

BANKS' EQUITY HOLDINGS AND THEIR IMPACT ON SECURITY ISSUES

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Abstract

In this paper we study the relationship between the size of banks' equity stakes on non-financial firms and the security (stocks and bonds) issues decisions of those firms. We use an international database with 21197 observations distributed along the period 2000 to 2013 to show that banks take an equity position in firms either to expropriate the current shareholders or to strategically open the possibility of future business opportunities once firms are listed on the stock exchange. The first effect, which dominates when banks hold low equity stakes hinders security issues. On the contrary, the second (strategic) effect appears for high stakes and stimulates security issues, particularly in growth firms. Moreover we have observed an increase in banks' stake after an IPO, mainly in growth firms, as a way for banks to continue exercising influence over their partially-owned firms. Besides, after an IPO, there is a reduction in the financing cost particularly in bank-participated growth firms, where we expect less bank expropriation. Finally, a comparison of the main effects once we compare firms in Anglo-Saxon versus firms in non-Anglo-Saxon countries is also conducted.

Keywords: Banks, Security issues, Monitoring, Expropriation.

JEL classification: G21, G32.

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1. Introduction

Although banks' equity holdings are restricted in the US², it is common for banks in continental Europe to take significant equity positions in firms (Allen and Gale, 2001). The literature in this area has provided different arguments to justify the role of banks as equity and debt holders in non-financial firms. Berlin *et al.* (1996) emphasize that banks may hold equity blocks to be able to expropriate the rest of uninformed investors. Other authors (Hellmann *et al.*, 2004) show that banks strategically buy stakes in firms as an option to enjoy rents as future lenders or security underwriters of the firm.³

In this paper we argue that, if banks invest in firms for either expropriation or strategic reasons, then the presence of bank ownership must be reflected in the financing decisions of firms. In particular, we focus our attention on the securities issues decisions of firms. We argue that according to expropriation motives, banks have lower incentives to accommodate firms' new stock issues because expropriation is more difficult under the scrutiny of financial markets. On the contrary, strategic motives increase banks' incentives to facilitate firms' security issues because of their ability to enjoy greater rents as security underwriters or future lenders of public firms. Hence, if the first effect is true, the relationship between bank holdings and securities issues should be negative; whereas the relationship should be positive if the second effect prevails.

The literature has shown mixed evidence about the relationship between banks' equity holdings and security issues. Miarka and Tröge (2005) use a sample of Japanese firms to show a positive relationship between the presence of bank stake holdings in

² The Gramm–Leach–Bliley Financial Services Modernization Act of 1999 has loosened restrictions imposed by the Glass Steagall Act of 1933 on bank ownership of equity in non-financial firms.

³ Yasuda (2007) for Japan, and Yasuda (2005) for the U.S. find that banks' equity holdings, particularly when combined with bank loans, have a positive impact on the probability of being selected as underwriters, given that this feature is interpreted positively by the financial markets. Then, lending banks may strategically maintain equity holdings as an entrance to the bond underwriting market.

firms and the probability of these firms issuing public debt. They argue that external investors delegate the monitoring tasks of stockholders to the bank and that this aspect favors the issuance of bonds by the firm. Kroszner and Strahan (2001a b) find a negative relationship and argue that this is due to the conflict of interests between lenders and shareholders.

In this paper we conciliate both results by including in the analysis the stake of banks. We show that there exists a non-linear (U-shape) relationship between the size of a bank's equity stake and the likelihood that the firm issues new shares or debt. In particular, when bank stakes are low (i.e. below around 50% of ownership), the relationship between bank's equity and stock issues is negative. However, the relationship is positive when bank equity stakes are higher than this threshold. A similar argument is true for debt issues. We argue that this non-linear relationship exists because of the balance between the expropriation effect and the strategic one is contingent on bank's equity stake. When such stake is low, the expropriation argument dominates because for low stakes banks do not fully internalize the expropriation costs; hence the negative relationship dominates. For large stakes, expropriation costs are too large and, thus, banks prefer to engage in underwriting and/or lending activities for strategic reasons and exploit firms' future growth rents. The consequence is that in this scenario banks favor security issues.

We also show that both the expropriation and the strategic effects are present in our data once we distinguish between growth and non-growth firms. First, after an IPO, there is an increase in banks' stake particularly in growth firms. We connect this result with the interests of bank to exercise influence in listed firms and gain access to future business opportunities like securities underwritings (strategic motive). Such business opportunities will be higher in growth firms. Second, we show that after an IPO, financing costs

decrease to a larger extent for growth firms that are partially owned by banks in comparison to non-growth ones. We explain this result in terms of the intention of banks to facilitate good borrowing conditions to recently-listed growth firms as a way to gain future business opportunities in such value-creating firms.

Finally, once we confront firms in Anglo-Saxon countries versus firms in non-Anglo-Saxon ones, we have found that banks' stake stimulate security issues in Anglo-Saxon countries and deter it in non-Anglo-Saxon ones. We connect this finding with the existence of a complementary (substitution) relationship between market financing and bank financing in the Anglo-Saxon (Non-Anglo-Saxon) countries.

The remainder of the paper is organized as follows. We explain the literature and formulate our hypotheses in Section 2. In Section 3, we show the descriptive statistics of the main variables in our analysis. In Section 4 we conduct the econometric study and present our main results. We discuss the presence of our main effects and provide further support in Section 5. Section 6 concludes.

2. Theory and hypotheses

Firms' access to capital markets is limited due to frictions like information asymmetries that hinder the buying decisions of external investors (Loughran *et al.*, 1994), as well as by the existence of flotation costs. One of the well-known mechanisms for overcoming such problems is to use a reputable underwriter that supports the flotation of firms. Banks are natural candidates to play this role given that their survival depends on maintaining their reputation with external investors (Slovin and Young, 1990). Since banks tend to invest in firms that are essentially sound (Allen and Gale, 2001), the presence of banks in a firm's ownership structure reduces the information asymmetries between external investors and the firm. The certification role of banks during the IPO

process is well studied in the literature (Beatty and Ritter 1986, Carter and Manaster 1990, Hansen and Torregrosa 1992, Kutsuna *et al.* 2007).

Additionally, banks may be interested in charging low fees when underwriting new issues because this increases the possibility of future underwritings with the firm (Krishnan, 2006). Yasuda (2007) studies bond issues and shows that a bank's equity holding combined with credit leads to discounts in the underwriting fees.

Apart from the reduction in information asymmetries and the underwriting fees, banks may stimulate the entrance of new investors by reducing the agency problems within the issuing firms, mainly those between shareholders and debtholders. This is so because banks generally play this double role (Kroszner and Strahan, 2001a b) and they have power which is strong enough to influence firm's decisions in order to overcome these conflicts. Remarkably, banks' power goes well beyond their stake given that they act as delegated monitors (Diamond, 1984) on behalf of other shareholders. This makes banks "natural" leaders that can induce a firm to make decisions in the interest of both shareholders and debtholders.⁴ Gonzalez (2006) shows that markets react positively to the entrance of banks in a firm's ownership structure mainly if it is accompanied with an increase in debt. Puri (1996) argues that external investors discount the beneficial effect of banks' equity holding as they are more willing to pay higher prices for bank-backed security issues. Same conclusion is found by Schenone (2004) in the analysis of IPOs. Under this point of view, the presence of banks in a firm's ownership structure facilitates security issues.⁵

⁴ Lee and Chang (2013) show that when control rights are larger than cash-flow rights (a typical situation of bank blockholding), debt maturity is high, which is consistent to a reduced conflict between shareholders and debtholders.

⁵ A different type of argument involving earnings management suggest that large blockholders, like banks, are more eager to conduct earnings management in their partially-owned firms (Goh *et al.*, 2013). Such practice undoubtedly will favor in the short-term the issue of securities on financial markets in better conditions for the borrower.

Apart from that, banks may be interested in acquiring a stake in firms that may be eventually listed in the near term for purely strategic reasons, particularly if these are growth firms (Hellmann *et al*, 2004). This is so because the presence of a bank in a firm's ownership structure gives this institution an advantage in being chosen as lender and/or underwriter in future security issues once a firm is listed on the stock market (Krishnan, 2006). In such a situation, banks may obtain benefits from the future lending and/or underwriting business that these firms may generate once they are listed.

Hence, relying on the aforementioned reduction in fees, in information asymmetries as well as in agency costs and given the strategic possibilities of banks' equity holdings, we can state as a first hypothesis:

H1: The presence of banks in a firm's ownership structure has a positive impact on a firm's probability to be listed on the stock market, particularly in growth firms.

A second dimension that we explore in order to fully characterize the effect of banks' equity holdings on security issues is the size of banks' stake. Empirical papers that examine this relationship have found opposite results. On the one hand, Cable (1985) and Gorton and Schmid (2000) show that firms with a high proportion of banks' equity perform better. On the other hand, Berlin *et al.* (1996) show that banks' stakes in borrower firms may be harmful for financial performance, as well as for other stakeholders, when the stake is not too large. The reason for the latter finding is that blockholder banks have incentives to expropriate their partially-owned firms when their stake is not too large because they only internalize a share of the expropriation costs that is proportional to their stake. At the same time, banks, despite having a low stake, have sufficient power to drive firms' decisions in the direction of their own interests due to different reasons: first, banks may hold the representation of some minority shareholders with whom they are closely linked through their voting rights (Berglöf, 1990; Rajan and

Zingales, 2003); second, blockholder banks are generally also lenders (Kroszner and Strahan, 2001a b), which gives them more power to expropriate firms (*e.g.* forcing a firm to borrow money from banks at higher than market rates);⁶ third, banks use stock pyramids to concentrate their voting power (Gorton and Winton, 2003); fourth, the rest of owners may not have incentives to monitor if the ownership is sufficiently disperse. All these arguments justify banks' ability and incentives to expropriate other investors when their stakes are below a certain threshold. Since pressure from financial markets makes it more difficult for banks to expropriate, banks will try to avoid *IPOs* for their partially-owned firms when the equity stake is small.

For large equity stakes, banks internalize a large proportion of the expropriation costs and thus have fewer incentives to expropriate. In this case the certification role of banks might dominate, resulting in a positive effect on performance. Indeed, certification by a reputable bank grants the firm access to additional external funds which explains the positive effect of banks' equity holdings on firm performance for large stakes. Since firms grow faster after their *IPO's* due to the greater access to funds, particularly growth firms, banks with large equity stakes might be inclined to promote the firms' *IPO* to be able to enjoy the future growth rents.

Thus, the previous empirical findings suggest that there is a non-linear (U-shape) relationship between banks' equity holdings and the performance of their partially-owned firms that may have an impact on the firm's probability of issuing securities.

The following figure summarizes the theoretical model we have in mind:

[INSERT FIGURE 1 ABOUT HERE]

Then, we formulate our second hypothesis as follows:

⁶ Note that they may refuse to renew loans when firms most need them (Gorton and Winton, 2003).

H2: There exists a non-linear relationship (U-shape) between a bank's equity stake in a firm and the probability that the firm is listed on the stock market.

As mentioned before, once firms are listed on the stock market, this opens up the possibility for these firms to issue new securities, mainly negotiated debt. Banks are aware of these new business opportunities as underwriters when they decide to buy equity holdings in firms that are potential candidates for being listed on the stock market. Then, we expect that the effect of banks' equity holdings on future debt issues will be related to the IPO decision. Miarka and Tröge (2005) find that firms closely-related to banks are more likely to issue bonds.

They justify such a result in terms of the delegation of monitoring activities from financial markets to banks, which reduces financing costs and stimulates such issues. Yasuda (2007) shows for a sample of Japanese firms that banks that only hold equity in firms, charge a fee premium on debt issues. This prevents such issues. However, this result is reversed when owner banks are also lenders, which is the normal situation (Kroszner and Strahan, 2001a b). Finally, as previously mentioned, Krishnan (2006) emphasizes the underwriting capacity of a bank as a signal that firms may use to give bank future lending activities. In particular, this author shows that in firms with higher credit quality, the probability of borrowing from the same bank increases by about 21% if the bank has underwriting capacity, even if the bank does not get the underwriting business. Banks as owners may stimulate debt issues as a way to prove that they have underwriting capacity and gain future lending business that are expected to be of particular importance in growth firms. In summary, our third hypothesis connecting banks' equity holdings and debt issues is as follows:

H3: The presence of banks in a firm's ownership structure is positively related to its probability of issuing public debt.

In addition, consistent with the arguments connecting banks' stake with an IPO, which is a particular type of security issue, we argue that banks' equity holdings may also have an effect on debt issues after an IPO. This is so because debt issues may hinder banks' expropriating possibilities linked to the credit channel as firms have less need to use such channel for raising funds. As we have previously related expropriating impulses, relying mainly on the credit channel, to low-medium banks' stake, we expect that debt issues will be lower in this region given that the more debt is issued, the less necessity of the bank lending channel for firm's financing (Cantillo and Wright, 2000) and the eventual implementation of an expropriating strategy.

Also, mimicking the arguments of Hypothesis 2, the previous logic works up to a certain threshold stake beyond that the internalization of the expropriating costs hinders such impulses. In that case, large banks' stake will signal a strong commitment with a firm and external investors will be more willing to buy negotiated debt under good terms for the firm, as they delegate the monitoring tasks in the bank (Miarka and Tröge, 2005). This should stimulate debt issues. Hence, our fourth hypothesis reads as follows:

H4: There is a non-linear relationship (U-shape) between banks' equity holdings and firm debt issues.

Finally, we expect banks to increase their equity stake once firms are listed on the stock market. This is consistent with the strategic motive justifying the entrance of banks in a firm's ownership structure which stimulates security issues. The increase in their equity holdings is the way that banks may use for maintaining their influence in the firm in order to capture future business opportunities while facing pressure from financial markets. Krishnan (2006) shows the importance of banks having an underwriting capacity in order to have access to a future lending relationship with the firm. Undoubtedly, the increase in a bank's stake is a clear signal of the underwriting possibilities. Such

arguments apply mainly to growth firms where we have argued that the presence of banks as blockholders is connected mainly to strategic motives rather than expropriating intentions. Thus, we can state the following hypothesis:

H5: Banks' equity stakes increase once the firm is listed on the stock market particularly if these are growth firms.

3. Data and descriptive analysis

3.1. The Data

We use a sample of international firms for the period 2000 to 2013 from OSIRIS database, which is compiled by Bureau Van Dijk. We collect annual data on firms' balance sheets, income statements, and ownership. We focus on non-financial firms and we eliminate those firms without information on their ownership structure.⁷ The final sample is an unbalanced panel dataset with 21197 observations, 5730 firms, from 59 different countries. By country the largest proportions correspond to the Japan (23%), South Korea (19.7%), US (17.3%), China (6.2%), France (4.6%), Germany (4.1%), UK (4%) and Canada (2.4%).

3.2. Descriptive Evidence

Table 1 provides summary statistics of the main variables in our analysis. Table 1 also compares the means of the variables for non-listed and listed firms (columns 4 to 6), and their values before and after firms issue debt (columns 7 to 9).

[INSERT TABLE 1 ABOUT HERE]

This Table shows that 98% of firms in our sample are listed. In 20% of the firms, their IPO took place during our sample period (2000-2013), and 34% of the observations

⁷ We also eliminate those firms with negative values in positive-defined accounts (sales, debt, intangibles) and those where the sum of the total equity ownership of the controlling shareholders is larger than 100%.

undertook a debt issue. Concerning banks' equity holdings, there are 33% of the firms in our sample that are partially-owned by banks with an average stake of 6.2%.

When we compare firms whose IPO were in the period of analysis ($IPO=1$) versus their counterparts, we observe that bank ownership is significantly more likely in IPOs' firms (8.5%) than in their counterparts (5.5%). This conforms to Hypothesis 5 that argues that banks need more power (stake) in order to be able to exercise their influence in firms after an IPO and to have access to future financing opportunities. In addition, the proportion of bank loans is lower in firms issuing debt, which is consistent with the existence of financing alternatives for firms issuing securities that may hinder bank lending as a mechanism for providing funds. Finally, IPOs' firms are smaller and younger than their counterparts, while firms issuing market debt are larger and younger than their counterparts.

4. Empirical analysis

4.1. Methodology

In this section we explain our two empirical models that we use to contrast our theoretical statements. First model allows finding out how the presence of banks affects issuing decisions (debt or equity), and with the second model we aim to investigate how the bank modifies its equity holdings in the firm after an IPO. In this analysis we are going to distinguish between growth and non-growth firms as well as between Anglo-Saxon versus non-Anglo-Saxon countries.

First, we want to investigate the effect of a bank's equity holdings on a firm's likelihood of issuing securities. We study, both, the probability of undertaking an IPO ($IPO=1$), and a debt issue ($Debt_Issue=1$), as a function of the firm's ownership structure and its financial structure. We propose a Probit estimation method due to the binary

nature of our dependent variable (in the robustness section, we will consider other estimation techniques in order to tackle possible endogeneity problems). Our main explanatory variables include: banks' stake holdings (*Bank_Stake*) and its square (*Bank _Stake*²) to account for the non-linear relationship hypothesized above, a dummy variable *Dbank* which is equal to 1 when a firm is partially or totally-owned by a bank and 0 when no bank participates in the firms' ownership, and the variable *Bank_Loan* that captures the percentage of bank loans deflated by total debt. The remaining controls are the usual controls in this literature (Kutsuna, *et al.*, 2007). In particular, we use firms' *Size* as the log of total assets, and firms' *Age* also measured in a log scale in order to reduce skewness. We expect these variables to affect the firm's likelihood of being listed on the stock market and/or the probability of issuing debt. Younger firms are less-known by external investors and the problems of information asymmetries that hinder security issues firms are more acute for such firms. The variable *Intangibility*, defined as the ratio of intangible assets to total assets, is a control for a firm's growth opportunities (Rajan and Zingales, 1995). Additionally, this variable may affect debt issues given the tangible collateral requirements linked to debt financing (Bradley *et al.*, 1984). We also include a variable of financial structure (*Gearing*) which is a firm's gearing defined as the ratio of non-current liabilities plus loans to shareholders funds. This variable is complemented with the liquidity ratio (*Liquidity_Ratio*), which is defined as Cash and equivalent plus short term investments plus accounts receivable divided by current liabilities. Our empirical specification is as follows:

$$\left\{ \begin{array}{l} IPO \\ Debt_Issue \end{array} \right\}_{isjt} = \alpha + \alpha_1 DBank_{isjt} + \alpha_2 Bank_Stake_{isjt} + \alpha_3 Bank_Stake_{isjt}^2 + \alpha_4 Bank_Loan_{isjt} + \alpha_5 Size_{isjt} + \alpha_6 Age_{isjt} + \alpha_7 Intangibility_{isjt} + \alpha_8 Gearing_{isjt} + \alpha_9 Liquidity_Ratio_{isjt} + \delta_i + \lambda_s + \gamma_j + \eta_t + \varepsilon_{isjt}$$

(Model 1)

where the subscripts $isjt$ stand for firm i , industry s , country j and time t , respectively.

We also introduce a set of time dummies (η_t) for the 14 years of the sample, 9 sectorial dummies -1-digit SIC classification- (λ_s), and country dummies (γ_j) that are classified according to the legal origin of their code. We follow La Porta et al. (1998) and we distinguish three types of countries (i) Anglo-Saxon common-law countries, (ii) French civil-law countries (iii) German civil-law countries and (iv) Scandinavian countries. In the robustness section, we will conduct a contingency analysis of our theoretical statements by distinguishing among Anglo-Saxon versus non Anglo-Saxon countries. The time dummies control for common time effects across countries like the internet bubble; the industry dummies take into account permanent differences across industries that could affect our results, and the legal origin dummies control for time-invariant effects at the legal origin level such as the fact that firms in the French and German civil law countries are more traditionally financed by banks.⁸

Ideally, we also want to include firm fixed effects (δ_i) to account for unobserved heterogeneity at the firm level. However, as it is well known, fixed effects cannot be introduced in the traditional probit estimation method without introducing inconsistency in the estimates. In the robustness section, we will tackle this problem by estimating a panel data regression and instrumenting potential endogenous variables (bank ownership and bank lending).⁹

Our second empirical specification is intended to investigate the effect of firms' private versus public status (i.e. whether the company went IPO) on firms' future

⁸ Acedo-Ramírez and Ruiz-Cabestre (2014) show the relevance to control for such differences in order to explain decisions involving firms' capital structure.

⁹ There is a potential endogeneity problem in the estimation of specification Model 1, given that security issues may affect banks' stake (Hypothesis 5) as well as bank lending policy. We tackle this problem in the robustness section.

ownership by banks (*Bank_Stake*). The model we propose includes those dummies capturing an initial equity issue (*IPO*); debt issues (*Debt_Issue*), the role of banks as debtholders (Kroszner and Strahan, 2001a b), and the same control variables as in the previous specification. Our second specification is as follows:

$$Bank_Stake_{isjt,t+1} = \beta + \beta_1 IPO_{isjt} + \beta_2 Debt_Issue_{isjt} + \beta_3 IPO \times D_Bank_{isjt} + \beta_4 Debt_Issue \times D_Bank_{isjt} + \beta_5 Bank_Loan_{isjt} + \beta_6 Size_{isjt} + \beta_7 Age_{isjt} + \beta_8 Intangibility_{isjt} + \beta_9 Gearing_{isjt} + \beta_{10} Liquidity_Ratio_{isjt} + \delta'_i + \lambda'_s + \gamma'_j + \eta'_t + \varepsilon'_{isjt}$$

(Model 2)

In this model we advance our dependent variable forward one period (*Bank_Stake_{it+1}*) to account for the effect of security issues on the future ownership stake by the bank. Advancing our dependent variable one period also allows us to address endogeneity concerns due to reverse causality given that according to Hypotheses 1 and 2, banks' stake have an impact on security issues. Moreover, in this specification, the results of a Hausman test reveal that unobserved heterogeneity might be correlated with some of the explanatory variables. Hence, we estimate this empirical model using fixed effects.

4.2. Results

We report the estimation results of Model 1 in Tables 2 and 3, while those of Model 2 are shown in Table 4.

Specifically, Table 2 shows the effect of the presence of banks in the ownership of firms, as well as the effect of the amount of that stake, on the probability that the firm undertakes an IPO.

[INSERT TABLE 2 ABOUT HERE]

Column 1 shows that the presence of a bank in a firm's ownership structure (*DBank=1*) is positively and significantly correlated with the firms' probability of being listed ($\beta = 0.235$ $p < .01$). In columns 2 and 3 we separate firms in two groups: growth

firms, which are those firms with a sales growth rate higher than the median of the sector and corresponding year, whereas non-growth firms are the rest. The positive relationship between the presence of banks as shareholders and the likelihood of IPOs is significant for both groups of firms and particularly for growth firms.¹⁰ This result provide support for Hypothesis 1

The rest of explanatory variables in specifications (1) to (3) in Table 2 show that smaller and younger companies and the ones with more tangible assets are more likely to be listed on the stock market in the period analyzed. Leverage, mainly for growth firms, plays a positive role on the probability of being listed. We can discuss that the financing necessities (proxied by the gearing) stimulate the listing of companies as a way to obtain additional funds.¹¹

In Columns 4, 5, and 6 we include the size of banks' stake and its square to account for a non-linear relationship as stated in our theoretical contentions. We obtain that the effect is negative for the linear term ($\beta = -0.158, p < .01$), and positive for the quadratic one ($\beta = 0.170, p < .01$). The threshold above which the positive effect outweighs the negative one is around 50% (specifically it is 46.5%).¹² Note that 50% defines the situation in which a bank has control of the firm even if it is listed, and it is able to influence the firm's decisions in the direction of its own interests, even under the close scrutiny of financial markets. This is the kind of pattern described in Hypothesis 2. The rest of the covariates display similar effects to the previous specifications.

¹⁰ The larger the coefficient of DBank for growth firms can be explained in terms of banks as shareholders have more interest in letting growth firms to be listed on the stock market in order to generate high value. Such value, in the end, will also benefit banks as shareholders.

¹¹ We compute the variation inflation factor (VIF) in all estimations, and for all coefficients the VIF factor is lower than 5, which is well below the threshold of 20 that is considered as a signal of multicollinearity problems. Additionally the Belsley *et al.* test (1980) rejects such a multicollinearity problem.

¹² This is computed as $-\text{Coefficient}(\text{Bank_Stake})/2 * \text{Coefficient}(\text{Bank_Stake}^2) = 0.158/2(0.170)$.

Table 3 reports the results on the likelihood that firms issue debt. Column 1 shows that the presence of banks in a firm's ownership structure is not correlated with the likelihood of issuing debt. We will show, once we control for reverse causality –debt issues in financial markets detract banks from taking equity positions in issuing firms– that Hypothesis 3 holds (see Table 6 in Section 5.2). In terms of control variables, larger firms are more likely to issue debt. Also, given the collateral requirements of debt contracts, the proportion of intangible assets hinders such security issues (Bradley *et al.*, 1984). Finally, as in the case of the IPOs, financing necessities (proxied by the variable of *gearing*) stimulates debt issues, while the proportion of bank debt as well as the liquidity ratio hinders such issues.

In Columns 4 to 6 of table 3 we show the estimation results when we include banks' stake and its square value.

[INSERT TABLE 3 ABOUT HERE]

We find a non-linear relationship between banks' equity holdings and the probability of issuing debt, which is consistent to Hypothesis 4. For low-medium banks' equity holdings, the relationship between the stake of banks' equity and the probability of a debt issue is negative ($\beta = -0.111$, $p < .01$), while for large values (larger than 53.4%)¹³, the effect is positive ($\beta = 0.104$, $p < .01$). Remarkably, this threshold is larger than that found for the IPO case.

The results of estimating our empirical model 2 are shown in Table 4.

[INSERT TABLE 4 ABOUT HERE]

Once a firm is listed on the stock market, banks tend to increase their future stock holdings particularly if they were shareholders of the recently-listed firm already. This

¹³ This is computed as $-\text{Coefficient}(\text{Bank_Stake})/2 * \text{Coefficient}(\text{Bank_Stake}^2) = 0.111/2(0.104)$

idea is reflected in the positive coefficient of the variable IPOxDBank ($\beta = 3.679$, $p < .01$), which is significant for growth and non-growth firms and particularly for the former ($\beta = 4.234$, $p < .01$) in comparison to the latter ($\beta = 0.551$, $p < .01$). This result provides support for our Hypothesis 5. Once a firm is listed, blockholder banks desire to exert influence over listed firms in order to expropriate more or gain future business opportunities, whether in the underwriting market or in the traditional lending ones. However, in order to implement both strategies, particularly the strategic one (arguably more connected to growth firms), banks need more power given the existence of alternative underwriters. The way to increase their power is by increasing banks' equity holdings. In terms of control variables, gearing, a proxy for a firm's riskiness, has a negative impact on banks' equity holdings. Indeed, according to the literature (Allen and Gale, 2001; Winton, 2003), banks, as conservative institutions, tend to avoid taking significant stakes in such risky firms.

5/ Further Developments and Robustness

5.1/ The strategic motive and financing costs

The idea behind our theoretical model of a conflict between the possibilities of a bank expropriating non-listed companies versus the future rent extraction by banks once these companies are listed on the stock market, should be translated into firm's financing costs. The main mechanism that banks use to carry out such expropriation is charging high rates on bank loans. Then, a way to capture banks' expropriation intensity is through the variation in financing costs before and after security issues. We can expect that after an IPO or a debt issue, financing costs should decrease given that the bargaining power of a firm with respect to its financiers increases, as this firm has additional channels for raising funds. Moreover, this effect should be particularly strong if banks blockholding is

driven by strategic intentions in order to gain future business opportunities like securities underwritings. Such scenario will be more likely in growth firms.

[INSERT TABLE 5 ABOUT HERE]

Table 5 shows that once a firm is listed on the stock market, there is a decrease in the firms' financing costs, defined as financial expenses to total assets, ($\beta = -0.022$, $p < .01$) according to Model 2.¹⁴ Once we separate the analysis between growth firms (column 3) and non-growth ones (column 4), we do find that the result is much more significant for growth firms ($\beta = -0.05$, $p < .1$) than for non-growth ones ($\beta = -0.01$, $p = .1$). Moreover, such decrease in financing cost is even deeper for growth firms if banks have an stake in the IPO firm ($\beta = -0.03$, $p < .05$). Hence, we can argue that in growth firms the presence of banks is more connected to strategic considerations rather than expropriation intention in comparison to non-growth firms. Banks, consistently, favor the generation of value in the former firms in comparison to the latter by further decreasing financing costs for those partially-owned by banks.

5.2/ The Endogeneity problem

As mentioned before, in the estimation of equation (1), it may appear an endogeneity problem given that the decision to issue a financial instrument whether equity or debt may be correlated to changes in banks' stake and/or bank debt in the issuing firm. In order to tackle this problem, we have constructed instruments for the variables Dbank, Bank_Stake and Bank_Loan by taking the mean values of this variables by sector and year once we exclude the focal firm. We expect that there is a clear sectoral component that explain banks' stakeholdings in firms whether through debt or equity. Hence, such instruments are correlated with the previous potential endogenous variables.

¹⁴ Given the possible endogeneity problem between a firm's financing costs and the variables that capture security issues, we have lagged these latter variables by one period.

However, the decision of the focal firm to issue debt or equity are not expected to be connected to sector-year banks' stake/debt. Making use of these instruments, we conduct a two-stage random effect estimation of the decision to be listed (columns 4,5 and 6 in Table 6) and to issue debt (columns 4, 5 and 6 in Table 6).

[INSERT TABLE 6 ABOUT HERE]

Table 6 confirm the results of Table 2 once we use a random effect estimation instead of a probit¹⁵. We show that the presence of banks in a firm's ownership has a positive impact on IPOs as well as debt issues. This latter result, supporting Hypothesis 3, was not found in Table 3 that does not control for endogeneity (reverse causality).¹⁶ Also, we have found an U-shape relationship between banks' stake and the decision to be listed on the stockmarket (column 1 to 3) as well and the decision to issue debt (columns 4 to 6). This result provides robustness to those shown in Tables 2 and 3, where we use a cross-section probit.

5.3/ Contingency analysis in terms of country characteristics

We further analyze the effect of country characteristics on the connection between the presence of banks as blockholders and the decision of firms to use market mechanism for raising funds, whether equity (IPOs) or debt. In Table 7, we separate the countries between Anglo-Saxon and non-Anglo-Saxon following the classification of La Porta *et al.* (1998).

¹⁵ Hausman test reveals that there are no significant differences between the coefficients of firm fixed-effect estimation and those of a random effect. Hence, we present the result of the random effect, which is more efficient.

¹⁶ Such endogeneity control is relevant because eliminates the negative reverse causality effect of debt issues in financial markets on banks incentives to buy stakes in these issuing firms. Note that debt issues in financial markets increase the bargaining power of issuing firms in front of their blockholders like banks. Remarkably, in Table 3, where this negative effect is not eliminated, we found a non-significant effect of the presence of banks as shareholder in debt issues. Once this effect is eliminated, as we have done in Table 6, we have found a positive effect of banks as shareholder on the decision to issue debt in financial markets, which provides support to Hypothesis 3.

[INSERT TABLE 7 ABOUT HERE]

The results found show that in Anglo-Saxon countries, there is a positive impact of banks' stake on security issues, whether equity ($\beta = 0.06$, $p < .05$.) or debt ($\beta = 0.08$, $p < .05$). However, in non-Anglo-Saxon countries, there is a substitution relationship between bank financing and market financing given that banks' stake deter the issue of equity ($\beta = -0.03$, $p < .05$). as well as market debt ($\beta = -0.05$, $p < .05$). Hence, the type of country plays a key role in the interaction between bank financing and market financing. There is a complementarity relationship for Anglo-Saxon-like countries and a substitution relationship in non-Anglo-Saxon-like ones.

Remarkably, this evidence allows explaining the non-linear (U-shape) relationship found between bank stake and security issues. Banks' stakes in non-Anglo-Saxon countries is lower (5.5%) in comparison to those in Anglo-Saxon ones (8.5%). The former effect is negative for low bank stakes while is positive for larger bank stakes.

6/ Conclusions

In this article we study the relationship between banks' equity stakes and firms' financing decisions regarding securities issues. We argue that there are two opposite effects depending on the size of banks' stake. First, when bank equity holdings are small, an *expropriating effect* dominates and this effect leads banks to avoid security issues because this may threaten their ability to extract private benefits. Second, when bank equity holdings are large, a *strategic effect* dominates, which stimulates security issues as a way to gain access to new businesses in the future, particularly in growth firms, such as security underwriting and new loans, once firms are listed on the stock market. Our hypothesis is that due to the presence of these two effects, there exists a non-linear (U-shape) relationship between banks' equity holdings and the probability of issuing securities that depends on the bank's equity stake. We find this relationship in our data.

We show the presence of the expropriation and strategic motivations separately. In a dynamic context, once firms are listed on the stock market, we have found that banks' equity holdings increase. This result is stronger in growth firms where we expect that banks want to gain the access to future business opportunities like securities underwritings. An increase in their stake is a way for banks to continue influencing their partially-owned firms' financing decisions.

In another econometric specification and related to the strategic reason justifying banks' equity holdings, we show that bank-participated growth firms enjoy a larger decrease than non-growth ones in financing costs after an IPO. We argue that the presence of bank as blockholders in growth firms has strategic reasons and offer better financing conditions after an IPO as a way to gain future business opportunities (*e.g.* underwriting) from value-creating growth firms. Finally, once we take into consideration country characteristics, we do find that in Anglo-Saxon type of countries, the presence of banks in a firms' ownership stimulates security issues, while in non-Anglo-Saxon ones, the effect is the reverse. Hence, the kind of Anglo-Saxon countries show a complementarity relationship between bank financing mechanism and market financing ones. On the contrary, for non-Anglo-Saxon countries, there is a kind of substitution relationship between bank financing and market financing.

Overall, our paper provides new insights into the reasons why banks participate in the ownership of firms, and the consequences of this on the financing decisions and financing costs of firms. Given the economic effects found, bank ownership by a single bank with a large stake might be more desirable than a group of different banks with low to medium stakes in order to avoid expropriation.

Our paper opens the debate for future research in a number of ways. First, it may be worthwhile exploring the market reaction to security issues contingent on different

ownership characteristics and, in particular, on the presence of banks as owners as well as on the number of creditors or other large equityholders. A second extension has to do with the type of accompanying blockholders that form coalitions with banks (Boehmer, 2000; Tribo and Casasola, 2010). In this line, it may be worthy to investigate the effect on debtholdings as well as in expropriating actions when a bank buys a significant stake and the second largest shareholder is another bank or, alternatively a non-bank. For example, Yeo *et al.* (2002) find a strong positive relationship between external unrelated blockholdings and transparency of earnings reporting, which is an indication of blockholders low expropriating intentions. It would be interesting to see whether the number of blockholders (large contestability) might curb the expropriating decision and stimulate security issues. This is left for future research.

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FIGURE 1: Scheme of the model

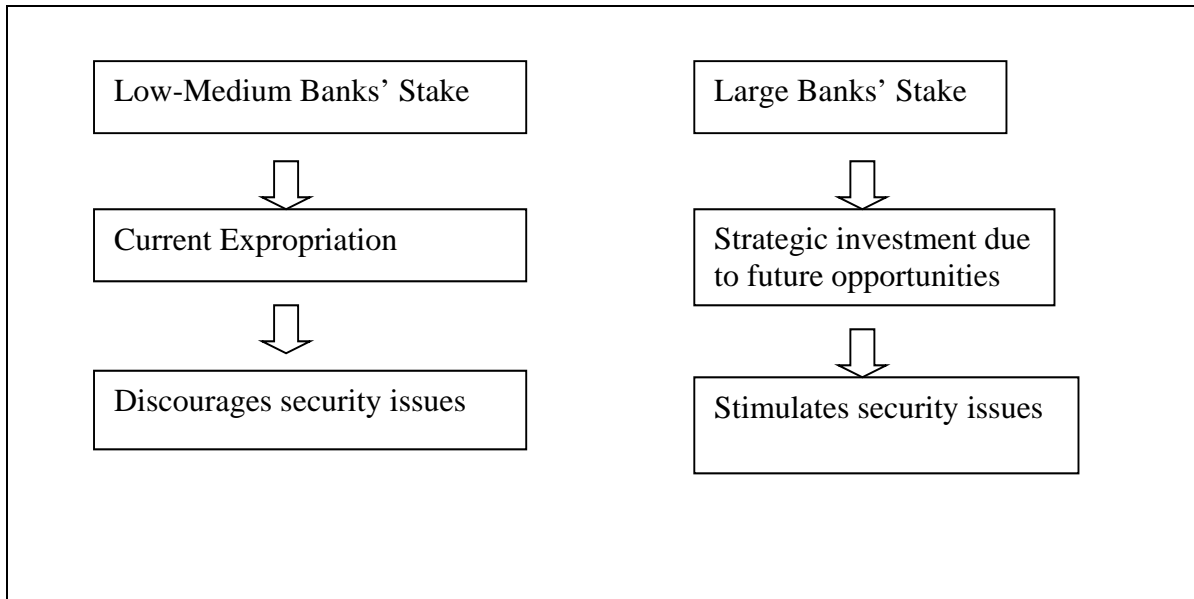


TABLE 1: Descriptive statistics

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Observ	Mean	S.D	IPO=1	IPO=0	P-value ¹	Debt_Issue=1	Debt_Issue=0	P-value ¹
Listed	21197	0.98	0.15	1	0		1	0.96	(0.00)
IPO	21197	0.20	0.40	1	0		0.08	0.26	(0.00)
Debt_Issue	21197	0.34	0.47	0.35	0	(0.00)	1	0	
DBank	21197	0.33	0.47	0.23	0.35	(0.00)	0.43	0.27	(0.00)
Bank_Stake (%)	21197	6.25	11.66	8.44	5.88	(0.00)	5.11	7.19	(0.00)
Bank_Loan	21197	0.39	0.92	0.58	0.33	(0.00)	0.15	0.51	(0.00)
Financial_Cost	21197	0.03	0.11	0.03	0.03	(1.00)	0.02	0.03	(0.00)
Size	21197	14.01	3.49	12.33	14.44	(0.00)	17.16	12.36	(0.00)
Age	21197	46.83	36.08	45.68	47.13	(0.02)	43.78	48.41	(0.00)
Intangibility	21197	0.19	0.26	0.22	0.18	(0.00)	0.13	0.22	(0.00)
Gearing	21197	70.22	125.17	63.91	72.02	(0.00)	91.48	59.32	(0.00)
Liquidity_Ratio	21197	1.63	2.66	1.76	1.59	(0.00)	1.40	1.74	(0.00)

¹ In parentheses the p-values of the Mann-Whitney tests.

TABLE 2: Determinants of an IPO

Dependent Variable: IPO	(1) (All firms)	(2) (Growth firms)	(3) (Non-growth firms)	(4) (All firms)	(5) (Growth firms)	(6) (Non-growth firms)
Dbank	0.235*** (7.841)	0.285*** (5.929)	0.196*** (4.987)	0.319*** (8.745)	0.391*** (6.494)	0.259*** (5.476)
Bank_Stake				-0.158*** (-4.309)	-0.181*** (-3.083)	-0.126** (-2.539)
Bank_Stake ²				0.170*** (4.334)	0.208*** (2.984)	0.132** (2.539)
Bank_Loan	0.013 (0.979)	0.022 (1.047)	0.003 (0.168)	0.015 (1.092)	0.024 (1.123)	0.004 (0.233)
Size	-1.843*** (-23.061)	-1.633*** (-12.103)	-1.850*** (-17.859)	-1.845*** (-23.040)	-1.637*** (-12.116)	-1.852*** (-17.823)
Age	-0.142*** (-10.506)	-0.226*** (-11.789)	-0.084*** (-4.227)	-0.142*** (-10.495)	-0.226*** (-11.741)	-0.084*** (-4.240)
Intangibility	-0.267*** (-5.058)	-0.215*** (-2.770)	-0.290*** (-3.965)	-0.262*** (-4.966)	-0.212*** (-2.721)	-0.286*** (-3.902)
Gear	0.000*** (2.595)	0.000** (2.099)	0.000 (1.569)	0.000*** (2.616)	0.000** (2.104)	0.000 (1.574)
Liquidity_Ratio	0.001 (0.123)	0.008 (1.066)	-0.004 (-0.701)	0.001 (0.132)	0.008 (1.118)	-0.004 (-0.713)
Constant	2.065*** (5.301)	2.144*** (4.304)	-2.480*** (-5.237)	2.026*** (5.191)	2.125*** (4.170)	-2.495*** (-5.257)
Fitness of the Model	7293.42	3031.7	4317.4	7314.81	3044.02	4324.03
R ²	33.27	33.33	35.03	33.82	33.64	35.90
Observations	21197	9353	11844	21197	9353	11844

***, **, * represent significance at the 1%, 5%, and 10% level respectively. The t-statistics are in parentheses. Likelihood ratio as Fitness of the model test. All the variables are defined in the text.

TABLE 3: Determinants of Debt Issues

Dependent Variable: Debt_Issues	(1) (All firms)	(2) (Growth firms)	(3) (Non-growth firms)	(4) (All firms)	(5) (Growth firms)	(6) (Non-growth firms)
Dbank	-0.053 (-0.728)	-0.015 (-0.130)	-0.087 (-0.882)	-0.016 (-0.209)	0.043 (0.369)	-0.046 (-0.454)
Bank_Stake				-0.111*** (-2.830)	-0.147*** (-2.814)	-0.134** (-2.028)
Bank_Stake ²				0.104*** (2.634)	0.125** (2.501)	0.136* (1.957)
Bank_Loan	-0.084** (-2.534)	-0.153*** (-2.834)	-0.052 (-1.258)	-0.084** (-2.544)	-0.151*** (-2.810)	-0.053 (-1.281)
Size	0.357*** (3.575)	0.414*** (2.749)	0.314** (2.220)	0.325*** (3.235)	0.361** (2.383)	0.284** (1.998)
Age	-0.267*** (-14.833)	-0.204*** (-8.407)	-0.274*** (-9.703)	-0.265*** (-14.737)	-0.202*** (-8.323)	-0.272*** (-9.622)
Intangibility	-0.260*** (-3.792)	-0.395*** (-4.183)	-0.159 (-1.544)	-0.251*** (-3.664)	-0.383*** (-4.040)	-0.152 (-1.476)
Gear	0.005*** (8.055)	0.005*** (6.110)	0.005*** (6.151)	0.005*** (8.071)	0.005*** (6.170)	0.005*** (6.127)
Liquidity_Ratio	-0.033*** (-4.167)	-0.038*** (-3.005)	-0.027*** (-2.648)	-0.033*** (-4.111)	-0.037*** (-2.917)	-0.027*** (-2.636)
Constant	1.626*** (4.743)	1.225** (2.379)	1.724*** (3.529)	1.511*** (4.376)	1.028** (1.978)	1.621*** (3.299)
Fitness of the Model	9634.25	4931.34	4683.9	9642.42	4939.38	4688.41
R ²	52.39	53.32	53.19	53.44	53.40	53.42
Observations	21197	9353	11844	21197	9353	11844

***, **, * represent significance at the 1%, 5%, and 10% level respectively. The t-statistics are in parentheses. Likelihood ratio as Fitness of the model test. All the variables are defined in the text.

TABLE 4: Evolution of Banks' Equity Holdings

Dependent Variable: Banks Stake	(1) (All firms)	(2) (All firms)	(3) (Growth firms)	(4) (Non-growth firms)
IPO (t-1)	2.070** (2.508)	0.642 (0.720)	1.364 (0.929)	-0.644 (-0.342)
IPO x Dbank (t-1)		3.679*** (3.958)	4.234** (2.540)	0.551*** (3.925)
Debt_Issue (t-1)	0.449 (0.228)	0.569 (0.292)	3.672 (1.395)	-0.181 (-0.040)
Debt_Issue x Dbank (t-1)		0.767 (0.574)	0.371 (0.165)	3.583 (1.335)
Dbank (t-1)		-0.440 (-0.399)	0.716 (0.407)	-2.886 (-1.386)
Bank_Loan	0.129 (0.338)	0.135 (0.355)	-0.352 (-0.640)	-0.054 (-0.074)
Size	0.761 (0.204)	1.007 (0.273)	-49.195* (-1.766)	1.774 (0.271)
Age	-3.254 (-1.018)	-4.189 (-1.322)	3.608 (0.721)	-13.697* (-1.856)
Intangibility	2.128 (1.156)	2.204 (1.211)	-1.851 (-0.317)	3.365 (1.107)
Gear	-0.007*** (-2.718)	-0.007*** (-2.825)	-0.008 (-1.617)	-0.012*** (-2.622)
Liquidity_Ratio	0.094 (0.423)	0.087 (0.399)	0.148 (0.257)	0.274 (0.416)
Constant	13.860 (0.792)	16.270 (0.940)	13.147 (1.563)	50.621 (1.494)
Fitness of the Model	2.89***	3.22***	4.02***	2.53**
Fixed Effects	YES	YES	YES	YES
R ² (%)	12.8	15.5	33.2	19.8
Observations	4333	4333	1503	2830

***, **, * represent significance at the 1%, 5%, and 10% level respectively. The t-statistics are in parentheses. F-test is the Fitness of the model test. All the variables are defined in the text.

TABLE 5: Effects on Financing Costs

Dependent Variable:	(1)	(2)	(3)	(4)
Financing Costs	(All firms)	(All firms)	(Growth firms)	(Non-growth firms)
IPO (t-1)	-0.023*** (-4.944)	-0.022*** (-4.365)	-0.050* (-1.675)	-0.010* (-1.733)
IPO x DBank (t-1)		-0.005 (-0.532)	-0.031** (-1.959)	-0.002 (-0.270)
Debt_Issues (t-1)	-0.002 (-0.363)	0.001 (0.126)	-0.004 (-0.684)	0.000 (0.019)
Debt_Issue x Dbank (t-1)		-0.001 (-0.130)	-0.005* (-1.720)	0.006 (0.935)
DBank (t-1)		-0.002 (-0.275)	0.002 (0.555)	-0.003 (-0.861)
Bank_Stake (t-1)		0.003 (0.546)	0.000 (0.053)	-0.001 (-0.117)
Bank_Stake ² (t-1)		-0.003 (-0.301)	-0.000 (-0.598)	0.004 (0.304)
Bank_Loan	0.005** (2.145)	0.005** (2.163)	0.001 (0.710)	0.006*** (3.352)
Size	-0.024 (-0.689)	-0.026 (-0.734)	-0.070** (-1.976)	-0.024* (-1.888)
Age	-0.029 (-0.994)	-0.020 (-0.811)	-0.000 (-0.155)	0.015 (1.594)
Intangibility	-0.016 (-0.886)	-0.016 (-0.912)	0.004 (0.930)	-0.004 (-0.433)
Gear	0.000 (0.229)	0.000 (0.312)	0.000 (0.668)	-0.000 (-1.381)
Liquidity_Ratio	-0.006*** (-3.183)	-0.006*** (-3.270)	-0.002** (-1.888)	-0.003*** (-3.495)
Constant	0.213 (1.474)	0.175 (1.332)	0.222** (2.168)	0.054 (1.132)
Fitness of the Model	22.39***	23.77***	8.45***	10.67***
Fixed Effects	YES	YES	YES	YES
R ² (%)	4.57	5.53	4.52	4.50
Observations	21197	21197	9353	11844

***, **, * represent significance at the 1%, 5%, and 10% level respectively. The t-statistics are in parentheses. F test is the fitness test of these models. All the variables are defined in the text.

TABLE 6. Determinants of an IPO and Debt Issues (Instruments)

Dependent Variable:	(1) IPO (All firms) Instrum.	(2) IPO (Growth firms) Instrum.	(3) IPO (Non-growth firms) Instrum.	(4) Debt_Issues (All firms) Instrum.	(5) Debt_Issues (Growth firms) Instrum.	(6) Debt_Issues (Non-growth firms) Instrum.
Dbank	0.542*** (7.326)	0.459** (2.492)	0.652*** (5.777)	0.393*** (5.555)	0.169** (1.961)	0.394*** (3.583)
Bank_Stake	-0.611*** (-5.204)	-2.094** (-2.218)	-0.710*** (-4.373)	-0.412*** (-7.032)	-0.284*** (-5.151)	-0.523*** (-4.203)
Bank_Stake ²	0.767*** (4.666)	2.181** (2.021)	0.751*** (4.032)	0.418*** (5.742)	0.341*** (4.519)	0.491*** (3.396)
Bank_Loan	-0.005 (-0.740)	-0.179** (-2.124)	-0.000 (-0.009)	0.007 (0.716)	-0.002 (-0.163)	0.017 (1.317)
Size	-0.352*** (-9.644)	-0.403** (-2.384)	-0.358*** (-6.286)	0.076** (2.559)	0.232*** (5.963)	0.012 (0.254)
Age	-0.042*** (-10.728)	-0.938*** (-7.509)	-0.038*** (-6.198)	-0.050*** (-11.359)	-0.046*** (-7.197)	-0.044*** (-6.235)
Intangibility	-0.053*** (-3.463)	-0.274** (-2.305)	-0.062*** (-2.700)	-0.014 (-0.791)	-0.033 (-1.394)	-0.007 (-0.252)
Gear	0.000 (1.509)	-0.000 (-1.062)	0.000 (0.660)	0.001*** (6.714)	0.001*** (4.893)	0.001*** (3.759)
Liquidity_Ratio	0.000 (0.277)	-0.009 (-0.975)	-0.001 (-0.719)	-0.004** (-2.567)	-0.007** (-2.306)	-0.003* (-1.871)
Constant	1.053*** (9.183)	2.110 (1.235)	1.097*** (6.220)	0.811*** (8.567)	0.974*** (7.890)	0.621*** (4.144)
Fitness of the Model	9750.27***	900.42***	1699.58***	8770.41***	3744.47***	6028.49***
R ²	38.68	11.67	16.45	36.20	35.46	41.12
Observations	21197	9353	11844	21197	9353	11844

***, **, * represent significance at the 1%, 5%, and 10% level respectively. The t-statistics are in parentheses. Likelihood ratio as Fitness of the model test. All the variables are defined in the text.

TABLE 7: Determinants of an IPO and Debt Issues (Anglo Saxon versus non-Anglo Saxon countries)

Dependent Variable: IPO	(1) IPO (Non-Anglo- Saxon)	(2) IPO (Anglo- Saxon)	(3) Debt Issues (Non-Anglo- Saxon)	(4) Debt Issues (Anglo-Saxon)
Dbank	0.343*** (9.138)	0.304 (1.183)	-0.016 (-0.277)	-0.245 (-1.186)
Bank_Stake	-0.035** (-1.993)	0.063** (1.984)	-0.049** (-2.377)	0.081** (1.957)
Bank_Loan	-0.004 (-0.152)	-0.014 (-0.590)	-0.031 (-1.041)	-0.255*** (-3.534)
Size	-1.545*** (-14.516)	-1.975*** (-13.150)	-0.449*** (3.927)	-2.673*** (7.680)
Age	-0.123*** (-8.171)	-0.212*** (-8.241)	-0.122*** (-6.658)	-0.112*** (-2.690)
Intangibility	-0.457*** (-6.001)	-0.077 (-0.901)	-0.462*** (-5.746)	-0.149 (0.906)
Gear	0.000 (0.474)	-0.000 (-0.254)	0.000 (0.049)	0.001*** (3.328)
Liquidity_Ratio	0.002 (0.303)	0.008 (1.113)	-0.013* (-1.770)	-0.011 (-0.362)
Constant	1.497*** (3.477)	4.519*** (10.271)	0.152 (0.406)	5.121*** (-5.968)
Fitness of the Model	2881***	5669.19***	5154.85***	779.72***
R ²	23.56	46.74	35.54	32.18
Observations	15381	5816	15381	5816

***, **, * represent significance at the 1%, 5%, and 10% level respectively. The t-statistics are in parentheses. Likelihood ratio as Fitness of the model test. All the variables are defined in the text.