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Abstract

We examine why firms change their main bank and how this affects loans, interest payments and firm performance after switching. Using unique firm-bank matched Ukrainian data, the treatment effect estimates suggest that more transparent and riskier companies are more likely to switch their main bank. Importantly, main bank power, measured by equity holdings, appears to be one of the main drivers of firm switching behavior. Furthermore, we find that firms have lower performance after changing their main bank as they have to contend with higher interest payments.

Keywords: financial constraints, switching, main bank power, firm performance, Ukraine.

JEL Classification Numbers: G21, G30, G32

1 Introduction

According to modern banking theory, firms and financial intermediaries are interested in long-term and stable relationships because these facilitate efficient usage of loans. Increased access to capital is frequently attributed to a close relationship between the client and the bank. Such relationships reduce agency costs and lessen conflicts between shareholders and creditors. It thus appears that a close firm-bank relationship is advantageous to both parties, the firm and the bank (Boot, 2000).

On the other hand, strong bank-firm ties can have adverse effects on firms because banks' private information about firms may allow banks to accrue monopoly power.[1] The bank can exploit its unique position to put its own interests above those of shareholders. In this case, banks might abuse their power by diverting income away from a firm via financing costs.

Generally, firms are more likely to switch to a new bank when they face severe financial constraints that are not being solved by the current main bank. When considering switching, firms will weigh the advantages of continuing the relationship with their "inside" bank against the potential benefits (e.g., increased access to loans) of changing to a new bank.[2] However, as the main bank has an informational advantage, it might be able to impede switching to a rival bank, thus creating a lock-in problem for the firm (Kim, Kliger and Vale, 2003).

This issue is considered of particular concern in transitional economies for three equally important reasons, as documented in the financial economics literature. First, firms in emerging markets do not have long-term credit histories and established market reputations (Singh, 2003). Second, underdeveloped capital markets cannot provide acceptable substitutes for bank lending and, hence, firms are more sensitive to turmoil in the banking sector (Shen and Huang, 2003). And, third, greater uncertainty and information asymmetry increase switching costs (Hoshi, Kashyap and Sharfstein, 1990; Stephan, Talavera and Tsapin, 2008).

[1] The so-called "holdup' problem" is discussed in detail in Rajan (1992) and von Thadden (2004).

[2] Throughout the paper, we use the terms "inside" and "main" bank interchangeably.

This paper's goal is to investigate under what conditions firms are likely to switch banks and how this affects their post-switching performance. Taking into account that banks can extend their influence by holding equity in nonfinancial corporations and, thereby, increase switching costs, main bank power (MBP) should be an essential determinant of bank switching. To our knowledge, this issue has not yet been examined in the context of transition markets. We fill this gap in the literature by matching unique data on firms and their owners with information on their banks. We suggest that the particular features of transitional markets facilitate a better understanding of the nature of the firm-bank relationship.

Our data set includes detailed information on the balance sheets and income statements of Ukrainian open joint stock companies collected by the State Commission on Securities and Stock Market. Financial reports of Ukrainian banks are taken from the official site of the National Bank of Ukraine. The two samples are matched according to the bank codes (each main bank has a specific code) indicated by the firms in their financial reports. About 150 banks and more than 5,000 nonfinancial corporations are examined for the period 2002-2006. Our principal findings are that (i) main bank power is a significant determinant of bank switching; (ii) larger and riskier companies are more likely to switch their main bank, favoring smaller banks with worse financial positions; (iii) banks tend to increase availability of loans to firms that have changed main banks; and (iv) firms become less profitable after switching.

The next section discusses the relevant literature and outlines the specific hypotheses to be tested. Section 3 presents the data and the econometric methodology used in the analysis. The main results are summarized in Section 4, and the final section of the paper contains our conclusions.

2 Theoretical Considerations

2.1 Bank Power and Switching Costs

Kim et al. (2003) argue that banking is one of the major sectors of the economy in

which switching costs appear to be prevalent. Switching costs are viewed as arising from information asymmetry and are incurred when economic agents change suppliers. While some kinds of switching costs may be inevitable, the amount of the cost itself is generally not immutable, and the type of switching cost that will be incurred is typically the result of deliberate firm action. Informational friction and incentive costs can allow banks to manipulate the cost of funds because information asymmetry causes two lock-in effects. First, the insider bank has an informational advantage in the retention of important clients. Gopalan, Udell and Yerramilli (2007) point out that a firm will tend to switch main banks if the current bank's borrowing constraints outweigh the information benefits of continuing the relationship. The second lock-in effect arises from the costs that a firm faces when switching to a competing bank. Breaking up is hard to do, not to mention expensive. Firms may experience (i) transaction costs in opening new accounts, (ii) costs of learning to work with new agents, and (iii) uncertainty about the quality of the new agents, e.g., in insurance and credit markets (Klemperer, 1995; Sharpe, 1990). A switch between credit suppliers may also entail unobserved costs related to the loss of capitalized value of the previously established relationship (Kim et al., 2003).

The problem of high switching costs is mitigated to some degree in competitive financial markets as there are more alternatives to choose from if the firm's current financial institution is abusing its power.[3] In reality, however, even in competitive markets, switching is never cost-free: simply the act of switching costs something, regardless of how much more available or cheaper the funds might be somewhere else.

High-enough switching costs can result in the banks achieving monopoly power, that is, if banks make it too expensive to switch, they will retain their clients and, consequently, the influence they have over these firms (Rajan, 1992). High switching costs give financial intermediaries a high degree of market power, with the result that their current market shares are important determinants of their future profits (Klemperer, 1995). However, switching costs are likely to vary with customer type. Banks will find it dif-

[3]As Rajan and Zingales (1998) show, sufficient competition prevents the misallocation of funds to unprofitable investments and mitigates the impact of a financial crisis on the real sector, providing the mutual benefits from firm-bank relationship.

ficult to control large firms with good reputation and credit quality, meaning that this type of firm has considerably lower switching costs compared to smaller firms of lesser quality (Hubbard, Kuttner and Palia, 2002).

In summary, strong bank power is associated with high switching costs. The likelihood of switching increases if a competing bank has taken over some of its best clients. Moreover, a firm's switching costs may decrease if the firm improves its creditworthiness.

2.2 Post Switching Effects

The relevant literature finds that there are three essential ex-post effects of switching: indebtness, investment, and profitability (performance) (Farinha and Santos, 2002). However, in our analysis, we focus on firms' post-switching performance and borrowing policies because in transition economies bank loans are chiefly for the purpose of working capital rather than long-term investment (Delcoure, 2007).

Because firms, which are assumed to be rational entities, actually do engage in switching, it follows that they must expect some value as a result of it, a prediction that can be tested by comparing a firm's profitability before and after switching. Despite the considerable switching costs, some firms do resist the monopoly power of the "inside" bank and turn to an alternative source of finance. However, there can be adverse effects of switching when the abandoned bank is extremely influential. Morck, Nakamura and Shivdasani (2000) note that in many countries banks can own companies and, thereby, exert a substantial corporate governance role. Since creditors' interests often differ from those of shareholders, excessive bank influence may lead to wealth redistribution from the nonfinancial to the banking sector. Providing that this mechanism of ownership redistribution is effective, it is plausible to expect that stronger firms will switch to the bank that owns them. Weinstein and Yafeh (1998) find that firms with close main bank relationships have higher interest payments and lower profitability. Yao and Ouyang (2007) explain the worse financial performance of firms by the specific behavior of main banks, which try to stabilize their own earnings by forcing clients, who they control, to over-borrow. In short, banks can influence a firm's financing decisions to the bank's

benefit. Thus, higher main bank power can be associated with higher loan ratios but worse profitability.

It is suggested that increased main bank power and close bank-firm relationships attenuate information asymmetry and that in consequence bank-influenced firms may have lower agency costs, comparatively easier access to funds, and receive preferential loan terms (Buch, 1998; Agarwal and Elston, 2001).[4] Vesala (2007) states that especially at the early stages of the lending relationship, banks have some incentive to subsidize greater loan availability for clients who have switched to that bank. However, simply the act of switching might signal to the bank that the firm is facing financial constraints, which could result in a higher cost of borrowing. In line with this, von Thadden (2004) argues that when a firm breaks off the firm-bank relationship, this action is likely to send a negative signal about the firm's quality. A possible aftermath can be that even a high-quality borrower may encounter unfavorable conditions when trying to switch to a competing (uninformed) bank. Thus, such a firm is more likely to incur higher borrowing costs as a result of the decision to switch.

The costs and benefits of switching vary depending on firm and bank characteristics. Banking with a "weak" bank may reduce a borrower's creditability because bank distress as well as its capitalization will be significant barriers to lending. On the other hand, Fukuda, Kasuya and Nakajima (2005) emphasize that banks with a large proportion of nonperforming loans may behave riskier. They are likely to continue providing financial support to inefficient companies, which could be one important reason that firms tend to be attracted by banks with impaired balance sheets. In this context, we point out that the predicted effect of switching is crucially dependent on the motivation for such behavior. If a company takes the initiative to switch main banks, the decision has quite possibly been taken in the expectation of a positive outcome; however, if the bank switch is a direct result of changes in the structure of firm ownership, the rent-seeking motive of the bank may result in worse performance by the firm.

[4]Ioannidou and Ongena (2006) argue that the main reason firms switch banks is to obtain better credit conditions. For instance, the offer of a soft loan may be sufficient motivation for a firm to switch from one bank to a competitor.

3 Data and Methodology

3.1 Data

Our basic source of data for corporate characteristics is the SMIDA (State Commission on Securities and Stock Market) database. Financial reports of Ukrainian banks are taken from the official site of the National Bank of Ukraine. We match the two samples according to MFO codes of main banks indicated by the firms in their financial reports.[5] The sample period is from 2002 to 2006. Only economically active firms (i.e., companies with positive sales values) are retained in our sample, and we also exclude all firms that are observed less than two times. Moreover, to lessen the influence of outliers, our variables are truncated at the top and bottom 1 percent level of the distribution on an annual basis. Our final sample contains approximately 150 banks and about 5,000 corporations.

The empirical literature suggests several measures of bank power. Sheard (1989) and D'Auria, Foglia and Reedtz (1999) use the amount of bank loans to measure the closeness of a firm-bank relationship. However, this indicator does not seem completely reliable because receiving a large loan may have adverse effects on the firm and may not necessarily give the bank significant influence over the client. Instead, we use bank ownership in the firm to estimate the main bank's power (Agarwal and Elston, 2001).[6] Financial intermediaries that own firm shares can have a direct impact on the firm by manipulating the firm's financial decisions. The ownership monopoly reduces competition among lenders; hence, the bank can manipulate the firm's finances to its own benefit. This approach to measuring firm-bank closeness is preferable when the sample mainly contains comparatively large joint stock companies, as does ours.

Table 1 sets out descriptive statistics for selected variables referring to firms and banks for the period 2002-2006. Main bank power (MBP) denotes the share of firm equity held by the bank and enables discovering the degree of control the current main

[5]MFO codes mean "interbranches turnover" and identity codes of bank branches.

[6]Yao and Ouyang (2007) assess bank influence using the proportion of the main bank's ownership to the total ownership of bank shareholders.

bank has over the firm. The mean value of *MBP* is about 1.4 percent for the total sample and about 31 percent for banks owning equity in the firms. Overall, about 5 percent of firms in the sample are controlled by banks in terms of equity held. Specifically, for 23 percent of the firms, banks hold more than 50 percent of the firm's shares. To reduce the influence of outliers, we use the natural logarithm of total assets as a measure for firm size. On average, firms report 8.6 percent of operating income/loss to total sales ratio. *Leverage* indicates that the mean of the firm's debt is about 37.7 percent of total liabilities, and Ukrainian firms use 12.5 percent of bank loans to structure their debts. Note that the mean of *Interest Payment* (0.217) is comparable to the weighted interest rate on credit in the national currency granted by commercial banks in Ukraine during the period of investigation.

Three measures are employed to estimate bank-specific financial health. The natural logarithm of total bank assets allows capturing *Bank Size* (alternatively, one could use the number of bank branches). The second indicator of financial health is the share of nonperforming loans (*NPL*) included in the bank's total assets. Finally, *Bank Leverage* is a bank's capacity to accumulate financial resources and transform deposits into credits.

The first analysis, which is based on descriptive statistics (Table 1), indicates that switching main bank may be beneficial to firms. Firms that switched banks demonstrate on average a higher operating income to sales ratio (9.2 percent compared to 8.8 percent for nonswitchers). Switching main bank also results in an increase in both leverage and bank credits. It could be that access to credit makes the structure of liabilities riskier but allows companies to extend sales and/or make capital expenditures. The reported higher level of growth may demonstrate a motivation for firms to switch banks. Additionally, note that larger and riskier firms with liquidity shortage switch to financial institutions that have a higher share of nonperforming credits.

3.2 Empirical Modeling

The question of whether or not to switch banks and the decision as to the firm's proportion of bank loans might be interrelated. Moreover, some companies are more motivated

to switch their main banks due to the bank's firm share ownership or specialization. Therefore, a traditional analysis defining the switching dummy variable as an exogenous effect has the potential to suffer from a self-selection bias.[7] One possible modeling strategy for coping with this problem is to use Heckman's selection model by including an endogenous treatment effect dummy variable (TEM). As we have panel data, our empirical strategy follows Verbeek (1990), Verbeek and Nijman (1992), who suggest employing Heckman type sample selection models with fixed and random effects in order to capture not only the selection of firms regarding the switching decision, but also unobserved heterogeneity across firms both in the switching decision as well as in the outcome after switching.

The outcome equation including the endogenous dummy variable for bank switching is specified for panel data as

$$y_{it} = \theta_i + \beta' x_{it} + \mu z_{it} + \varepsilon_{it}$$

where the subscript i refers to individuals and the subscript t to periods. y_{it} is defined as outcome, e.g., interest payment or firm performance, x_{it} is a vector containing variables describing firm and main bank characteristics, $z_{it} \in \{0, 1\}$ denotes the presence or absence of switching, and θ_i is a firm specific random or fixed effect. The main interest lies in the parameter estimate of μ, which describes the effect of bank switching on the outcome variable y_{it}.

The firm's switching decision is modeled as

$$z_{it}^* = \eta_i + \delta' w_{it} + u_{it}$$

with

$$z_{it} = 1 \text{ if } z_{it}^* > 0 \text{ and } z_{it} = 0 \text{ if } z_{it}^* \leq 0.$$

[7]Most studies assume independent or sequential decisions on credit, its maturity, and switching (Ioannidou and Ongena, 2006). However, neglecting the possible joint character of loan decisions may lead to biased estimates.

The vector w_{it} includes the observable firm and bank variables. For the sample selection model with *fixed effects*[8], one specifies $[u_{it}, \varepsilon_{it}] \sim$ bivariate normal $[(0,0), 1, \sigma, \rho]$.

For the sample selection model with *random effects*, the selection equation is specified as

$$z_{it}^{*} = \eta_i + \delta^{'} w_{it} + u_{it}$$

where $\eta_i \sim N\left[0, \sigma_{\eta}^2\right]$, $\theta_i \sim N[0, \sigma_{\theta}^2]$, $Corr(\varepsilon_{it}, u_{it}) = \rho$, $Corr(\theta_i, \eta_i) = \delta$. The standard regression model produces biased estimates if $\rho \neq 0$. Unobservable factors determine the switching of the main bank due to "selectivity" in two forms, that is through the correlation of the individual-specific unique components (ε_{it} and u_{it}) and through the correlation between the group-specific components (θ_i and η_i).

In our model the following selection equation is specified for estimating the probability of a firm's main bank switching:

$$\begin{aligned} z_{it} &= \eta_i + \delta_1(BankSize)_{it} + \delta_2(NPL)_{it} + \delta_3(BankLeverage)_{it} \\ &+ \delta_4(MBP)_{it} + \delta_5(FirmSize)_{it} + \delta_6(Leverage)_{it} + u_{it} \end{aligned} \tag{1}$$

The likelihood of switching increases if the main bank's influence weakens. Larger bank size implies a stronger bank, whereas an increasing number of nonperforming loans is a sign of deteriorating bank health. A higher ratio of *Bank Leverage* is attributed to an excess of resources that encourages banks to loan. Apparently, the more credit a bank extends, the less likely it is that firms will switch.

Thus, δ_1 and δ_3 are predicted to have positive signs, but δ_2 should be negative if firms choose healthier banks. Additionally, increasing the control of the firm via higher shareholding by the bank will encourage the firm to switch its banking to the respective bank. Therefore, δ_4 is expected to be positive, as are δ_5 and δ_6. According to the graduation hypothesis, bigger firms are more likely to switch main banks (Gopalan et al., 2007). More leveraged companies are considered to be riskier and their motives

[8]Confer to the LIMDEP manual version 9, E30.6, p. 32

for changing banks can be explained by possible credit denial on the part of the original bank.

Two other control variables are included in the equation: (i) industry effects and (ii) year dummy variables.[9] The industry dummies reflect differences in switching behavior across industries; the year dummies account for changes over time in the variables. Using year dummies also controls for business cycles because of the well-known "lemon" problem that is exacerbated during recession periods.[10]

Bank loan ratio

Only a fraction of the companies in our sample employs bank loans. Therefore, for bank loans the dependent variable is censored at zero and using a Tobit model with endogeneous treatment effect dummy variable is appropriate. The following outcome equation for bank loans is formulated

$$\begin{aligned} BankLoan_{it} &= \eta_i + \beta_1(BankSize)_{it} + \beta_2(NPL)_{it} + \beta_3(BankLeverage)_{it} \\ &+ \beta_4(MBP)_{it} + \beta_5(FirmSize)_{it} + \beta_6(Leverage)_{it} \\ &+ \beta_7(Turnover)_{it} + \beta_8(Growth)_{it} + \beta_9(CurrentRatio)_{it} \\ &+ \beta_{10}(Volatility)_{it} + \mu(Switch)_{i,t-1} + \epsilon_{it} \end{aligned} \tag{2}$$

where η_i denotes unobserved firm-specific heterogeneity with regard to bank loans and switching is included as a lagged variable, that is the effect of bank switching in the previous period on bank loans in the current period is captured.

We expect that firms receive more bank loans after switching, therefore μ should be positive. Main bank power (MBP) and a bank's better financial statements positively affect the client loan ratio. Leverage is also predicted to be positively related to the loan ratio because riskier firms prefer bank loans (Bolton and Freixas, 2000). We expect that larger firms with higher turnover will borrow more because they are more promising

[9]Year dummy variables are also added in the following outcome equations. The industry effects are estimable only in the case of the random effects models, as they are perfectly collinear with the firm effects in the fixed effects model.

[10]See von Thadden (2004) for details.

clients for current main banks. It is common practice for banks to use firm turnover in evaluating a firm's creditworthiness in the presence of uncertainty (Stephan et al., 2008).[11] Additionally, an argument can be made in favor of controlling for liquidity constraints and variability of internal funds. It would be interesting to discover to what extent firms use external rather than internal finance as companies in developing countries rely mainly on internal financing, while profit rates are relatively persistent in emerging economies such as Ukraine (Stephan and Tsapin, 2008). Obviously, both higher volatility and severe liquidity constraints force companies to extend borrowing. Our proxy for the variability of firm internal funds is a dummy variable that takes a value of one within the 25 percent range of the standard deviation of $[(EBIT_t/Sales_t) - (EBIT_{t-1}/Sales_{t-1})]$, and zero otherwise. The liquidity constraints are captured by the so-called current ratio, defined as the current assets to current liabilities ratio (Hubbard et al., 2002).

Interest payment

$$\begin{aligned} InterestPayment_{it} &= \eta_i + \beta_1(BankSize)_{it} + \beta_2(NPL)_{it} + \beta_3(BankLeverage)_{it} \quad (3) \\ &+ \beta_4(MBP)_{it} + \beta_5(FirmSize)_{it} + \beta_6(Leverage)_{it} \\ &+ \beta_7(Turnover)_{it} + \beta_8(Growth)_{it} + \beta_9(CurrentRatio)_{it} \\ &+ \beta_{10}(Volatility)_{it} + \mu(Switch)_{i,t-1} + \epsilon_{it} \end{aligned}$$

Based on the discussion above, we predict a positive sign for the coefficient on *Switch* because new borrowers might be considered riskier. This result is expected to persist after controlling for borrower risk and for borrower information costs. *Leverage*, *Current Ratio*, and *Volatility* are proxies for the riskiness of companies; *Firm Size* and *Growth* characterize information and control issues.

Profitability

Whether switching banks was the right decision will be answered by comparing firm

[11] "Provision on proceeding order of formation reserve for coverage possible looses in credit transactions of the banks," approved by Decree of the NBU board as of June 6, 200 N 279.

performance before and after the switch, again indicated by the estimate of μ from the following firm performance equation:

$$\begin{aligned} Profitability_{it} &= \eta_i + \beta_1(BankSize)_{it} + \beta_2(NPL)_{it} + \beta_3(BankLeverage)_{it} \\ &+ \beta_4(MBP)_{it} + \beta_5(FirmSize)_{it} + \beta_6(Leverage)_{it} \\ &+ \beta_7(Turnover)_{it} + \beta_8(CurrentRatio)_{it} + \beta_9(BankLoan)_{it} \\ &+ \beta_{10}(Growth)_{it} + \mu(Switch)_{i,t-1} + \epsilon_{it} \end{aligned} \quad (4)$$

We expect a negative relation between MBP and firm profitability because high bank influence might distort the financial decisions of the firm. On the other hand, a firm's worse performance could also be a result of its bank's deteriorating financial health. As large companies endure financial crisis comparatively easier, we expect a positive relationship between firm size and performance. In contrast, *Leverage* should be negatively related to profitability as distressed firms operate worse. *Growth* and *Turnover* are predicted to be positively correlated with firm's return (Yao and Ouyang, 2007).

4 Empirical Results

4.1 Why do firms switch their banks?

The estimates for the determinants of switching probability are shown in Tables 2, 3 and 5. Marginal effects estimated around mean points are reported. The outcomes provide evidence that the probability of a firm switching main banks (hence, unobserved switching costs) is determined by both firm- and bank-specific characteristics. One of the key variables of this study, MBP, is a significant determinant of bank switching in case of TEM with fixed effects. The probability of switching to a new bank increases 0.83 percent if the new bank owns 1 percent of a firm's equity.

Quite surprisingly, Ukrainian firms tend to switch to banks with worse financial health. The corresponding coefficient on nonperforming loans as an inverse measure

of financial health is statistically significant and positive across different specifications. Furthermore, a bank's size plays an essential role in a firm's decision to switch banks. The probability of switching decreases if the main bank is endowed with more capital. This means that banks with an excess of nonperforming resources, a lower capitalization, and a weak ability to transform funds are more likely to attract new clients. Our findings do not support the graduating hypothesis, which implies that firms prefer larger banks because such will be better able to meet the firms' growing need for funds (Gopalan et al., 2007). Apparently, weaker banks are more prone to serve more risky firms and those clients, who face severe financial constraints. This results can be roughly consistent with Fukuda et al. (2005).

Our results confirm the information hypothesis. As there is a positive relationship between firm size and the probability of bank switching, more opaque companies are less likely to switch banks. Typically, small firms are less transparent than larger firms. As a rule, larger companies are more diversified and thus less prone to bankruptcy (Rajan and Zingales, 1995).[12] Furthermore, we control for firm creditworthiness, measured by leverage ratio. The corresponding coefficient is highly significant. This suggests that riskier firms are more likely to switch banks, a finding in accord with von Thadden (2004) and Detragiache, Garella and Guiso (2000). These firms switch banks in an effort to ease their financial constraints.

In summary, we find that larger and riskier Ukrainian companies are more likely to break off their current bank relationship in order to initiate a new one with a smaller and less healthy bank.

4.2 Ex-post effects of bank switching

Table 2 shows the effects of switching on the level of bank credits in the structure of firm debt. The outcomes for the treatment effects model (main regression) as well as for

[12]Large companies are the ones most likely to be bailed out in times of turmoil or financial crisis. For instance, recently the U.S. and some European governments announced their intentions to support car makers by guaranteeing soft loans. For details, see $http://www.economist.com/business/displaystory.cfm?story_id = 12638642$

alternative Tobit model (both for panel data) are reported. The correlation coefficient of the error terms (ρ=0.046) indicates that the coefficient of *Switch* (our major interest here, the treatment effect) is biased downward in regressions that do not account for self-selection. The chief conclusion is that Ukrainian firms obtain easier access to external funds after switching banks, a conclusion that is corroborated across alternative models and consistent with findings of Vesala (2007). This result remains after controlling for borrower risk, incentives, and information costs.

The estimated effect can be viewed as even stronger when taking into consideration that only loans of at least one year's duration are observed, whereas banks do provide other means of financing (e.g., short-term credit and credit lines). According to the estimates, more constrained and riskier companies favor bank financing, which is in line with Bolton and Freixas (2000). The importance of liquidity constraints is emphasized by the fact that the results are significant at the 1 percent level for competing models.[13]

Our findings suggest that the bank loan ratio is determined by main bank power (MBP) and bank financial health.[14] Also, a bank that holds shares in the client firms tends to grant more credit to those firms. Thus, our prediction as to the relationship between MBP and bank financing is empirically confirmed. This result accords with many previous studies (see, e.g., Weinstein and Yafeh (1998) or Yao and Ouyang (2007)).

Different indicators of bank strength allow us to single out different motives of banks' behavior. Golodniuk (2006) argues that, in Ukraine, the level of bank capitalization is the best measure of its balance sheet strength. We consider *Bank Size* as an indicator of the bank's capacity to mobilize financial resources. As can be seen from Table 2, larger banks are more careful than smaller ones when it comes to lending. The latter evidence may be a reason why companies are prone to switch to smaller banks.

One alternative measure of bank financial health (*Bank Leverage*) is used to assess a bank's capacity to transform funds. A highly significant coefficient on the corresponding variable implies that a large amount of cash and deposits allows a bank to lend more.

[13]Using cash flow instead of current ratio to proxy liquidity constraints leads to the same results.

[14]Ortiz-Molina and Penas (2008) argue that loan availability and its maturity are more sensitive to owner than to firm characteristics.

The ratio of nonperforming loans can reflect a demand for credits from this bank and, hence, allows us to distinguish another effect of the firm-bank relationship. A higher proportion of nonperforming loans is associated with a lower level of granted loans, implying that the bank is less able to grant loans on acceptable conditions because of its deteriorated financial health. Thus, our results contradict Fukuda et al. (2005), who argue that banks may tend to conceal possible problems in order to continue lending to troubled firms to keep them from bankruptcy.

Neither bank characteristics nor MBP affect firm interest payments; however, these payments are very sensitive to the variability of firm internal funds (Table 3). It is interesting that banks tend to set lower interest payments for companies that have low turnover but high sales growth. The most important issue is that Ukrainian firms have to accept higher interest rates after switching as the ratio of interest payments is increased. Since these companies might be considered as riskier, banks tend to extract higher interest payments from them, which is consistent with von Thadden (2004).

Table 5 provides coefficient estimates of the impact of bank switching on firm profitability in the following year. It is noteworthy that the selection correlation coefficient ρ is again statistically significant, highlighting the importance of the selection mechanism. Moreover, we find a positive correlation coefficient ρ, and the coefficient on the dummy variable *Switch* would be biased upward if selection is ignored. In fact, bank switching results in lower profitability for Ukrainian firms. A similar finding is reported by Degryse and Ongena (2000). For the most part, our findings confirm the expected relations between firm performance and its characteristics. Additionally, the treatment effects models indicate that a firm's higher profitability is associated with lower bank capitalization, while the expected negative impact of MBP appears immaterial.[15] Thus, main bank switching increases the availability of capital for a firm but worsens its performance, not only because of switching costs but possibly also due to the new bank's higher interest rates.

[15]Bank ownership can improve firm value providing that the incentives of the bank and the shareholders are closely aligned (Morck et al., 2000).

5 Conclusions

More than 5 percent of the joint stock companies in Ukraine switch main banks every year, but why they do so is unclear, making it a phenomenon well worth studying. Using a matched firm-bank sample, our study provides evidence that bank-specific financial health as well as firm characteristics are the chief determinants of bank switching in this transition economy. Riskier and larger Ukrainian companies are more likely to change banks, usually moving to a bank with worse financial health. A possible explanation why firms choose weaker banks is that these banks are more prone to grant risky credits. However, these findings conflict with the graduating hypothesis, which states that companies tend to switch to larger banks that will better meet their growing need for funds (Gopalan et al., 2007).

This study also highlights the essential role of main bank power, measured by equity holdings, in enabling firms to change "inside" banks. This issue could be of great relevance to policymakers in that financial institutions tend to choose inefficient structures in the absence of sufficient competition and this situation can result in wealth redistribution in developing countries (Rajan, 2002). To guard against banks having excessive power, many developed countries set limits on the amount of equity a bank can hold in a single firm (Morck et al., 2000). This type of regulation is rare in emerging markets, however, and nonfinancial corporations can become very susceptible to shocks generated in financial sector.

We find no evidence that main bank power has a material effect on firm performance, but it does affect the loan ratio by increasing the amount of credit with a term of one year or more. Banks with a high level of nonperforming loans are compelled to curtail lending due to their impaired financial health. In contrast, less capitalized banks are associated with higher loan ratio of their clients. Thus, our findings provide more fodder for the debate over the potential for banks to structure clients' balance sheets. It is worth noting that whether and in what amount loans will be made is crucially dependent on the bank's characteristics (i.e., how much money does it have to lend), whereas interest rates (measured by interest payments) are determined by the borrower's creditworthiness.

A core finding of this research is that firms perform worse after switching, which is in accord with Degryse and Ongena (2000). Apparently, the firms that switch banks are seen as risky and, therefore, the new bank charges higher interest on the credit it grants. This is reasonable behavior on the part of banks as von Thadden (2004) argues that particularly low-quality firms are more likely to switch banks. It would be very interesting to discover how permanent this poorer performance is and to what extent bank health affects loan conditions. Such a quest will require more detailed data on lending and other transactions. Also of interest would be to discover, given that banks do have an impact on firm switching decisions and that financial constraints are material, whether this strategy has an influence on firm cash holdings and liquidity. Thus, there are many promising and interesting avenues to explore in researching bank switching in emerging markets.

References

Agarwal, R. and Elston, J. A. (2001), 'Bank-firm relationships, financing and firm performance in Germany', *Economics Letters* **72**(2), 225–232.

Bolton, P. and Freixas, X. (2000), 'Equity, bonds, and bank debt: Capital structure and financial market equilibrium under asymmetric information', *Journal of Political Economy* **108**(2), 324–351.

Boot, A. W. (2000), 'Relationship banking: What do we know?', *Journal of Financial Intermediation* **9**, 7–25.

Buch, C. (1998), 'Toward universal banking – risks and benefits for transition economies, competition and convergence in financial markets: the German and Anglo-Saxon models', *Advances in Finance , Investment, and Banking and Finance Series* **5**.

D'Auria, C., Foglia, A. and Reedtz, P. (1999), 'Bank interest rates and credit relationships in Italy', *Journal of Banking and Finance* **23**, 1067–1093.

Degryse, H. and Ongena, S. (2000), Bank relationships and firm profitability, Working Paper 2000-14, Center for Economic Research.

Delcoure, N. (2007), 'The determinants of capital structure in transitional economies', *International Review of Economics and Finance* **16**, 400–415.

Detragiache, E., Garella, P. and Guiso, L. (2000), 'Multiple versus single banking relationships: Theory and evidence', *Journal of Finance* **55**(3), 1133–1161.

Farinha, L. A. and Santos, J. A. (2002), 'Switching from single to multiple bank lending relationships: Determinants and implications', *Journal of Financial Intermediation* **11**, 124–151.

Fukuda, S., Kasuya, M. and Nakajima, J. (2005), Deteriorating bank health and lending in Japan: evidence from unlisted companies undergoing financial distress, Technical report, Bank of Japan.

Golodniuk, I. (2006), 'Evidence on the bank-lending channel in Ukraine', *Research in International Business and Finance* **20**, 180–199.

Gopalan, R., Udell, G. F. and Yerramilli, V. (2007), Why do firms switch banks?, Technical report, New Orlean Meetings Paper.

Hoshi, T., Kashyap, A. and Sharfstein, D. (1990), 'The role of banks in reducing the costs of financial distress in Japan', *Journal of Financial Economics* **27**, 67–88.

Hubbard, G. R., Kuttner, K. N. and Palia, D. N. (2002), 'Are there bank effects in borrowers' costs of funds? Evidence from a matched sample of borrowers and banks', *Journal of Business* **75**(4), 559–582.

Ioannidou, V. and Ongena, S. (2006), Time for change: Loan conditions and bank behaviour when firms switch, Working paper, Tilburg University and CEPR.

Kim, M., Kliger, D. and Vale, B. (2003), 'Estimating switching costs: The case of banking', *Journal of Financial Intermediation* **12**, 25–56.

Klemperer, P. (1995), 'Competition when consumers have switching costs: An overview with applications to industrial organization, macroeconomics, and international trade', *Review of Economic Studies* **62**, 515–539.

Morck, R., Nakamura, M. and Shivdasani, A. (2000), 'Banks, ownership structure, and firm value in Japan', *Journal of Business* **73**(4), 539–567.

Ortiz-Molina, H. and Penas, M. F. (2008), 'Lending to small businesses: The role of loan maturity in addressing information problems', *Small Business Economics* **30**, 361–383.

Rajan, R. (1992), 'Insiders and outsiders: the choice between relationship and arm's length debt', *Journal of Finance* **47**, 1367–1400.

Rajan, R. (2002), 'An investigation into the economics of extending bank powers', *Journal of Emerging Market Finance* **1**(2), 125–156.

Rajan, R. and Zingales, L. (1995), 'What do we know about capital structure? Some evidences from international data', *Journal of Finance* **50**, 1421–1460.

Rajan, R. and Zingales, L. (1998), 'Which capitalism? Lessons from the East Asian crisis', *Journal of Applied Corporate Finance* **11**, 40–48.

Sharpe, S. (1990), 'Asymmetric information, bank lending, and implicit contracts: A stylized model of customer relationships', *Journal of Finance* **45**, 1069–1087.

Sheard, P. (1989), 'The main bank system and corporate monitoring and control in Japan', *Journal of Economic Behavior and Organization* **11**, 399–422.

Shen, C.-H. and Huang, A.-H. (2003), 'Are performances of banks and firms linked? And if so, why?', *Journal of Policy Modeling* **25**(4), 397–414.

Singh, A. (2003), 'Competition, corporate governance and selection in emerging markets', *The Economic Journal* **113**, 443–464.

Stephan, A., Talavera, O. and Tsapin, A. (2008), Corporate debt maturity choice in transition financial markets, Discussion paper 784, DIW Berlin.

Stephan, A. and Tsapin, A. (2008), 'Persistence and determinants of firm profit in emerging markets', *Applied Economics Quarterly* **54**(4), 1–23.

Verbeek, M. (1990), 'On the estimation of a fixed effects model with selectivity bias', *Economic Letters* **34**, 267–270.

Verbeek, M. and Nijman, T. (1992), 'Testing for selectivity bias in panel data models', *International Economic Review* **33**(3), 681–703.

Vesala, T. (2007), 'Switching costs and relationship profits in bank lending', *Journal of Banking and Finance* **31**(2), 477–493.

von Thadden, E.-L. (2004), 'Asymmetric information, bank lending and implicit contracts: The winner's curse', *Finance Research Letters* **1**(1), 11–23.

Weinstein, D. and Yafeh, Y. (1998), 'On the cost of a bank centered financial system: Evidence the changing main bank relations in Japan', *Journal of Finance* **53**(2), 635–672.

Yao, J. and Ouyang, H. (2007), 'Dark-side evidence on bank-firm relationship in Japan', *Japan and the World Economy* **19**(2), 198–213.

Table 1: Descriptive Statistics

	All (N=8,861)		*Switched* (N=1,430)		*Nonswitched* (N=7,431)	
Variable	μ	σ	μ	σ	μ	σ
			Firm Characteristics			
OIS	0.086	0.260	0.091	0.261	0.085	0.259
Firm Size	8.818	1.648	9.175	1.662	8.750	1.637
Leverage	0.377	0.309	0.436	0.327	0.366	0.304
Bank Loan	0.125	0.209	0.157	0.231	0.119	0.204
Interest Payment[a]	0.217	0.392	0.220	0.428	0.217	0.383
Turnover	1.171	1.084	1.139	1.043	1.177	1.092
Current Ratio	2.963	4.809	2.488	3.994	3.055	4.946
Growth	1.253	0.715	1.266	0.742	1.250	0.710
			Bank Characteristics			
MBP	1.417	8.405	2.005	10.122	1.304	8.028
Bank Size	15.681	1.501	15.365	1.602	15.742	1.473
NPL	0.090	0.069	0.111	0.086	0.086	0.064
Bank Leverage	0.846	0.075	0.830	0.092	0.849	0.071

Note:
Firm characteristics: *Size* is the natural logarithm of total assets. *OIS* is constructed as operating income/loss to total sales ratio. *Leverage* is the firm's debt to total assets ratio. *Bank Loan* denotes the share of bank loans in total debt. *Interest Payment* is defined as interest payments to bank loans ratio. *Current Ratio* is constructed as current assets to current liabilities ratio. *Turnover* is the firm's total sales to total assets ratio. *Growth* is the growth of firm sales. *MBP* denotes the share of firm's equity held by the main bank.
Bank characteristics: *Bank Size* is measured by natural logarithm of total assets. *NPL* is the nonperforming loans to total assets ratio. *Bank Leverage* is defined as deposits and borrowing to total assets ratio.
[a] results for 3,876 observations are reported.
μ denotes *Mean*.
σ is *Standard Deviation*.

Table 2: Determinants of Bank Loans[a]

Dependent Variable:	*TEM FE* (*Switch*)	*TEM FE* (*Bank Loan*)	*Tobit FE* (*Bank Loan*)
MBP	0.0084***	0.0006**	0.0007**
	(0.0032)	(0.0002)	(0.0003)
Bank Size	-0.1697***	-0.0038**	-0.0034***
	(0.0207)	(0.0016)	(0.0013)
NPL	0.0612**	-0.0034**	-0.0045**
	(0.0264)	(0.0015)	(0.0019)
Bank Leverage	-0.0605***	0.0020**	0.0025**
	(0.0180)	(0.0008)	(0.0011)
Firm Size	0.1210***	0.0282***	0.0393***
	(0.0218)	(0.0016)	(0.0077)
Leverage	0.5676***	0.0543***	0.0737***
	(0.1046)	(0.0080)	(0.0159)
Turnover		0.0097***	0.0136***
		(0.0022)	(0.0036)
Current Ratio		-0.0030***	-0.0097***
		(0.0004)	(0.0018)
Volatility		0.0098	0.0112
		(0.0063)	(0.0077)
Growth		0.0019	0.0021
		(0.0026)	(0.0031)
Switch		0.0369***	0.0152**
		(0.0065)	(0.0071)
ρ	-0.0455***		
Log Likelihood	-1650.331		-618.8268
$E(y\|y>0)$			0.105
N	8,975		8,975

Note:
Marginal effects are reported. Each equation includes year dummy variables. Standard errors are reported in the parentheses. * significant at 10%; ** significant at 5%; *** significant at 1%.
Firm characteristics: *Size* is the natural logarithm of total assets. *OIS* is constructed as operating income/loss to total sales ratio. *Leverage* is the firm's debt to total assets ratio. *Bank Loan* denotes the share of bank loans in total debt. *Current Ratio* is constructed as current assets to current liabilities ratio. *Turnover* is the firm's total sales to total assets ratio. *Growth* is the growth of firm sales. *Volatility* is a dummy variable reflecting the variability of firm operating income. *MBP* denotes the share of firm's equity held by the main bank.
Bank characteristics: *Bank Size* is measured by natural logarithm of total assets. *NPL* is the nonperforming loans to total assets ratio. *Bank Leverage* is defined as deposits and borrowing to total assets ratio.
[a] Models with RE are not estimable.

Table 3: Determinants of Interest Payments[a]

Dependent Variable:	*Switch*	*TEM FE* (*Interest Payment*)	*Tobit FE* (*Interest Payment*)
MBP	0.0084***	-0.0003	-0.0003
	(0.0032)	(0.0008)	(0.0006)
Bank Size	-0.1697***	0.0063	0.0035
	(0.0207)	(0.0054)	(0.0046)
NPL	0.0612**	-0.0058	-0.0049
	(0.0264)	(0.0056)	(0.0046)
Bank Leverage	-0.0605***	0.0013	0.0011
	(0.0180)	(0.0025)	(0.0022)
Firm Size	0.1210***	0.0094	0.0127**
	(0.0218)	(0.0059)	(0.0056)
Leverage	0.5676***	0.0334	0.0321
	(0.1046)	(0.0314)	(0.0247)
Turnover		0.0253***	0.0251***
		(0.0082)	(0.0077)
Current Ratio		-0.0015	-0.0016
		(0.0035)	(0.0027)
Volatility		0.0557**	0.0530**
		(0.0234)	(0.0211)
Growth		-0.0260***	-0.0220***
		(0.0099)	(0.0080)
Switch		0.0702***	0.0443**
		(0.0248)	(0.0174)
ρ	-0.0276*		
Log Likelihood	-1650.331		-36.70969
$E(y\|y>0)$			0.229
N	3,876		3,876

Note:
Marginal effects are reported. Each equation includes year dummy variables. Standard errors are reported in the parentheses. * significant at 10%; ** significant at 5%; *** significant at 1%.
Firm characteristics: *Size* is the natural logarithm of total assets. *OIS* is constructed as operating income/loss to total sales ratio. *Leverage* is the firm's debt to total assets ratio. *Interest Payment* is defined as interest payments to bank loans ratio. *Current Ratio* is constructed as current assets to current liabilities ratio. *Turnover* is the firm's total sales to total assets ratio. *Growth* is the growth of firm sales. *Volatility* is a dummy variable reflecting the variability of firm operating income. *MBP* denotes the share of firm's equity held by the main bank.
Bank characteristics: *Bank Size* is measured by natural logarithm of total assets. *NPL* is the nonperforming loans to total assets ratio. *Bank Leverage* is defined as deposits and borrowing to total assets ratio.
[a] Models with RE are not estimable.

Table 4: Determinants of Firm Performance

	FEM	REM
Dependent Variable:	*OIS*	
MBP	0.0004	0.0001
	(0.0004)	(0.0003)
Bank Size	-0.0010	-0.0058***
	(0.0031)	(0.0021)
NPL	0.0006	0.0002
	(0.0025)	(0.0022)
Bank Leverage	-0.0007	-0.0008
	(0.0015)	(0.0012)
Firm Size	0.0027	0.0070***
	(0.0033)	(0.0020)
Leverage	-0.0425***	-0.0730***
	(0.0155)	(0.0102)
Turnover	0.0158***	0.0268***
	(0.0039)	(0.0027)
Current Ratio	0.0041***	0.0043***
	(0.0008)	(0.0006)
Bank Loan	0.0626***	0.0704***
	(0.0179)	(0.0131)
Growth	0.0364***	0.0390***
	(0.0039)	(0.0033)
Switch	-0.0080	-0.0010
	(0.0109)	(0.0077)
χ^2	94.61	
N	8,861	8,861

Note:
Marginal effects are reported. Each equation includes year dummy variables. The industry effects are estimable only in the case of the random effects models. Reference category for industry effects is Mining (a heavily subsidized sector). Standard errors are reported in the parentheses. * significant at 10%; ** significant at 5%; *** significant at 1%.
χ^2 is Hausman specification test.
Firm characteristics: *Size* is the natural logarithm of total assets. *OIS* is constructed as operating income/loss to total sales ratio. *Leverage* is the firm's debt to total assets ratio. *Bank Loan* denotes the share of bank loans in total debt. *Current Ratio* is constructed as current assets to current liabilities ratio. *Turnover* is the firm's total sales to total assets ratio. *Growth* is the growth of firm sales. *MBP* denotes the share of firm's equity held by the main bank.
Bank characteristics: *Bank Size* is measured by natural logarithm of total assets. *NPL* is the nonperforming loans to total assets ratio. *Bank Leverage* is defined as deposits and borrowing to total assets ratio.

Table 5: Determinants of Firm Performance

	TEM FE		*TEM RE*	
Dependent Variable:	$(Switch)$	(OIS)	$(Switch)$	(OIS)
MBP	0.0083***	0.00002	0.0017	0.0000
	(0.0031)	(0.0003)	(0.0017)	(0.0003)
Bank Size	-0.1620***	-0.0079***	-0.1178***	-0.0136***
	(0.0204)	(0.0020)	(0.0109)	(0.0019)
NPL	0.0569**	0.00234	0.0222	0.0025
	(0.0253)	(0.0019)	(0.0164)	(0.0060)
Bank Leverage	-0.0579***	-0.0027**	-0.0244***	-0.0027
	(0.0172)	(0.0011)	(0.0077)	(0.0025)
Firm size	0.1141***	-0.0001	0.0908***	0.0120***
	(0.0213)	(0.0021)	(0.0106)	(0.0018)
Leverage	0.5304***	-0.0382***	0.3319***	-0.0592***
	(0.1032)	(0.0101)	(0.0530)	(0.0089)
Turnover		0.0216***		0.0264***
		(0.0027)		(0.0031)
Current Ratio		0.0049***		0.0049***
		(0.0006)		(0.0006)
Bank Loan		0.0761***		0.0683***
		(0.0133)		(0.0140)
Growth		0.0357***		0.0386***
		(0.0033)		(0.0034)
Switch		-0.0605***		-0.2609***
		(0.0088)		(0.0094)
ρ	0.0916***		0.6620***	
Log Likelihood	-1688.776		-3793.232	
N	8,861		8,861	

Note:
Marginal effects are reported. Each equation includes year dummy variables. The industry effects are estimable only in the case of the random effects models. Reference category for industry effects is Mining (a heavily subsidized sector). Standard errors are reported in the parentheses. * significant at 10%; ** significant at 5%; *** significant at 1%.
Firm characteristics: *Size* is the natural logarithm of total assets. *OIS* is constructed as operating income/loss to total sales ratio. *Leverage* is the firm's debt to total assets ratio. *Bank Loan* denotes the share of bank loans in total debt. *Current Ratio* is constructed as current assets to current liabilities ratio. *Turnover* is the firm's total sales to total assets ratio. *Growth* is the growth of firm sales. *MBP* denotes the share of firm's equity held by the main bank.
Bank characteristics: *Bank Size* is measured by natural logarithm of total assets. *NPL* is the nonperforming loans to total assets ratio. *Bank Leverage* is defined as deposits and borrowing to total assets ratio.