor) is a test of multicollinearity. *, **, and *** indicate significance at the 10%, 5% and 1% levels, respectively.

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TABLE 6: Pension Funds Ownership (AFP) and Bond Yields

	(1)	(2)	(3)	(4)	(5)
	Dependent Variable: Corporate Bond's Yield to Maturity (as Fraction, e.g. 0.03=3%)				
AFPOwn	-0.020***	-0.021***	-0.013**	-0.014**	-0.017**
	(0.006)	(0.006)	(0.006)	(0.006)	(0.007)
AFPBondholder				0.004*	0.002***
				(0.002)	(0.001)
Ln(Years to Mat.)		0.002***	0.002***	0.002***	0.001
		(0.001)	(0.001)	(0.001)	(0.001)
Ln(Issue Amount)		0.000	0.000	0.001	-0.001
		(0.000)	(0.001)	(0.001)	(0.001)
Size			-0.001	-0.000	0.001
			(0.001)	(0.001)	(0.002)
Public Debt/Total Debt			0.003**	0.001	0.014*
			(0.002)	(0.002)	(0.007)
Liabilities/Assets			0.017**	0.013*	-0.003**
			(0.007)	(0.007)	(0.001)
Tobin's Q			-0.003**	-0.003**	0.001
			(0.001)	(0.001)	(0.004)
Cash Flow Rights			0.002	0.000	-0.006
			(0.003)	(0.003)	(0.005)
Tangibility			-0.002	-0.006	0.000
			(0.005)	(0.005)	(0.001)
Age			0.001	0.001	0.003
			(0.001)	(0.001)	(0.003)
Inv. Advisor Own					-0.001
					(0.007)
Business Group					0.002
					(0.002)
Intercept	0.077***	0.060***	0.069***	0.059***	0.074**
	(0.003)	(0.009)	(0.016)	(0.018)	(0.031)
Observations	440	440	415	415	415
R-squared	0.603	0.611	0.621	0.624	0.625
Adj. R-Squared	0.547	0.554	0.558	0.561	0.559
VIF	1.00	1.04	1.73	1.72	1.98

Notes. This table displays the results of bond level OLS regressions of Eq.2. Dependent variable is the Bond's Yield to Maturity (YTM). AFPOwn is the total ownership in hands of AFP. AFPBondholder is a dummy that takes value 1 if the pension funds are bondholders, and zero otherwise. Complete definitions for the remaining control variables are in Appendix A. Interacted Year-industry-currency fixed effects, bond seniority fixed effects and credit rating fixed effects were included in the models. Robust standard errors in parentheses. VIF (Variance inflation factor) is a test of multicollinearity. *, **, and *** indicate significance at the 10%, 5% and 1% levels, respectively.

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TABLE 7: AFP on Board (AFP) and the Bond Yields

	Dependent Variable: Corporate Bond's Yield to Maturity (as Fraction, e.g. 0.03=3%)				
	(1)	(2)	(3)	(4)	(5)
AFPBoard	-0.002**	-0.002***	-0.002***	-0.003***	-0.004***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
AFPBondholder				0.005**	0.002***
				(0.002)	(0.001)
Ln(Years to Mat.)		0.003***	0.002***	0.003***	0.001
		(0.001)	(0.001)	(0.001)	(0.001)
Ln(Issue Amount)		0.000	0.000	0.001	-0.001
		(0.001)	(0.001)	(0.001)	(0.001)
Size			-0.000	0.000	0.001
			(0.001)	(0.001)	(0.002)
Public Debt/Total Debt			0.003*	0.001	0.015**
			(0.002)	(0.002)	(0.007)
Liabilities/Assets			0.018***	0.013*	-0.003**
			(0.007)	(0.007)	(0.001)
Tobin's Q			-0.003**	-0.003**	0.004
			(0.001)	(0.001)	(0.004)
Cash Flow Rights			0.002	0.001	-0.003
			(0.003)	(0.003)	(0.005)
Tangibility			-0.001	-0.004	-0.000
			(0.005)	(0.005)	(0.001)
Age			0.001	0.001	0.002
			(0.000)	(0.000)	(0.003)
Inv. Advisor Own					-0.001
					(0.007)
Business Group					0.004
					(0.003)
Constant	0.075***	0.057***	0.059***	0.046**	0.079**
	(0.003)	(0.009)	(0.016)	(0.018)	(0.031)
Observations	440	440	415	415	415
R-squared	0.599	0.608	0.624	0.628	0.631
Adj. R-Squared	0.543	0.551	0.561	0.564	0.566
VIF	1.00	1.02	1.65	1.64	1.78

Notes. This table displays the results of bond level OLS regressions of Eq.2. Dependent variable is the Bond's Yield to Maturity (YTM). AFPBoard is a dummy that takes value 1 if AFPs votes at least one director on board, and zero otherwise. AFPBondholder is a dummy that takes value 1 if the pension funds are bondholders, and zero otherwise. Complete definitions for the remaining control variables are in Appendix A. Interacted Year-industry-currency fixed effects, bond seniority fixed effects and credit rating fixed effects were included in the models. Robust standard errors in parentheses. VIF (Variance inflation factor) is a test of multicollinearity. *, **, and *** indicate significance at the 10%, 5% and 1% levels, respectively.

TABLE 8. Pension Funds Ownership (AFP) and the Cost of Bank Debt (Heterogeneity)

	Dependent variable: Average interest rate of new bank lending's – converted to CLP (as Fraction, e.g. 0.03=3%)					
	Small Size	Large Size	Low leverage	High leverage	Tangibility Low	High tangibility
VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
AFPOwn	0.031	0.078***	0.051*	0.084***	0.104***	0.004
	(0.035)	(0.024)	(0.028)	(0.021)	(0.027)	(0.037)
Public Debt/Total Debt	0.004	0.002	0.022***	-0.005	0.007	0.010
	(0.007)	(0.006)	(0.008)	(0.006)	(0.006)	(0.007)
Size	-0.006***	-0.005***	-0.001	-0.007***	-0.008***	-0.003**
	(0.001)	(0.002)	(0.001)	(0.001)	(0.002)	(0.001)
Liabilities/Assets	0.036***	-0.004	-0.004	0.036***	0.028***	-0.007
	(0.008)	(0.011)	(0.013)	(0.014)	(0.008)	(0.013)
Tobin's Q	-0.002	-0.001	-0.002	-0.001	-0.000	-0.009***
	(0.004)	(0.004)	(0.004)	(0.003)	(0.004)	(0.003)
Cash Flow Rights	0.001	0.005	0.005	0.006	0.009	0.001
	(0.006)	(0.006)	(0.007)	(0.007)	(0.009)	(0.005)
Tangibility	-0.011	-0.034***	-0.003	-0.016**	-0.032***	0.005
	(0.007)	(0.010)	(0.011)	(0.008)	(0.012)	(0.015)
Age	-0.001	-0.001	-0.001	0.002	-0.002	0.001
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.003)
AFPBondholder	-0.009	-0.001	-0.017***	0.001	-0.002	-0.009*
	(0.006)	(0.003)	(0.005)	(0.003)	(0.004)	(0.004)
Inv. Advisor Own	0.002	-0.035*	0.026	-0.002	-0.029*	0.063***
	(0.014)	(0.018)	(0.018)	(0.010)	(0.016)	(0.016)
Non-Bond Issuer	0.003	-0.006	0.005	-0.004	-0.005	-0.001
	(0.003)	(0.005)	(0.004)	(0.005)	(0.005)	(0.003)
Business Group	-0.007	-0.013***	-0.010**	-0.010*	-0.003	-0.015***
	(0.004)	(0.004)	(0.004)	(0.005)	(0.004)	(0.003)
Constant	0.184***	0.179***	0.048	0.213***	0.224***	0.113***
	(0.035)	(0.044)	(0.037)	(0.025)	(0.039)	(0.034)
Observations	194	218	209	203	199	213
R-squared	0.466	0.485	0.425	0.503	0.480	0.418
Adj. R-Squared	0.337	0.370	0.290	0.385	0.355	0.294
VIF	1.22	1.29	1.32	1.43	1.21	1.55

Notes. This table displays the results of the firm level OLS regressions of Eq.1 splitting the sample by firm size, capital structure and asset tangibility. Dependent variable is the Cost of Bank Debt (CBD). AFPOwn is the total ownership in hands of AFP. AFPBondholder is a dummy that takes value 1 if the pension funds are bondholders, and zero otherwise. Complete definitions for the remaining control variables are in Appendix A. Interacted year-industry fixed effects are included in the models as well as Credit Rating fixed effects. Robust standard errors in parentheses. VIF (Variance inflation factor) is a test of multicollinearity. *, **, and *** indicate significance at the 10%, 5% and 1% levels, respectively.

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TABLE 9. Pension Funds Ownership (AFP) and Bond Yields (Heterogeneity)

Dep. Var.: Corporate Bond's Yield to Maturity (as Fraction, e.g. 0.03=3%)

	Small Size	Large Size	Leverage: Low	Leverage: High	Tangibility Low	Tangibility High
	(1)	(2)	(3)	(4)	(5)	(6)
AFPOwn	-0.016**	0.013	-0.023***	-0.014	-0.022*	0.012
	(0.007)	(0.043)	(0.007)	(0.018)	(0.012)	(0.017)
Ln(Years to Mat.)	0.001	-0.000	0.003**	-0.002	0.001	0.004**
	(0.001)	(0.001)	(0.001)	(0.002)	(0.001)	(0.002)
Ln(Issue Amount)	0.003***	0.000	0.002*	0.001	0.002**	-0.000
	(0.001)	(0.000)	(0.001)	(0.001)	(0.001)	(0.001)
Size	-0.003	0.008	0.001	0.003**	-0.000	0.001
	(0.002)	(0.012)	(0.001)	(0.001)	(0.001)	(0.001)
Public Debt/Total Debt	-0.000	-0.020*	-0.000	-0.006	0.002	0.006
	(0.002)	(0.011)	(0.002)	(0.005)	(0.002)	(0.005)
Liabilities/Assets	-0.002	0.005	0.011	-0.004	-0.012	0.008
	(0.009)	(0.032)	(0.012)	(0.013)	(0.014)	(0.010)
Tobin's Q	-0.004***	0.001	-0.004**	0.004*	-0.007***	0.003
	(0.001)	(0.007)	(0.002)	(0.002)	(0.002)	(0.002)
Cash Flow Rights	-0.005	-0.033	-0.005	-0.005	0.004	-0.002
	(0.005)	(0.025)	(0.005)	(0.004)	(0.006)	(0.004)
Tangibility	0.001	0.001	-0.011***	-0.004	0.006	-0.013
	(0.003)	(0.040)	(0.004)	(0.007)	(0.006)	(0.013)
Age	-0.000	0.002	0.002	0.002	0.001	0.001
	(0.001)	(0.008)	(0.001)	(0.002)	(0.001)	(0.002)
AFPBondholder	-0.002	-	0.004**	-0.005	-0.006	0.002
	(0.002)	-	(0.002)	(0.005)	(0.011)	(0.002)
Inv. Advisor Own	0.000	-0.057	0.007	-0.020	-0.004	-0.025***
	(0.005)	(0.046)	(0.007)	(0.014)	(0.006)	(0.009)
Business Group	0.002	-	-0.001	0.006**	-0.001	0.009**
	(0.001)	-	(0.002)	(0.003)	(0.002)	(0.004)
Constant	0.064*	-0.115	-0.023	0.002	0.030	0.047**
	(0.038)	(0.388)	(0.028)	(0.028)	(0.031)	(0.022)
Observations	217	198	232	183	213	202
R-squared	0.663	0.822	0.547	0.716	0.571	0.695
Adj. R-Squared	0.604	0.785	0.490	0.665	0.511	0.646
VIF	1.38	1.76	1.81	2.13	1.83	2.38

Appendix A – Definition of variables

Variable	Variable name	Definition
CBC	Cost of bank debt	The average interest rates of new bank loans issued within a year, weighted by the total amount of new bank loans
YTM	Yield-to-maturity	The yield-to-maturity at the end of the fiscal period
AFPOwn	AFPs' ownership	The number of shares in hands of the AFPs as a proportion of the total number of outstanding shares.
AFPBondholder	Dual holding	Dummy variable that take value 1 if the pension funds are bondholders, and zero otherwise
AFPBoard	AFP as board members	Dummy variable that take value 1 if AFPs are represented in the board of directors, and zero otherwise.
Liabilities/Assets	Total liabilities over total assets	Total liabilities / Total assets
Public Debt/Total liabilities	Public debt over total liabilities	Public Debt / Total Liabilities
Tobin's Q	Tobin's Q	(Equity market value + Debt book value)/(Equity book value + Debt book value)
Size	Size of the firm	Ln of total assets
Age	Age of the firm	Ln of years of the firm
Non-Bond Issuer	Firm that does not issue bonds.	Dummy variable which take value 1 if the firm is a non-bond issuer, and 0 otherwise.
Business Group	Business Group	Dummy variable which take value 1 if the company belongs to a business group, and 0 otherwise.
Cash Flow Rights	Controlling ownership concentration	The number of shares held by the pension fund managers as a proportion of the total number of outstanding shares
Tangibility	Asset tangibility	Net property, plant, and equipment / Total assets
Inv. Adv. Own	Investor Advisor ownership	Ownership in hands of institutional investors advisors.
Years-to-maturity	Ln(Years to maturity)	Ln of the average years to maturity
Issue amount	Ln(Issue Amount)	Ln of issue amount of the bonds considered
Year FE; Industry FE; Year-Industry-Currency FE; Bond seniority FE; Credit Rating FE	Control dummy variables	A set of dummy variables to control all the heterogeneity within data.

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