The Rise of a Network: Spillover of Political Patronage and Cronyism to the Private Sector

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Keywords: allocative efficiency, banks, networks, rent-seeking

JEL Classifications: D61, D72, G21, L14, P16

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October 24, 2019

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1 Introduction

The abuse of political power for patronage appointments is thought to be ubiquitous around the world (Grindle 2012).[1] Besides eliciting and rewarding loyalty, patronage appointments concentrate control over the allocation of government resources with individuals from a selected group, which facilitates rent transfers to cronies.[2] In this paper, we show that effects of patronage appointments on resource allocation spill over to the private sector, leading to an even larger fraction of resources in the economy being (mis-)allocated to the politically connected.

The spillover of patronage appointments to private markets occurs as private sector entities appoint members of networks with links to powerful politicians. In the specific context of our analysis, private banks in Korea seek to establish links to the new administration following the election of a new president in 2007. Upon his election, the new president appoints people from his networks, including his alumni network, into important positions in the administration (chief political advisers, ministers, prosecutors, CEOs of state-owned firms, the chairmen of the Bank of Korea, the Financial Supervisory Service, etc.).[3] Private banks respond to these changes by also appointing members of the president's alumni network in executive positions. This extends the control over the allocation of resources for members of the president's alumni network to private banks.

We find that executives from the president's alumni network use their control over the allocation of private bank credit to allocate more credit at lower rates to private firms with links to the president's alumni network through their CEO (in-network firms). Additionally, they are more willing to renegotiate their loans with in-network firms and to provide them with new credit to repay existing debt. All of these effects are limited to banks that appoint executives from the president's alumni network, and are reversed after the next election that brings in a president without links to the same alumni network.

[1] Recent empirical studies provide broad support for this view. Colonnelli, Teso and Prem (2018), Xu (2018) and Xu, Bertrand and Burgess (2018) document that politicians hand out government jobs to individuals in social proximity with negative effects on the performance of government.

[2] Such rent transfers can take various forms, for example through better access to financing (Khwaja and Mian 2005; Claessens, Feijen and Laeven 2008; Li et al. 2008), better access to government funds (Faccio, Masulis and McConnell 2006; Duchin and Sosyura 2012), more government contracts (Tahoun 2014; Kim 2018; Baltrunaite 2019; Schoenherr 2019), and laxer enforcement of regulations (Fisman and Wang 2015).

[3] Patronage appointments, called parachute appointments in Korea, are common. DongA.com, Dec. 27, 2010: "Some advisers hold the theory of inevitability of parachute appointments, arguing that 1) it is a practice that has been done by past administrations, 2) the administration has to repay people who have helped the president during the election and 3) has to secure allies for the next presidential election."

Identifying whether firms with links to a politician's network benefit from favorable access to resources in private markets poses several challenges. Links to a politician's network affect firms in myriad ways. For example, better access to government resources may make them better borrowers from banks' perspective (Houston et al. 2014). Additionally, firms may benefit from the agenda of a politician that shares a common ideology, which would improve their investment opportunities and increase their demand for credit.

To overcome these challenges, we collect micro-level data on executive appointments and contract-level data on private bank loans. Together with our institutional setting, this allows us to assess and rule out alternative mechanisms. After the election of Lee Myung Bak (MB) as president in 2007, private banks scramble to appoint executives from his networks to establish links to the new administration (see Section 2 for details). In our analysis, we focus on the Korea University alumni network (KU network) for which comprehensive data is available. Crucially for our identification strategy, private banks appoint executives from different ones of MB's networks, and not all banks appoint executives from the KU network.[4] This variation allows us to explore changes in access to credit from banks that appoint executives from the KU network (KU banks) and those that appoint executives from other networks (non-KU banks) for the same firm. This triple-difference estimation rules out confounding effects based on changes in credit supply or demand at the firm level.

We start our analysis by examining whether in-network firms experience an overall increase in credit from private banks after the election. We find that in-network firms experience a relative increase in private bank credit by 16.66 percent (1.65 percent of their assets). Moreover, interest rates for in-network firms relatively decrease by 18 basis points.

To understand whether this increase in access to private bank credit is driven by appointments of executives from the KU network at private banks, we compare changes in credit at the firm-bank relationship level. If in-network firms experience better access to private bank credit for other reasons, for example a higher probability of government bail-outs or better access to government resources, we would expect them to receive more credit from all banks. Instead, if better access to private bank credit is driven by the newly appointed private bank executives from the KU network, we should see a differential change in lending to in-network firms by KU banks compared to non-KU banks.

We find that the increase in credit volume and decrease in interest rates for KU firms are driven by banks that appoint executives from the KU network after the election. In-network

[4]The number of private banks with executives and board members from the KU network increased from 2 to 8 (out of 15) after MB's election.

firms experience a 61.33 percent higher increase in loan volume, and a 53 basis points higher decrease in interest rates from KU banks compared to non-KU banks. Since 33 percent of in-network firms' lending relationships are with KU banks, changes at the relationship level fully account for firm-level changes in credit volumes ($0.33 \cdot 61.33 = 20.35$) and interest rates ($0.33 \cdot 53 = 18$). Additionally, relative to out-network firms, in-network firms are 2.33 percentage points more likely to start a new relationship with a KU bank than with a non-KU bank after MB's election.

After serving for one term, MB is succeeded by Park Geun Hye, who is not a member of the KU network. Following her inauguration in 2013, we observe that most private banks cease to appoint executives from the KU network and in-network firms experience a drop in credit volume and an increase in interest rates back to levels from before MB's presidency.

Next, we assess whether the president or the administration exert direct influence over the allocation of private bank credit in favor of firms linked to the KU network. Two private banks already had executives from the KU network before MB's election and continue to appoint them after the election. Thus, these banks allow us to assess whether network links between banks and firms operate independently from the influence of the new president (before the election) or whether direct links to the new president are the driving force behind the in-network lending patterns we observe (after the election).

We find that banks that have KU network executives before and after the election allocate more credit at a lower rate to in-network firms both before and after the election in the same manner. This implies that better access to credit from individual banks depends on network links to bank executives rather than links to the president. Put differently, banks allocate more credit at a lower rate to firms with a CEO from the same network regardless of whether the president is in the same network. Thus, the role of the new president in improving access to credit for firms linked to his alumni network is not to directly intervene in private banks' lending decisions. Instead, the role of the president in facilitating access to private bank credit for firms with links to his networks is to trigger the executive appointments of network members in private banks through patronage appointments in government, which allows his networks to control credit allocation of a larger number of private banks.

We next turn to exploring the underlying mechanism through which links between firm and bank executives affect credit allocation. This provides us with a more comprehensive understanding of the effects of firms' links to the president's network on access to private bank credit and helps us to narrow down and assess alternative explanations for our results. Bank executives may be able to extract more soft information from firms in the presence

of links between their executives, allowing them to better identify good quality borrowers (Herpfer 2018; Karolyi 2018) or expect better enforcement of contracts through a social collateral channel (Kandori 1992; Guiso, Sapienza and Zingales 2004; Karlan et al. 2009). Alternatively, such links may induce taste-based discrimination, leading banks to misallocate credit to connected firms (Banerjee and Munshi 2004; Haselmann, Schoenherr and Vig 2018).

We find no evidence of an information or enforcement channel. If links between executives generate better information about firms, banks should be better able to differentiate between good and bad type borrowers. In turn, this should lead to higher dispersion in lending decisions and better loan performance (Rajan, Seru and Vig 2015). We observe neither. Dispersion in loan volumes and interest rates relatively declines for KU banks' portfolio of in-network loans after the election. While we find that bankruptcy fillings evolve similarly for in-network and out-network firms in the years after MB's election, KU banks engage in more debt restructurings with in-network firms. After MB leaves office and links between in-network firms and KU banks are terminated, default rates on loans from KU banks to in-network firms increase drastically. This suggests that KU banks extend riskier loans to in-network firms and that bank executives at KU protect KU firms from default by renegotiating their loans. Once KU executives leave the private banks and can no longer protect in-network firms, the adverse effects of credit misallocation surface through higher bankruptcy filing rates.

Altogether, this evidence is most consistent with favoritism underlying KU banks' allocation of more credit at a cheaper rate to in-network firms. A natural question is how in-network lending, which is costly to the banks' shareholders, is sustainable. One possibility is that the bank's owners are not aware of the costs. However, even if shareholders are aware of inefficiencies in loan allocation to in-network firms, they may tolerate them if KU network executives' links to the government generate benefits that outweigh the costs of inefficient in-network lending.

The collection of empirical results allows us to assess remaining concerns about our interpretation of the results. Alternative explanations based on shared characteristics and expertise of KU bank and firm executives are inconsistent with the bad performance of in-network loans. Additionally, the return on in-network loans is lower than the risk-free rate. Hence, even if banks were not funding-constrained, or unobservable cost, such as search costs, were lower for loans to in-network firms, banks would be better off investing excess funds in the risk-free asset. Lower returns on in-network loans also cannot be justified by cross-selling of other services. The fees on alternative services would need to exceed sensible

rates to raise banks' total returns on in-network relationships above the risk-free rate.

We further strengthen the validity of our interpretation of the results by conducting additional robustness tests. We ensure that the results are not driven by endogenous CEO appointments in private firms by redefining firms' links to the KU network as having a CEO from the KU network five years before MB's election. Moreover, we drop all firm-year observations in which firms borrow from government banks to ensure that lending to in-network firms is not affected by coordination between private and government banks.

Our findings shed light on how control over resource allocation in private markets is shaped by changes in political power. While previous studies focus on the effects of links between firms and politicians on the allocation of government resources, we document that links to powerful politicians' networks grants firms favorable access to resources allocated in private markets. We provide evidence that better access to private bank credit for firms linked to the president's alumni network originates from patronage appointments in government. Patronage appointments concentrate political power with members of the president's networks. This leads private banks, which are heavily regulated by the government, to appoint executives with links to these networks. In turn, this provides members of these networks with control over resource allocation in the private banking sector, which they use to allocate credit to firms with links to their network on favorable terms.

Since a large fraction of resources is allocated through private markets, understanding whether and how firms' links to politicians' networks affect the allocation of resources in private markets is important. Our results suggest that even if politicians' control over credit allocation through state banks is limited, a significant share of credit is (mis-)allocated to firms with political ties through private banks. In our setting, better access to private bank credit has a larger effect on firms with links to the president's alumni network than access to state bank credit. Our findings also imply that using private markets as a counterfactual (e.g., Khwaja and Mian 2005) may underestimate the effect of links to politicians on the access to government resources.

Favorable access to resources does not only benefit the politically connected, but also induces substantial costs to society when resources are misallocated (Amore and Bennedsen 2013; Cingano and Pinotti 2013). These costs have been estimated to be substantial and to account for several basis points of GDP every year both in the government (Khwaja and Mian 2005; Schoenherr 2019) and the private sector (Haselmann, Schoenherr and Vig 2018). We estimate that the costs for private banks from allocating credit to in-network firms at favorable conditions to amount to about 4.5 basis points of annual GDP.

Favorable access to resources for members of elite networks also has a political economy dimension by contributing to the sense that political and economic systems are rigged to favor the politically connected, which erodes trust in those systems and fosters populist political forces with negative long-term consequences for economic growth (Dornbusch and Edwards 1989).

While we examine a specific network, the channel we document is plausibly applicable to networks based on other characteristics such as race, ethnicity, partisanship, social class, gender, etc. Extensive powers of the executive branch to appoint people into important positions in the administration is ubiquitous. For example, the President of the U.S. has the power to fill more than 300 positions without, and more than 1200 positions with Senate approval. Evidence that these powers are used for patronage appointments dates back to at least the British Empire (Xu 2018) and is thought to be pervasive around the world. While the financial sector may be particularly vulnerable to spillovers of patronage appointments due to frequent government regulations and interventions, evidence from firms' lobbying efforts suggests that connections to politicians are valuable for many industries (Bertrand, Bombardini and Trebbi 2014). Additionally, we document a spillover of patronage and cronyism from the government to the private sector in a developed country context where barriers between the government and the private sector are likely to be stronger than in a developing countries context. For these reasons, we expect the effects we document to be relevant beyond the specific context examined in this paper.

Our findings also provide new insights on the implications of social networks on bank lending. Existing evidence is mixed. While Haselmann, Schoenherr and Vig (2018) find that social connections between bankers and firms lead to lower returns on bank loans, Engelberg, Gao and Parsons (2012), Herpfer (2018), and Karolyi (2018) argue that social connections improve lending outcomes. Our findings are consistent with a dominant role of taste-based discrimination in connected lending, leading to inferior loan performance. Novel data on debt renegotiations allows us to provides more detailed insights on ways through which banks positively discriminate connected firms. Additionally, our data allows us to disentangle the effects of network connections on ex ante loan allocation and ex post outcomes. We show that banks issue riskier loans to linked firms and protect connected firms from default ex post through renegotiating connected firms' debt. This suggests that the positive relationship between firm-bank connections and loan outcomes documented in the literature might be driven by banks manipulating outcomes of connected loans.

Finally, the evidence in the paper has implications for how firms select CEOs. If links to

networks with access to political power are valuable beyond the government sector, firms have an even stronger incentive to hire CEOs based on their connections rather than other skills that may contribute to firms' productivity (Gabaix and Landier 2008; Starmans 2018). Since network connections seem to reallocate rents across firms rather than improving productivity, this implies that the importance of CEOs' network connections may crowd out management skills that lead to higher productivity.

2 Institutional Background

In this section we describe the institutional setting that we exploit for our empirical analysis.

2.1 Definition of Political Connections

We exploit the election of Lee Myung Bak (MB) as President of Korea on December 19, 2007 as variation in firms' links to a powerful politician's network. We focus on the Korea University alumni network (KU network) for which data is broadly available.

A firm is considered connected to MB's alumni network if at the time of MB's election in 2007 its CEO is from KU. Many firms have one CEO over the entire sample period, often family-controlled firms. Other firms appoint CEOs in fixed cycles of one to three years. Repeated reappointments of the same CEO are common for the majority of firms. To mitigate concerns about the endogeneity of CEO appointments with respect to loan applications, we define political connectedness as a sticky measure that is not updated. That is, firms connected to the KU network at the time of MB's election are classified as connected for the full sample period.[5] In robustness tests, we reclassify connected firms as those with a KU network CEO in 2003, more than four years before the election.

2.2 Social Network Channel

The Korean president takes a dominant role in government and is equipped with the power to appoint a wide range of senior public officers. There is overwhelming evidence of appointments of connected people during MB's presidency, including from the KU network. Table

[5]We find even stronger results when we update the connectedness measure.

A.1 lists articles from the popular press about appointments of people from MB's networks as auditors, state firm CEOs, public prosecutors, the National Intelligence Service, the police, the National Tax Service, the National Research Council, and ambassadors. Additionally, we find that after MB's election, the number of chief prosecutors from Korea University more than doubled from 5 to 11, the fraction of ministers from Korea University increased from 11.7% to 13.3%, and the share of chief political advisers (senior secretaries in the Blue House) increased from 14.7% to 22.9%. Ministers, chief prosecutors, state firm CEOs, etc. in turn, decide about appointments and promotions at lower levels of the administration, leading to a trickle-down effect of appointments and promotions of individuals from MB's networks.

Patronage appointments of KU network members include the chairmen of the Bank of Korea, the Financial Service Commission, and the Financial Supervisory Service. Private financial firms, who appoint executives and board members independently from the government, respond to the changes in the government sector by appointing executives and board members from MB's networks (see Table A.1).[6] We confirm this in our data. Among the fifteen private banks in Korea, two had executives from the KU network before MB's election. This number increased to eight almost immediately after MB took office in early 2008. Financial firms' attempts to establish links to the new administration by appointing members of the new president's networks alter the control over the allocation of resources in private credit markets in favor of members of MB's networks.

It is conceivable that financial firms appoint members of the president's alumni network for reasons other than establishing links to the administration. For example, if MB plans to invest in infrastructure, and graduates from Korea University are experts in infrastructure investment, their expertise could be valuable to private banks during an MB presidency. Similarly, MB's administration may intend to implement banking regulations that graduates from Korea University are better equipped to deal with. While this type of explanation is generally plausible, appointments of KU executives by private banks based on expertise not only contradict anecdotal evidence, but are also hard to square with the timing of their replacement. KU executives are replaced almost immediately following MB's departure from office (see Table A.2), whereas the effects of large government investment programs and regulations implemented under MB outlast his administration and therefore expertise concerning them does not cease to be valuable the day he leaves office.

[6] In particular for higher level positions, such as CEOs, the necessity to meet the administration's expectations with respect to the characteristics of the appointee, including membership in favored networks, may be quite explicit.

To understand the scale and scope of the influence of links to the KU alumni network, it is important to note that KU graduates feel responsibility towards their fellow alumni even across different cohorts. Alumni networks are actively nurtured and expanded during graduates' professional careers, for example through regular gatherings of fellow alumni working for the same institution or in the same profession.[7] As a consequence, KU alumni personally know fellow alumni across cohorts and are actively involved in the network on a regular basis.

Finally, for executive appointments at private banks to be relevant for credit allocation, executives need to be able to influence the allocation of loans. In practice, they can intervene directly in lending decisions in which in-network firms are involved, they can explicitly or implicitly encourage loan officers to increase lending to in-network firms, or they can influence lending to in-network firms through hiring and promoting loan officers from their network.

3 Data

For the empirical analysis in this paper, we merge data from different sources. From the Korea Information Service (KIS), we acquire accounting data, data on CEOs' educational and professional backgrounds, as well as data on bankruptcy filings and debt renegotiations. For banks, data on CEOs' educational backgrounds is taken from multiple issues of the Annual Dictionary of Korean Business Magnate published by Mailnet & Biz. Data on executive appointments is available from the Commercial Registration System governed by the Supreme Court of Korea. We build a new firm-bank relationship level database on bank loans in Korea by extracting information on firms' loans from their annual reports.

3.1 CEO Data

Korean companies are legally required to report information about their board members to the Commercial Registration System supervised by the Supreme Court of Korea. The register lists the appointment, reappointment, and end of term dates. We collect this information for all commercial banks and private firms in Korea and match the data between 2003 and 2015 with data from the Annual Dictionary of Korean Business Magnate published by Mailnet & Biz and the CEO data set provided by KIS, using CEOs' names and their date of birth. The

[7] Schoenherr (2019) documents that firms linked to the KU network through their CEO experience positive abnormal stock returns following MB's nomination as his party's candidate for the presidential election.

Financial Supervisory Service (FSS) defines fifteen lenders in Korea as commercial banks. For these banks comprehensive time-series information on their CEOs is available. Private banks provide about two-thirds of corporate lending in Korea during our sample period and are responsible for almost seventy percent of total loans extended to the firms in our sample. Eight banks have an executive or board member from the KU network after MB's election, two of these also have an executive or board member from the KU network before the election. We can match 9,280 of the private firms for which we can extract loan information from private banks with the CEO database. In 2007, 2.39% of firms have a CEO from the KU network. In 2003, 2.36% of firms have a CEO from KU, with a large overlap between the groups of firms with links to the KU network through their CEOs in 2003 and 2007.[8]

3.2 Loan Data

To gather information on loans, we start by collecting all annual reports of private firms in Korea between 2003 and 2015, released by the FSS. Next, we extract the information on all outstanding loans and their interest rates.[9] The final loan sample comprises all firms for which loan data can be merged with data on CEOs' educational background using a corporate identification number that is allocated to all registered corporations in Korea. Descriptive statistics on loans are depicted in Panel C of Table 1. The average loan amount is about 4,503m KRW for KU firms, and 3,276m KRW for non-KU firms.[10] Interest rates are slightly lower for firms with links to the KU network: 5.93 percent compared to 6.16 percent for other firms. The average firm connected to the KU network borrows from 2.32 private banks, while for non-KU firms the average number of lending relationships is 1.99. The median firm in both groups borrows from two private banks. The total annual loan volume for the average firm is 14,507m KRW for KU firms and 9,644m KRW for non-KU firms.

3.3 Accounting Data

Accounting data is available for 8,649 or 93.20 percent of the sample firms from KIS. Descriptive statistics are summarized in Table 1, Panel D. Average firm size in terms of total assets is 78,823m KRW for KU firms and 55,431m KRW for non-KU firms, and the average

[8] We observe an increase in CEOs from Korea University in private firms *after* MB's election.

[9] For a subset of loans firms also report the usage of funds.

[10] As a rule of thumb, one billion KRW are roughly equal to one million US dollar.

number of employees is 170 and 114, respectively. This suggests that firms linked to the KU network are larger than the average firm in the sample. Additionally, KU firms exhibit higher net income in line with their larger size. Tangible assets as a fraction of total assets are similar for KU and non-KU firms.

3.4 Bankruptcy Data

Data on bankruptcy filings and private workouts is available from KIS. It includes the filing date, as well as the identity of the firm that files for bankruptcy or workout. We obtain data on bankruptcy and workout filings between 2003 and 2015. Workouts are initiated by a firm's primary bank, defined as the bank with the highest exposure. Before starting a workout, the primary bank organizes a meeting with other creditors to decide about initiating the workout. A workout starts if creditors holding three-quarters of the total claims agree and a reorganization plan is accepted if creditors holding at least three quarters of the claims agree. Dissenting creditors may request assenting creditors to purchase their debt at a fair price, which is determined by a mediation committee, if creditors fail to agree on a price.

4 Empirical Strategy

This section describes our main empirical strategy to assess whether firms with ties to a politician's network benefit from better access to bank credit in private markets.

We start by examining changes in total credit extended from private banks to in-network firms with links to the Korea University alumni network through their CEO compared to out-network firms, by estimating

$$\Delta log(loans)_i \quad = \quad \alpha + \beta \cdot KU_i + \epsilon_i, \tag{1}$$

where the dependent variable is the log difference in firm i's total credit volume from private banks after the election of Lee Myung Bak as Korean president (2008-2012), compared to the period before the election (2003-2007).[11] KU_i is a dummy variable that takes the value of one for firms with a CEO from the KU network at the time of MB's election and zero for other firms. To assess changes in the cost of credit, we replace the dependent variable in

[11] Collapsing the data into one observation per firm ensures that our standard errors are consistent despite the serial correlation of the underlying outcomes (Bertrand, Duflo and Mullainathan 2004).

equation (1) with ΔIR_i, the difference in firm i's average interest rate on its private credit after MB's election, compared to the period before the election.

The estimate β in equation (1) captures firm-level changes in credit and interest rates after MB's election, which could be driven by various channels beyond links to MB's alumni network. For example, firms connected to the KU network may benefit from better access to government resources, which could change their investment opportunities and make them safer borrowers from private banks' perspective.

To isolate the network network channel from alternative explanations, we zoom in to the firm-bank relationship level by estimating

$$\Delta log(loans)_{ij} \quad = \quad \alpha_i + \alpha_j + \beta \cdot KU_{ij} + \gamma \cdot con_{ij} + \epsilon_{ij}, \tag{2}$$

where the dependent variable is the log difference in firm i's loan amount from bank j after MB's election, compared to the period before the election.[12] KU_{ij} is a dummy variable that takes the value of one for firm-bank pairs in which firm i has a CEO from the KU network at the time of MB's election and bank j becomes connected to the KU network by appointing an executive from KU after the election and zero otherwise.

Zooming in on the firm-bank relationship level has the advantage of absorbing any time-series changes in credit supply and demand at the firm level. Specifically, equation (2) allows us to include firm-fixed effects (α_i) to control for firm-level changes in credit or interest rates due to, for example, changes in firms' access to government resources, investment opportunities, or their demand for credit (Khwaja and Mian 2008). Additionally, bank-fixed effects (α_j) control for time-series changes in lending patterns for a given bank.

We include con_{ij}, a variable that measures alumni connections between firms and banks for networks other than the KU network. Specifically, the variable takes a value between negative one and one, increasing by 0.2 for each year firm i and bank j have an executive or board member from the same alumni network after the election, and decreasing by 0.2 for each year they have an executive or board member from the same network before the election. For example, if a bank and a firm share executives from the same alumni network for three years after the election, they are connected for sixty percent $(3 \cdot 0.2)$ of the post-election period. Including con_{ij} is important to ensure an unbiased estimation of β. Intuitively, if banks replace an executive from another alumni network with an executive from the KU

[12] We cluster standard errors at the firm-level. In robustness tests, we confirm robustness to clustering standard errors at the bank level using the wild bootstrap (Cameron, Gelbach and Miller 2008).

network, this affects firms linked to the KU network and firms linked to the network of the replaced executive in opposite ways. If we did not include con_{ij} in the estimation both of these effects would be captured by β.

To assess whether MB or his administration directly intervene in credit allocation at private banks rather than the executives from the KU network appointed after MB's election, we conduct a placebo test. Two banks are already connected to the KU network through their executives before MB's election. This allows us to assess whether network links between firms and banks determine access to private credit irrespective of links to politicians. If changes in credit supply to KU firms are driven by an increase in the number of links to private banks (extensive margin effect), we should observe no change in credit supply for banks that already have an executive from the KU network before the election. However, if changes in credit supply to KU firms are driven by direct influence of MB (intensive margin effect), we should observe a change in credit supply even for banks that already had an executive from the KU network before the election. To assess the roles of the intensive and extensive margin effects, we estimate

$$\Delta log(loans)_{ij} \quad = \quad \alpha_i + \alpha_j + \beta \cdot KU_{ij,pre} + \gamma \cdot con_{ij} + \epsilon_{ij}, \tag{3}$$

where $KU_{ij,pre}$ is a dummy variable that takes the value of one for firm-bank pairs in which firm i has a CEO from the KU network at the time of MB's election and bank j has an executive from KU before and after MB's election, and zero otherwise. All other variables are defined as before.[13] A network channel independent of direct influence of links to politicians would imply that β in equation (3) equals zero.

Remaining concerns with the interpretation of β in equation (2) relate to the endogeneity of appointments of KU executives at the bank level that could be correlated with other bank characteristics. Narrowing down potential explanations of our results requires additional analysis that is conditional on our initial findings. Thus, we develop and describe our additional analysis together with the results in Section 5 and discuss remaining alternative interpretations of our findings in Section 6.

[13]For this test, we exclude all banks that newly appoint a KU executive after the election.

5 Results

This section presents the results from estimating equations (1) to (3) and describes additional tests that assess the mechanism underlying changes in private banks' supply of credit to firms with links to MB's alumni network. Furthermore, we provide additional analysis that supports the interpretation of the results.

5.1 Firm-Level Changes

We start our analysis with a graphical depiction of changes in loan volumes and interest rates for private bank loans around MB's election in Figure 1. The black line shows the values for in-network firms with links to the KU network, whereas the gray line shows the values for out-network firms. Private credit and interest rates evolve similarly for in-network and out-network firms before MB's election. In the years after MB's election up to 2012, credit to in-network firms increases relative to out-network firms, whereas interest rates on loans to in-network firms relatively decrease.

In Table 2, columns I to III, we confirm the graphical evidence statistically by estimating equation (1). Firms connected to the KU network experience a 16.66 percent higher increase in private credit after the election. The results in column II show that the additional increase in credit volume for in-network firms accounts for 1.65 percent of their assets. Additionally, in-network firms experience an 18 basis points decline in interest rates relative to out-network firms after MB's election (column III).

Together, the results in Figure 1 and Table 2 show that firms with links to the KU network experience an increase in credit volume and a reduction in the cost of credit from private banks following MB's election.

5.2 Network Channel

A large set of potential channels may explain why firms with links to the KU network experience an increase in credit from private banks and pay lower interest rates after MB's election. There is broad evidence that firms benefit from connections to politicians in several ways: for example, government bailouts (Faccio, Masulis and McConnell 2006), government subsidies (Duchin and Sosyura 2012; Cingano and Pinotti 2013), better access to state

bank credit (Khwaja and Mian 2005; Claessens, Feijen and Laeven 2008), more government contracts (Tahoun 2014; Baltrunaite 2019; Schoenherr 2019), and more lenient enforcement of regulations (Fisman and Wang 2015). These benefits may make politically connected firms better borrowers from private banks' perspective, which could explain why they provide more credit to firms with links to the KU network at a lower rate. Additionally, politically connected firms may systematically benefit from the new president's political agenda, for example if the government increases investment in sectors that firms with links to the KU network operate in.

To separate a network channel operating through private banks' executive appointments from other explanations, we compare the increase in credit afforded to in-network firms from KU banks that appoint an executive member from the KU network after MB's election and non-KU banks. Comparing changes in lending to the same firm controls for firm-level changes in their credit supply or demand. For example, if in-network firms benefit from better access to government resources making them safer borrowers, they should receive more credit from all private banks. In contrast, if changes in access to credit are driven by firms' new links to private banks through their KU executives, we should observe a higher increase in credit from KU banks.

Figure 2 plots the time-series evolution of average annual credit volumes allocated to in-network (black lines) and out-network firms (gray lines) by non-KU (top panel) and KU banks (bottom panel). The top panel shows that for non-KU banks credit growth is almost identical for in-network and out-network firms.[14] The bottom panel shows that credit from KU banks grows significantly more for in-network firms than for out-network firms during MB's presidency. In Figure 3, we show the same plots for interest rates. The top panel shows that interest rates grow at the same rate for in-network and out-network firms for non-KU banks, whereas the bottom panel shows that for loans from KU banks interest rates relatively decline for KU firms during MB's presidency.

We confirm the insights from the graphical analysis statistically by estimating equation (2) in Table 2, columns IV to VI. The change in lending from KU banks after the election is 61.33 percent higher for in-network firms than for out-network firms (column IV), which is equivalent to 2.23 percent of firms' assets (column V). Additionally, in-network firms experience a relative decline in interest rates by 53 basis points from KU banks compared to non-KU banks (column VI). In column VII, we replace the dependent variable in equation

[14]Two banks classified as non-KU banks have a CEO from the KU network before and after the election, which explains why non-KU banks lend more to KU firms before the election.

(2) with a variable that takes the value of one if firm i establishes a new relationship with bank j after the election, and zero otherwise. We find that, compared to out-network firms, in-network firms are 2.33 percentage points more likely to start a new lending relationship with a KU bank than a non-KU bank after MB's election.[15]

What fraction of the increase in private bank credit can be explained by the higher increase in credit from KU banks? The average KU firm has 2.32 lending relationships of which 0.77 relationships are with a KU bank. Thus, 33 percent of KU firms' lending relationships are with KU banks. Multiplying the extra relationship level increase in loans and decrease in interest rates from KU banks to in-network firms predicts a firm-level increase in total loans by 20.35 percent and a firm-level decrease in interest rates by 18 basis points. This corresponds almost exactly to the firm-level estimates in columns I and III of Table 2. This suggests that the increase in credit supply to KU firms is entirely driven by KU banks.

The estimates for other alumni networks (con_{ij}) are similar to those for the KU network.[16] What sets firms connected to the KU network apart from other firms is that they benefit from an extensive margin network effect following MB's election. While firms generally benefit from better access to private bank credit through their CEOs' alumni network links to bank executives, firms connected to the KU network are unique in experiencing a 300 percent increase in the number of alumni network connections to private banks after MB's election.

In Korea, the president is only allowed to serve for one term. MB's successor, Park Geun Hye, is not linked to the KU alumni network, and most private banks cease to reappoint executives from the KU network after her election, leading to a drop in banks with links to the KU network from eight to three (see Table A.2).[17] The graphical evidence in Figure 1 suggests that firms with links to the KU network experience a decrease in total loans and an increase in interest rates relative to non-KU firms after Park's election. Both effects appear to be driven by changes in the quantity (Figure 2) and price (Figure 3) of lending from banks that appointed executives from the KU network during MB's presidency and replace them with non-KU network executives under Park.

Applying equations (1) and (2) for the period from 2010 to 2015, confirms those insights statistically in Table 3.[18] The results in columns I and II indicate that KU firms experience

[15]Table A.4 shows that our results are robust to clustering standard errors at the bank level.

[16]Since executive appointments for other networks mostly occur in years other than 2008, the effect on new relationships starting in or after 2008 is insignificant for other networks.

[17]Instead, banks appoint executives from the Sogang University alumni network albeit on a smaller scale reflecting the smaller size of the network and its lower prominence among Park Geun Hye's networks (Table A.3).

[18]The last year for which we were able to collect loan data is 2015. We choose the 2010-2015 time window

a decrease in total credit after MB leaves office. Similarly, interest rates on loans extended to KU firms increase to similar levels as before his election (column III). Together, this suggests that better access to credit for KU firms is limited to MB's presidency. Consistent with this interpretation, the drop in lending and increase in interest rates is driven by the banks that cease to appoint executives from the KU network after Park's election (columns IV to VII).

It is possible that changes in lending to KU firms may be driven by direct intervention from the president or financial regulators. For example, bank executives from the KU network may positively discriminate in-network firms to win favors with the MB administration or be coerced into lending to KU firms. To assess this potential alternative explanation, we estimate equation (3). Two banks already have an executive from the KU network before the election and continue to be connected to the KU network after the election. For these banks, links to private firms with a CEO from the KU network exist prior to MB's election. Thus, if network links between bank and firm executives drive the observed differences in private bank lending, we expect these banks to lend more to firms with links to the KU network even before the election. In contrast, if bank lending decisions are affected by direct influence from the MB administration, lending to KU firms should increase for banks connected to the KU network.

The results are collected in Table 4. We find that firms with links to the KU network receive 40.74 percent more loans from banks with an executive from the KU network before the election (column I). After the election, the effect is similar at 26.67 percent (column II), and there is no significant change in lending to in-network firms for banks with links to the KU network before and after the election (column III). In column VI, we find that MB's election does not affect interest rates for lending relationships between firms and banks connected through the KU network both before and after the election. In-network firms pay 31 basis points lower interest rates on loans from KU banks before the election (column IV), and 36 basis points lower rates after the election (column V). This suggests that credit allocation between private banks and firms through networks links between their executives operates independently of the presence of a politician from the same network.

5.3 Underlying Mechanism

Next, we seek to understand the mechanisms underlying the extra lending from KU banks to in-network firms at lower rates. Links between banks and firms may improve the allocation of

for a symmetric window around the election.

credit by facilitating the screening of borrowers. Bank executives from the KU network may possess superior soft information about firms with a CEO from the same network (Herpfer 2018; Karolyi 2018), or network links may generate social collateral improving monitoring and enforcement for loans allocated to in-network firms (Guiso, Sapienza and Zingales 2004; Karlan et al. 2009). Alternatively, links between bank and firm executives may lead to a misallocation of credit due to favorable treatment of in-network firms based on taste-based discrimination (Banerjee and Munshi 2004; Haselmann, Schoenherr and Vig 2018).

We start the assessment of the underlying mechanism by comparing changes in credit allocation around MB's election in the cross-section. Specifically, we examine whether differential changes in lending decisions by KU and non-KU banks are related to changes in observable risk (measured by interest coverage). The results in Table 5 indicate that in-network lending expands more for riskier firms. This suggests that the portfolio of loans between KU banks and in-network firms becomes riskier after the election. Sorting firms into deciles according to their measure of interest coverage in 2007, we find that riskier KU firms experience a 6.73 percent higher increase in loans from KU banks (column I), or 0.31 percent of firms' assets (column II), per default risk decile. Similarly, interest rates on loans from KU banks to in-network firms decrease by 9 basis points more per risk decile (column III). This suggests that the pricing of loans from KU banks to in-network firms becomes less sensitive to observable risk. Finally, KU banks are 1.83 percentage points per risk decile more likely to establish a new lending relationship with a KU firm after the election (column IV).

An increase in lending to in-network firms with higher observable risk may reflect superior soft information for KU banks. Additionally, better monitoring and enforcement mechanisms may help to reduce default rates for in-network firms for a given level of risk. A unique prediction of better soft information is that it allows banks to better differentiate between good-type and bad-type borrowers. If this were the case, we should expect to see higher dispersion in loan allocation and interest rates for loans allocated to in-network firms (Rajan, Seru and Vig 2015). Figures 4 and 5 depict the distribution of the log of loans and interest rates, respectively, at the firm-bank relationship level. Black lines indicate the distribution for KU firms, and gray lines represent non-KU firms. The left panels show the distributions for non-KU banks, whereas the right panels show KU banks. The top panels show the distributions before MB's election, and the bottom panels show the distribution after the election.

Overall, we observe that the distribution of relationship level loan amounts and interest

rates does not become more dispersed for loans from KU banks to in-network firms after the election (Figures 4 and 5). If anything, dispersion seem to decline. For loan amounts, we observe a rightward shift of the distribution, consistent with the increase in credit allocated from KU banks to in-network firms. Similarly, the distribution of interest rates is shifted leftward after the election. A potential reason for seeing lower dispersion for in-network loans could be adjustments at the extensive margin, if KU banks are able to identify the worst borrowers and cease lending to them. However, KU banks are less likely to terminate lending relationships with KU firms after the election. Together, this suggests that changes in credit allocation between private banks and in-network firms are not driven by better information.

To confirm the interpretation of the graphical evidence from Figures 4 and 5 statistically, we follow Rajan, Seru and Vig (2015) in estimating

$$\Delta\sigma(IR)_{gj} \quad = \quad \alpha_j + \beta_1 \cdot KU_g + \beta_2 \cdot KU_{gj} + \epsilon_{gj}, \tag{4}$$

where $\Delta\sigma(IR)_{gj}$ is defined as the change in the standard deviation of interest rates extended by bank j to the groups of KU and non-KU firms for the post-election period compared to the pre-election period. KU_g is a dummy variable that takes the value of one for loans made to KU firms and zero for loans made to non-KU firms, and the variable KU_{gj} takes the value of one for loans between KU banks and KU firms and zero otherwise.

The results from estimating equation (4) are displayed in columns V and VI of Table 5. They show that the dispersion in loan amounts (column V) and interest rates (column VI) for loans extended by KU banks to in-network firms significantly declines after the election when KU banks and firms become connected through their executives.[19] These results are inconsistent with increased lending from KU banks to in-network firms after MB's election being driven by better information transmission.

Next, we assess whether higher credit supply from KU banks to in-network firms may be driven by better enforcement. Lower interest rates for in-network loans could be justified if connected firms are less likely to default on loans. In this case, differences in default rates may be muted by better enforcement mechanisms, which could also explain the reduced dispersion in lending decisions. Exploiting data on bankruptcy filings and private workouts,

[19]Changes in the dispersion of lending decisions and interest rates are not driven by changes in the composition of firms. When we restrict the post-election portfolios to firms that already borrowed from the same bank before the election, we find qualitatively identical effects.

we compare changes in default rates around MB's election by estimating

$$default_{ijt} = \alpha_j t + \beta_1 \cdot KU_i + \beta_2 \cdot KU_{ij} + \beta_3 \cdot KU_i * Post_t + \beta_4 \cdot KU_{ij} * Post_t + \epsilon_{ijt}, \quad (5)$$

where $default_{ijt}$ takes the value of one if firm i defaults on a loan from bank j in year t and zero otherwise. The variable $Post_t$ takes the value of one for the post-election period, and zero for the pre-election period. All other variables are defined as before.

Figure 6 depicts information about bankruptcy filings and private workouts from 2003 to 2015. The top panel depicts the probability of a firm to file for bankruptcy (solid lines) or workout (dashed lines) while having an outstanding loan from a non-KU bank. The bottom panel depicts the same information for loans from KU banks. Black lines depict information for firms connected to the KU network, and gray lines for non-KU firms. Before MB's term from 2003 to 2007, defaults are rare.[20] After MB's election, we observe similar patterns in bankruptcy filings for KU and non-KU firms. However, we observe drastically different patterns for private workouts. The probability of KU firms to engage in a private workout with a KU banks increases to about 3-4 percent per year, whereas we do not observe a similar increase for non-KU firms or for loans from non-KU banks. This suggests that KU banks are more willing to renegotiate credit with in-network firms after the election.

We confirm this observation statistically in Table 6. The results in column I indicate that bankruptcy filings for firms with links to the KU network increase at the same rate regardless of whether they borrow from a KU bank or a non-KU bank after the election. In contrast, workout filings increase by 5.81 percentage points more for loans from KU banks to KU firms after the election compared to loans from non-KU banks (column II). Overall, KU firms are 5.81 percentage points more likely to experience a default or renegotiation on a loan from a KU bank after the election than for a loan from a non-KU bank (column III).

For a subset of loans, firms' annual reports include information on the usage of credit. We split loans into those used for investment and those used for financing-related purposes, for example refinancing of existing loans. We find that KU firms experience a 7.42 percentage point increase in the fraction of loans being used for financing-related purposes rather than investment after MB's election (Table 5, column VII). This increase is entirely driven by loans from KU banks that are 30.07 percentage points more likely to be used for financing-related purposes by in-network firms (column VIII), which supports the evidence that KU banks favor in-network firms in refinancing and restructuring existing debt.

[20] The low number of bankruptcy filings before the election is driven the macro-economic environment and a bankruptcy regime that discouraged bankruptcy filings before 2006 (Schoenherr and Starmans 2019).

Links between KU banks and firms may affect loan outcomes in multiple ways. They may affect loan outcomes by altering the initial allocation decision or by higher leniency of banks in enforcing loan contracts when firms become distressed. While the higher incidence of the combined number of defaults and restructurings for in-network loans are suggestive that KU banks provide credit to riskier in-network firms ex ante, the evidence from MB's presidency is not conclusive. It is also conceivable that higher rates of debt restructurings prevent defaults in the long-run.

To shed more light on how network links affect loan outcomes, we exploit the fact that MB leaves office after one term. We observe outcomes for in-network loans from KU banks to KU firms after KU banks cease to appoint KU executives. These loans are subject to potential distortions in the ex ante allocation of loans when banks and firms are linked through their executives' links to the KU network. However, after the banks terminate their links to the KU network, loans made to KU firms are no longer subject to ex post effects of connections on loan outcomes. For default rates after 2012 in Figure 6, we find that after banks shed KU executives, workouts with KU firms decline, consistent with ex post loan outcomes no longer being impacted by leniency of linked banks. Instead, annual bankruptcy filing rates increase for these loans after 2012 to about five percent. This suggests that once network links between banks and firms disappear, the higher riskiness of the loan allocation to in-network firms is reflected in higher bankruptcy filings.

Taken together, the results in this section are most consistent with taste-based discrimination underlying the network channel of credit allocation from private banks to firms connected to the same network.

5.4 Incentives of Banks and Bank Executives

To conclude the discussion of our main results, we ask whether the documented results are in line with the incentives of banks and their newly appointed executives from the president's alumni network. A natural question that arises from our analysis is the motivation of bank executives to provide favors to in-network firms, and why banks are willing to tolerate inefficient lending decisions that are costly to them.

Providing socially connected firms with favorable access to credit involves costs and benefits for bank executives. On the cost side, generating low returns from loans that they are involved in allocating may have adverse effects on their career. However, in our specific context, banks hire executives from the new president's alumni network for their connections

to the administration and their tenure is expected to last for one presidential term only. This suggests that the impact of engaging in in-network lending on the executives' careers is limited.

Benefits from providing access to credit at a lower rate to firms run by CEOs from the same alumni network can take different forms. Social norms may require individuals to support fellow alumni network members. Being able to provide favors to fellow network members may improve the standing of an individual in the network and mitigate the risk of incurring social penalties. Additionally, firms run by fellow network members may reciprocate by providing career opportunities for bank executives after their tenure at the bank ends or through other means, for example by offering employment opportunities for bank executives' family members.[21]

From banks' perspectives generating lower returns of their loan portfolio is undesirable. However, the decision to punish or fire the executive for such activities depends on a trade off. The executive is not only employed to maximize the return on the loans that she is involved in allocating, but provides value to the bank through other means. In the specific case of the KU network executives during MB's tenure they generate value to the bank through their connections to the new government and regulators. If the benefits outweigh the costs generated from in-network lending, the bank may be willing to tolerate some inefficient behavior on the part of the executive. Moreover, it is possible that other stakeholders in the banks are simply not aware of the problem.

6 Alternative Explanations

In this section we discuss remaining alternative explanations for the results documented in the previous section.

6.1 Endogenous CEO Appointments

Firms that anticipate applying for loans at a particular bank may endogenously appoint a CEO from the KU network leading to a correlation between firms' links to the KU network

[21] We do not observe that KU firms hire former bank executives from the KU network in the two years after MB's presidency. However, this does not rule out that those executives have the option to seek employment at those firms or that other forms of reciprocation do not occur.

and their demand for credit from KU banks. To mitigate this concern, we reclassify connectedness to the KU network based on firms' CEOs' alumni network connections in 2003, before MB's election was anticipated, in Table A.5.

We find almost identical results for this alternative definition of links to the KU network. Additionally, we observe only a small number of appointments of CEOs from the KU network in the years before MB's election. This suggests that our findings are not affected by firms' endogenous CEO appointments in anticipation of executive appointments at private banks.

6.2 Shared Expertise

A potential alternative explanation for an increase in loans from KU banks to in-network firms after MB's election is that KU alumni share common expertise. For example, KU alumni may be experts in infrastructure projects. If the MB administration increases spending on infrastructure projects, more banks may be compelled to hire executives from the KU alumni network who have expertise in financing infrastructure projects. If KU firms are more engaged in infrastructure projects, they may naturally receive more loans from banks that hired KU executives with expertise in infrastructure financing.

The main argument against an explanation based on common expertise is the poor performance of in-network loans documented in Section 5.3. Additionally, the results in columns VII and VIII of Table 5 imply that rather than using the additional funding for investment, in-network firms use a larger fraction of loans from KU banks for refinancing. Together, these observations are inconsistent with an explanation based on shared expertise.

6.3 Government Banks

Another potential concern is that better access to state bank credit for politically connected firms could interfere with our analysis of private bank credit. Since our empirical strategy controls for time-series changes at the firm level, the only way that changes in access to state bank credit could matter is if they differentially affect credit supply from KU and non-KU banks to in-network firms.

This may be the case if private banks with an executive from the KU network are able to coordinate lending to in-network firms with government banks that also appoint executives from the KU network after MB's election. Coordinating with state banks may reduce the

riskiness of lending to in-network firms for KU banks if state banks are more likely to bail out in-network firms in case of distress.

To assess this potential explanation of our results, we first examine whether firms with links to the KU network benefit from better access to state bank credit after MB's election. Since we lack a group of government banks that does not appoint KU executives after the election, we perform a simple difference-in-difference estimation comparing changes in government bank lending to KU and non-KU firms in Table A.6. Government banks relatively increase lending to KU firms by 36.57 percent after the election (column I). Since they account for a smaller share of the credit market than private banks in Korea, as a fraction of firms' assets the increase in lending from state banks to KU firms is smaller than for private banks and statistically insignificant (column II). Government banks also charge lower rates on loans to KU firms after MB's election (column III).

To ensure that our main results are not affected by this increase in government bank credit to KU firms, we drop all firm-years in which KU banks lend to firms that also borrow from a state bank in Table A.7. We observe qualitatively identical results with similar magnitudes, compared to our main tests in Table 2. This suggests that the higher increase in lending to KU firms by KU banks is not related to changes in government bank lending after MB's election, but rather constitutes a separate channel of access to credit for politically connected firms.

Additionally, the poor performance of in-network loans is inconsistent with the view that KU banks extend lending to in-network firms by coordinating with state banks that are more likely to bail out in-network firms. Together, this suggests that coordinated lending between government and private banks with links to the KU network does not explain the results.

6.4 Renegotiation Frictions

Higher default rates on loans from KU banks to in-network firms, despite lower interest rates, could be justified by higher recovery rates for connected loans in case of default. Loans made to connected firms may be better collateralized, or banks may be better able to renegotiate debt with in-network firms leading to higher recovery rates.

While higher recovery rates could justify higher default rates and lower interest rates for in-network loans, loans from KU banks to in-network firms yield lower returns than loans to out-network firms during the 2008 to 2015 period for any recovery rate. Returns

on loans from KU banks to in-network and out-network firms can be computed as: $ret = (1 - P_{default} - P_{workout}) * (1 + r) + P_{default} * rec_B + P_{workout} * rec_W - 1$, where $P_{default}$ is the probability of default for a loan, $P_{workout}$ is the probability that a loan goes into workout, rec_B is the recovery rate in bankruptcy, rec_W is the recovery rate in workout cases, and r is the average interest rate on loans. For in-network loans this yields $ret_{in-network} = (1 - 0.0343 - 0.0291) * 1.0582 + 0.0343 * rec_B + 0.0291 * rec_W - 1$, and for out-network firms $ret_{out-network} = (1 - 0.0131 - 0.0010) * 1.0613 + 0.0131 * rec_B + 0.0010 * rec_W - 1$. Due to the higher default rates (0.0343 vs. 0.0131) and lower interest rates (0.0582 vs. 0.0613), there are no values for rec_B and rec_W between zero and one, such that $ret_{in-network} \geq ret_{out-network}$.

Additionally, evidence on collateral for loans for which such information is available shows that in-network loans are less collateralized. Loans from KU banks to in-network firms are slightly more collateralized than loans from non-KU banks to KU firms before the election (46.95 percent vs. 45.64 percent). After the election collateral relatively declines for in-network loans (36.41 percent vs. 42.42 percent). For loans to out-network firms, we observe similar rates of collateral for KU and non-KU banks before (43.50 percent vs. 43.68 percent) and after (43.51 percent vs. 41.58 percent) the election.

Our evidence on loan outcomes is also inconsistent with network ties reducing renegotiation frictions in general. Loans from KU banks to in-network firms depict similar bankruptcy rates despite higher workout rates, which is inconsistent with network ties preventing bankruptcy filings due to lower renegotiation frictions. Additionally, a large fraction of the loans that are renegotiated in workouts during MB's term default later, suggesting that the restructuring of in-network loans was not successful.

6.5 Unlimited Funding

Even if returns on loans to in-network firms are lower than for loans to out-network firms, lending to in-network firms may be profitable for KU banks, if they are not funding constraint and the additional loans to in-network firms generate a positive return. A lower bound for the return on loans to in-network firms is the risk-free rate, as banks have the option to invest any excess funds in the risk-free asset.

For KU banks to break even on loans allocated to in-network firms relative to the average risk-free rate over the period from 2008 to 2015 (4.08%), the following inequality needs to be satisfied: $ret_{in-network} = 1.0582 * (1 - 0.0343 - 0.0291) + 0.0343 * rec_B + 0.0291 * rec_W - 1 \geq 0.0408$. While there is no publicly available data on recovery rates in workouts, the Korea

Financial Investment Association publishes value-weighted recovery rates for corporations with assets above 7bn KRW. For our sample period the recovery rate in bankruptcy (rec_B) is 19.27 percent. With this recovery rate, loans from KU banks to in-network firms yield returns of 1.40 percentage points below the risk-free rate even if we assume rec_W to be one. To break even, the recovery rate for rec_B would need to be 60 percent, which is implausible given the observed recovery rates in bankruptcy cases in Korea. This suggests that KU banks would be better off to invest in the risk-free asset rather than lending to in-network firms between 2008 and 2015.

6.6 Unobserved Costs

Our comparison of the profitability of KU banks' lending to in-network and out-network firms relies on observable costs and benefits. It is possible that we miss unobservable costs that are lower for in-network loans. For example, screening and monitoring costs may be lower for loans to firms with links to the same network. However, while the omission of such costs may bias the comparison of returns on loans allocated to in-network and out-network firms, transaction costs for investing in the risk-free asset are low. Given that for plausible levels of recovery rates, loans from KU banks to in-network firms generate returns below the risk-free rate, adding other costs would make in-network loans even less profitable.

6.7 Cross-Selling

KU banks may be willing to accept lower returns on loans extended to in-network firms, if they are able to secure related business transactions, for example advisory fees. For all major banks in Korea, fees for consulting services are included in interest rates and not charged separately. The main alternative source of income for banks from lending relationships with firms is to sell them additional financial products, e.g. derivatives. Given an average loan size of 4,503m KRW, the additional income from selling other financial products would need to amount to 62.14m KRW per firm for loans from KU banks to in-network firms to at least match the risk-free rate given the 1.38 percentage points lower return on in-network lending.

While some of the larger firms in the sample rely on additional financial products, the majority of firms do not list any or little other financial assets on their balance sheet. From their balance sheets, we find that the average KU firm has outstanding derivatives of 18.15m KRW in a given year. Even if all of this was provided by in-network banks, the profits from

the sales would not recover the 62.14m KRW wedge in returns between in-network loans and the risk-free rate. While there might be additional products other than consulting and derivatives that are not visible on the balance sheet, the volume that would be required to generate sufficiently high profits to increase overall returns to the level of the risk-free rate seems implausibly high.

6.8 Credit Reallocation and Estimation Bias

Since our estimates are derived from a difference-in-differences model, the increase in credit allocated to in-network relative to out-network firms is the sum of changes in credit allocated to in-network and out-network firms. If part of the extra credit allocated to in-network firms is reallocated from out-network firms, our estimates may be biased upwards.

While it is not possible for us to explore whether the additional credit allocated to in-network firms would have been allocated to out-network firms, we can compute how much our estimates would be biased under the most conservative assumption of reallocating all extra credit allocated to in-network firms to out-network firms. For our main test in Table 2, column I, since KU firms constitute 2.39 percent of all firms in the sample, credit to non-KU firms would increase by 0.1666*(0.0239/0.9761)=0.0041. This implies that under the most conservative assumption, our estimate would decline only slightly from 0.1666 to 0.1625. Similarly, our estimate at the firm-bank relationship level in column IV would decline from 0.6133 to 0.5983. Thus, concerns about potential estimation biases due to credit reallocation from out-network to in-network firms would affect our estimates only mildly even under the most conservative assumptions.

7 Costs of In-Network Lending

Our findings suggest that private banks earn lower returns on lending to in-network firms compared to loans to out-network firms. In this section, we provide an estimate of the aggregate losses from engaging in favorable lending to in-network firms. Computing these losses requires us to make assumptions and our estimates should therefore only be viewed as an approximation to inform about the order of magnitude of the results.

The higher numbers of workouts and lower collateralization of in-network loans suggests that recovery rates are likely to be lower for in-network loans. As a conservative choice,

we apply the same recovery rates to in-network and out-network loans and assume recovery rates in workouts to be 0.9.

Based on these assumptions, the return on KU banks' loans is $(1 - 0.0343 - 0.0291) * 1.0582 + 0.0343 * 0.1927 + 0.0291 * 0.9 - 1 = 0.0239$ for in-network loans, and $(1 - 0.0131 - 0.0010) * 1.0613 + 0.0131 * 0.1927 + 0.0010 * 0.9 - 1 = 0.0498$ for out-network loans. If KU banks could generate the same average return on the funds provided to in-network firms as for their loans to out-network firms, they could generate 2.59 percentage points higher returns.[22]

In the data, 10.11 percent of KU banks' loans are allocated to in-network firms. Thus, KU banks generate $0.0259 * 0.1011 = 0.262$ percentage points or $0.262/4.98 = 5.26$ percent lower returns on their loan portfolio. Across all private banks, 6.21 percent of loans go to firms with links to the same alumni network through their executives. Assuming the same return differential between in-network and out-network loans for all alumni networks, private bank lending is $0.0259 * 0.0621 = 0.161$ percentage points or $0.161/4.98 = 3.23$ percent less profitable due to links to firms based on alumni networks. In terms of returns over the risk free rate, the costs of connected lending reduce private banks' returns by 17.89 percent $(0.161/(4.98 - 4.08))$.

The aggregate annual lending of private banks to firms in Korea amounts to 28 percent of GDP.[23] Thus, the loss of 0.161 percentage points of banks returns on corporate loans translates into a loss of $0.161 * 0.28 = 0.045$ percent of GDP across all alumni networks. Since KU banks account for 26.73 percent of total private bank lending, banks' losses on in-network lending to KU firms amounts to $0.262 * 0.28 * 0.2673 = 0.020$ percent of GDP.

Credit misallocation is likely to generate additional costs beyond those accruing to banks, but these cost are difficult to quantify. For example, the higher share of connected loans being used for refinancing rather than productive investment suggests that banks' funds may not be allocated to their most profitable use. As a consequence, our estimates of the costs of in-network lending only reflect costs accruing to banks and underestimate the full extent of costs accruing to the broader economy.

[22] Relative to the risk-free rate the return wedge is 1.69 percentage points.

[23] Data on private bank lending is available from the Finanical Supervisory Service in Korea.

8 Conclusion

In this paper, we document that changes in political power combined with patronage appointments in the administration have important spillover effects on resource allocation in private markets. We show that by seeking links to the administration, private banks increase the number of executives linked to the president's network. This increases in the control over resource allocation for people from the president's network in the private sector. In turn, private firms linked to the same network benefit from better access to resources in private markets through a network channel. While better access to credit from banks linked to the same network through their executives exists independently of political connections, links to a politician's network amplify the network effect by increasing the amount of resources being allocated through the network.

While we focus on the president's alumni network, the economic mechanism that we document is plausibly applicable to networks based on other characteristics such as race, ethnicity, partisanship, gender, social class, etc. Moreover, appointments of people into important positions in the administration by powerful politicians is not unique to Korea. Thus, the effects we document are likely to be relevant in many countries beyond the specific context examined in this paper.

With respect to the mechanism underlying better access to private bank loans for firms with links to banks through their executives, we find that the dominant mechanism is taste-based discrimination. Private banks allocate more credit at a cheaper price to in-network firms and protect them from default through a higher willingness to renegotiate their debt. Once links between firm and bank executives disappear, the higher riskiness of the loans allocated to in-network firms is reflected in higher default rates.

The additional benefits that politically connected firms receive in private markets through a network channel contribute to the explanation of the high returns to politically connected firms that have been documented in many countries around the world since Fisman (2001)'s seminal paper. Additionally, network links to banks seem to distort the allocation of capital, consistent with the evidence in Haselmann, Schoenherr and Vig (2018). By allocating capital to ailing in-network firms that use a larger fraction of the credit for refinancing, banks may withhold capital from more productive usage (Caballero, Hoshi and Kashyap 2008) with adverse effects on economic growth.

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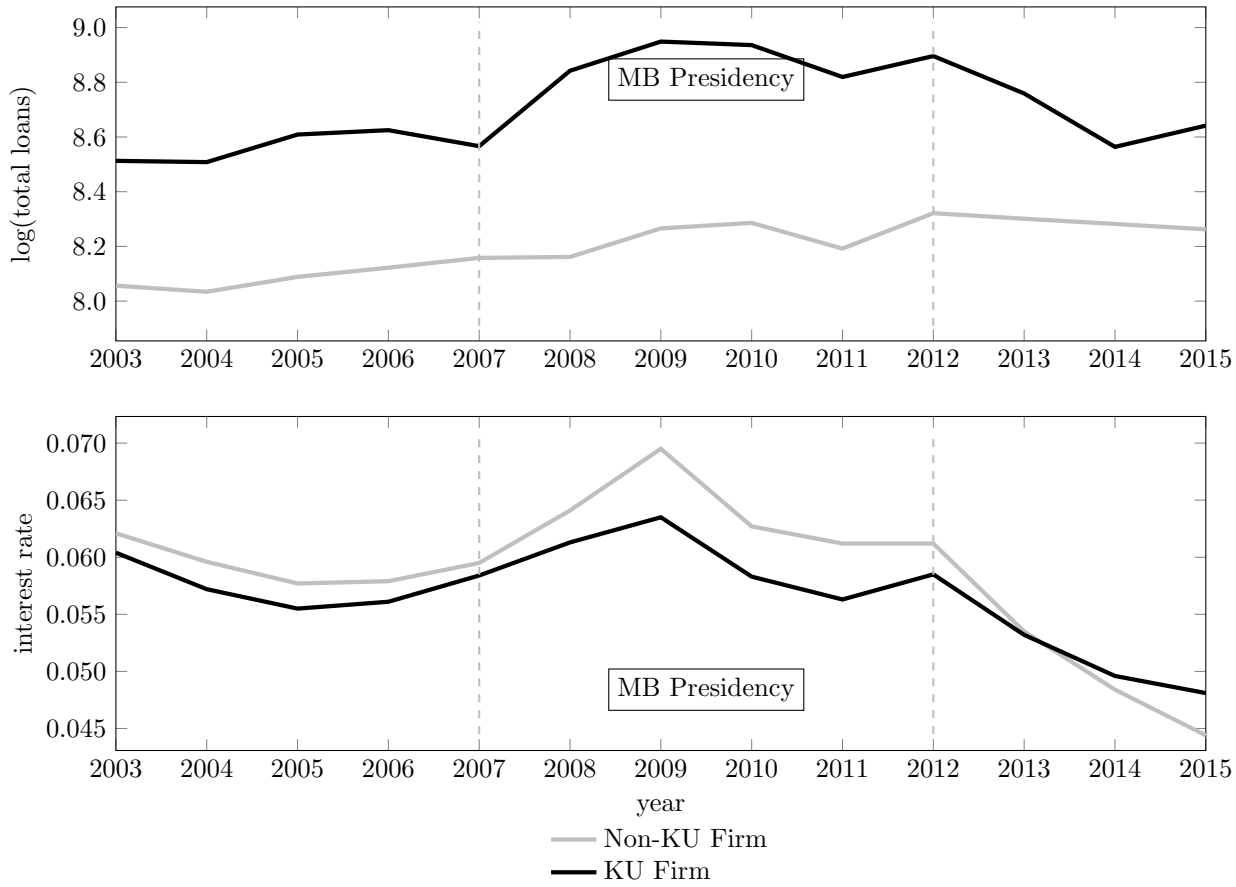
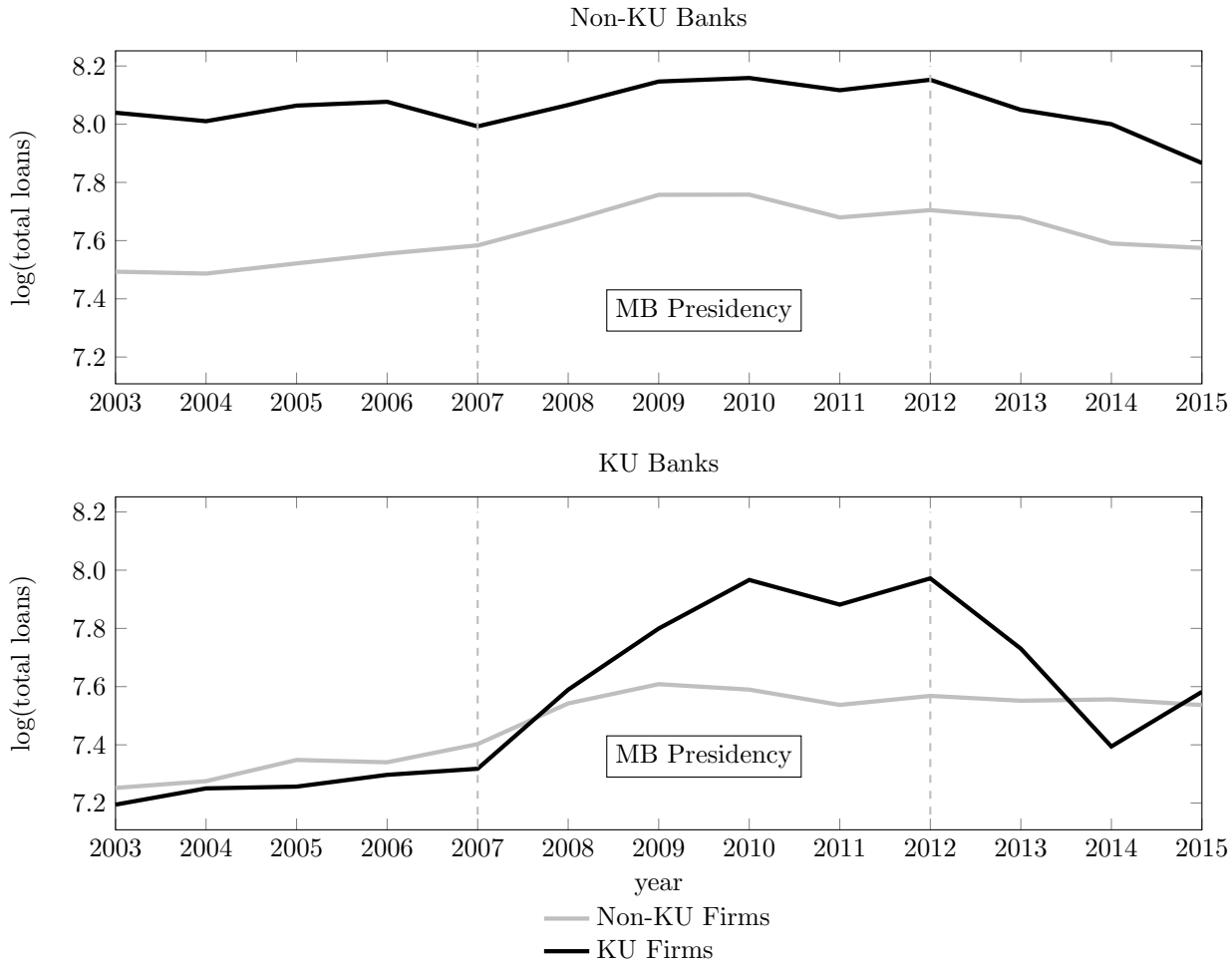
Figure 1: **Change in Credit and Interest Rates - Firm-Level**



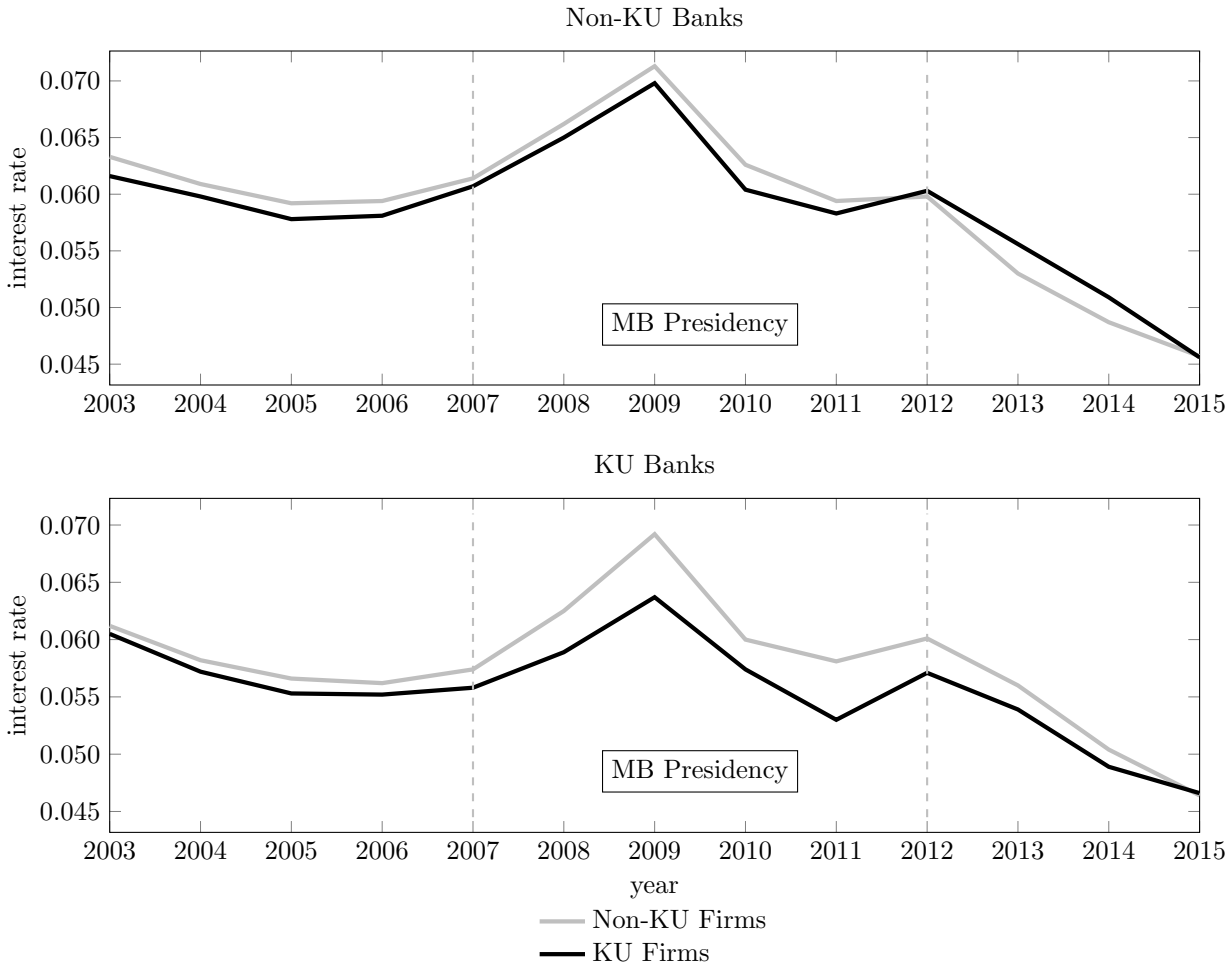
This figure depicts the average log of annual loans in the top panel and the average interest rate in the bottom panel separately for KU firms (black lines) and for non-KU firms (gray lines).

Figure 2: **Change in Credit - Relationship-Level**



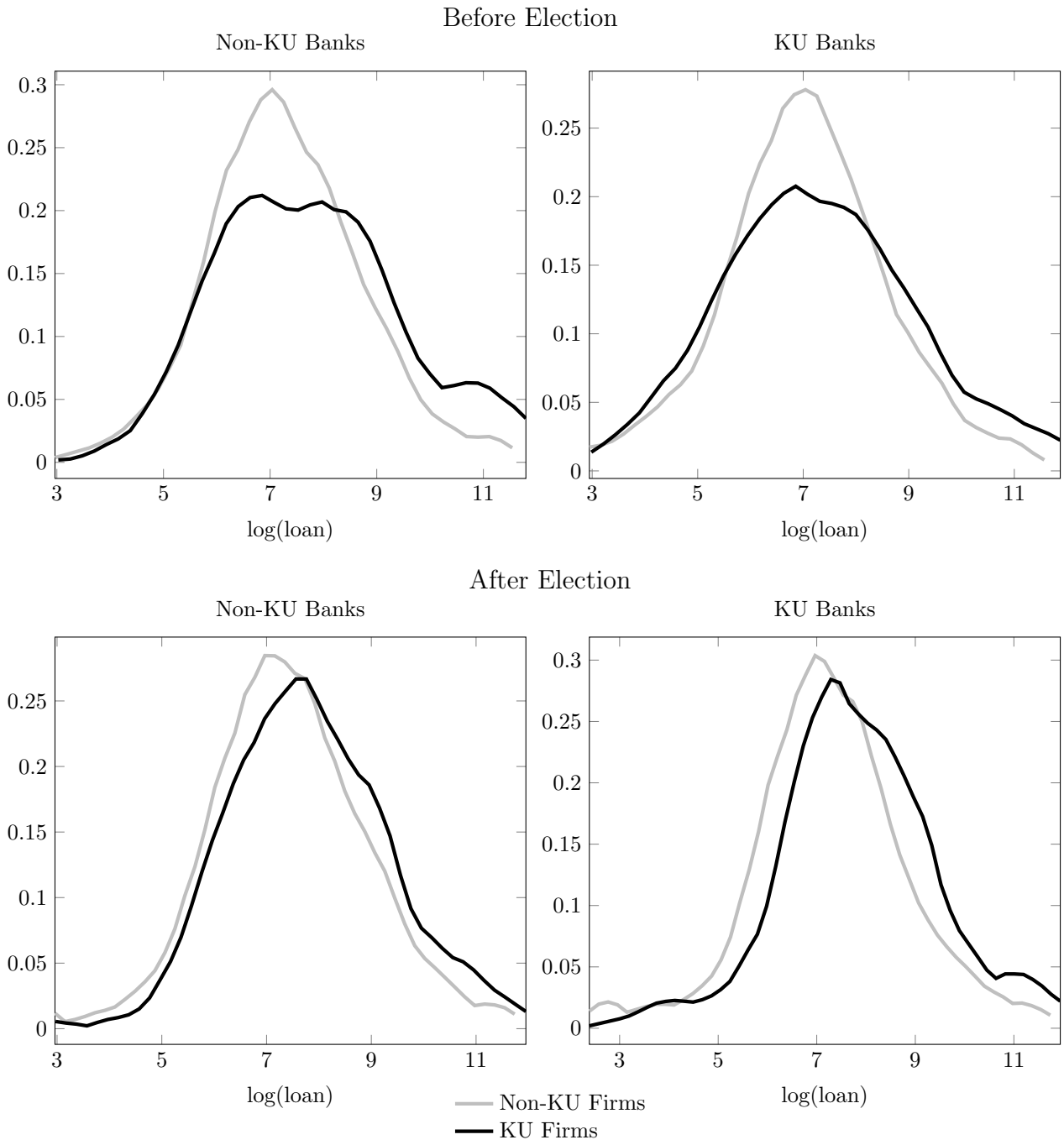
This figure depicts the average log of annual loans for KU firms (black lines) and non-KU firms (gray lines). The top panel plots the graph for non-KU banks, and the bottom panel plots the graph for KU banks.

Figure 3: **Change in Interest Rates - Relationship-Level**



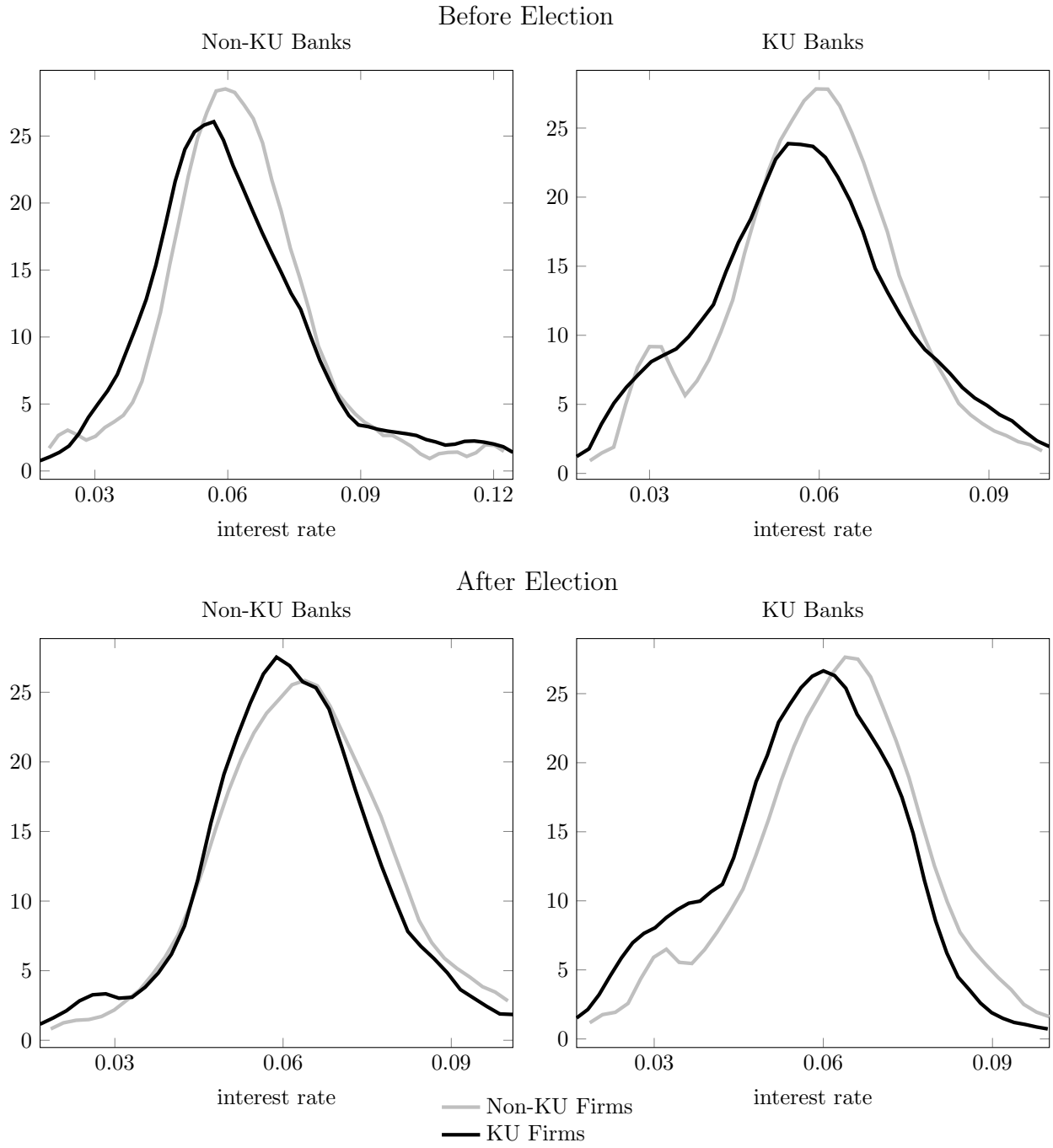
This figure depicts the average interest rates for KU firms (black lines) and non-KU firms (gray lines). The top panel plots the graph for non-KU banks, and the bottom panel plots the graph for KU banks.

Figure 4: **Loan Distribution**



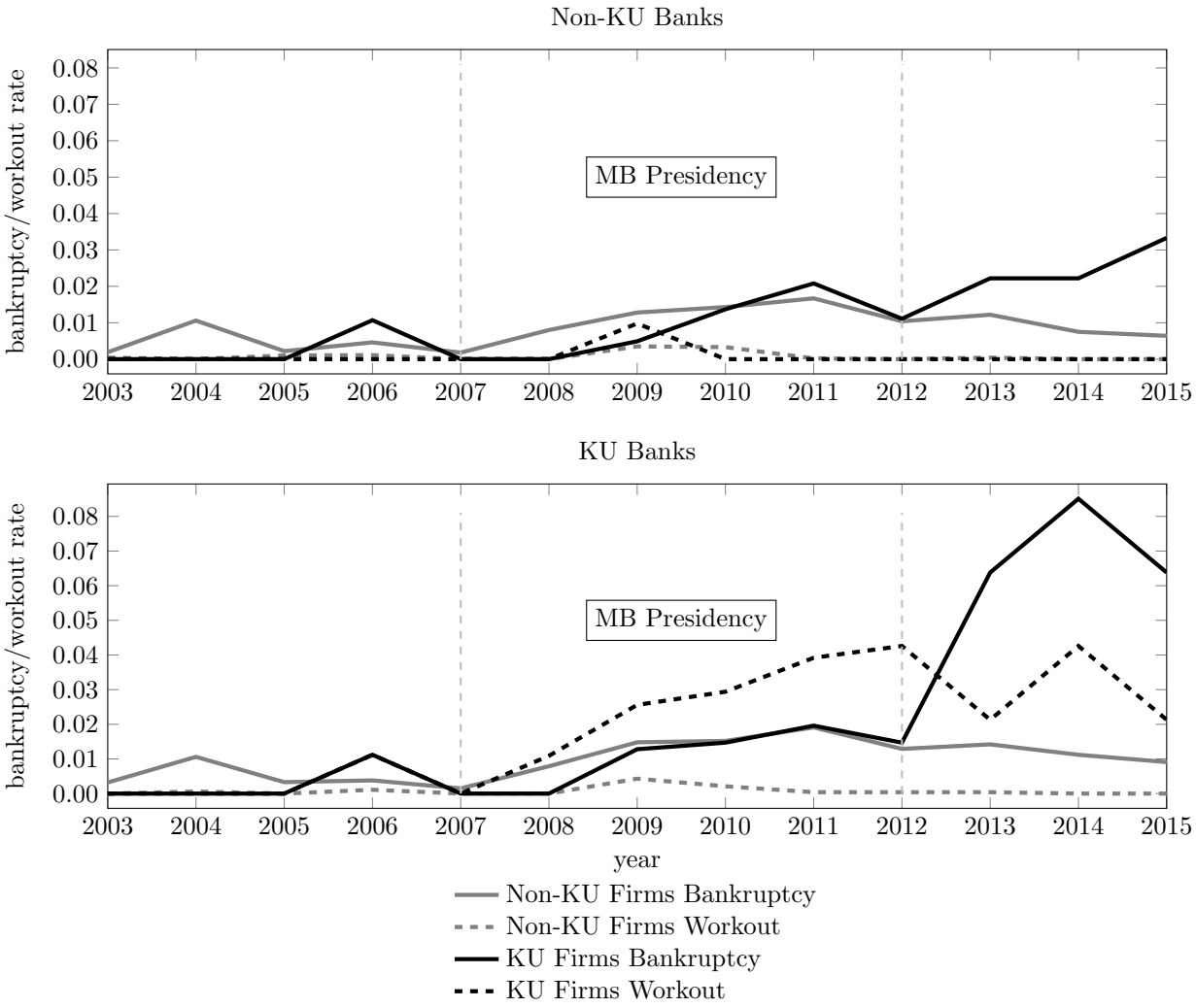
This figure shows kernel density plots of the log of loans on the firm-bank relationship level for the pre-election (top panel) and the post-election (bottom panel) periods for KU banks (right panel) and non-KU banks (left panel), and for KU firms (black lines) and non-KU firms (gray lines).

Figure 5: **Interest Rate Distribution**



This figure shows kernel density plots of interest rates on the firm-bank relationship level for the pre-election (top panel) and the post-election (bottom panel) periods for KU banks (right panel) and non-KU banks (left panel), and for KU firms (black lines) and non-KU firms (gray lines).

Figure 6: **Defaults**



This figure depicts the fraction of firms borrowing from KU banks (bottom panel) and non-KU banks (top panel) that file for bankruptcy (solid lines) or workout (dashed line) among KU firms (black lines) and non-KU firms (gray lines) between 2003 and 2015.

Table 1: **Descriptive Statistics**

Panel A: Sample				
Number of firms	9,280			
Number of firms with accounting data	8,649			
Panel B: CEO & Network Data	**in 2007**	**in 2003**		
Korea University firms	2.39%	2.36%		
Panel C: Loan Data	**Obs.**	**Mean**	**Median**	**Std.**
Individual loans (in million KRW)				
KU Firms	3,052	4,503	1,745	6,074
Non-KU Firms	82,591	3,276	1,193	4,935
Interest rates				
KU Firms	3,052	0.0593	0.0595	0.0170
Non-KU Firms	82,591	0.0616	0.0615	0.0168
Lending relationships				
KU Firms	385	2.32	2.00	1.43
Non-KU Firms	12,389	1.99	2.00	1.20
Total annual loan amount (in million KRW)				
KU Firms	1,073	14,507	5,870	18,266
Non-KU Firms	30,596	9,644	4,085	13,996
Panel D: Accounting Data (in million KRW)	**Obs.**	**Mean**	**Median**	**Std.**
Assets (in million KRW)				
KU Firms	799	78,823	43,607	81,961
Non-KU Firms	28,312	55,431	27,251	66,581
Employees				
KU Firms	782	170	108	157
Non-KU Firms	27,364	114	69	127
Net income (in million KRW)				
KU Firms	763	2,301	985	5,248
Non-KU Firms	28,313	982	503	4,391
Tangible Assets/Assets				
KU Firms	799	0.3524	0.3127	0.2510
Non-KU Firms	27,963	0.3642	0.3372	0.2720

This table provides descriptive statistics. Panel A shows information on the number of firms, Panel B depicts information on firms' links to the KU network through their CEOs, Panel C provides information on loan data, and Panel D depicts descriptive statistics from accounting data.

Table 2: **Credit Volumes and Interest Rates**

	I	II	III	IV	V	VI	VII
	Firm-Level			Relationship-Level			
Dep. Var.:	$\Delta log(loans)_i$	$\Delta\left(\frac{loans}{assets}\right)_i$	ΔIR_i	$\Delta log(loans)_{ij}$	$\Delta\left(\frac{loans}{assets}\right)_{ij}$	ΔIR_{ij}	Δrel_{ij}
KU_i	0.1666	0.0165	-0.0018				
	(0.012)	(0.006)	(0.029)				
KU_{ij}				0.6133	0.0223	-0.0053	0.0233
				(0.000)	(0.000)	(0.000)	(0.042)
con_{ij}				0.5963	0.0284	-0.0051	-0.0035
				(0.000)	(0.001)	(0.011)	(0.668)
Firm FE	-	-	-	yes	yes	yes	yes
Bank FE	-	-	-	yes	yes	yes	yes
Clustered SE	-	-	-	firm	firm	firm	firm
Observations	3,738	3,530	3,749	6,110	5,819	6,136	23,339
R-squared	0.001	0.002	0.001	0.660	0.703	0.691	0.542

This table shows the results from estimating equation (1) in columns I to III, and equation (2) in columns IV to VII. The dependent variable is the log change in total loans for firm i after the election (2008-2012) compared to before the election (2003-2007) in column I, the change in loans to assets for firm i in columns II, the change in the average interest rate for firm i in column III, the log change in total loans from bank j to firm i in column IV, the change in loans from bank j to firm i, scaled by firm i's assets in column V, the change in the average interest rate on loans from bank j to firm i in column VI, and takes the value of one if bank j and firm i start a new lending relationship after the election and zero otherwise in column VII. The variable KU_i takes the value of one for firms with a CEO from Korea University in 2007, and zero otherwise, the variable KU_{ij} takes the value of one for firm-bank relationships in which firm i has a CEO from the KU network in 2007 and bank j appoints an executive from Korea University after the election. The variable con_{ij} takes a value between minus one and one, and increases by 0.2 for each year in which firm i has a CEO from an alumni network from which bank j has an executive after the election, and decreases for each year in which firm i and bank j are connected to the same alumni network before the election. P-values are reported in parentheses.

Table 3: **Credit Volumes and Interest Rates - Post MB Era**

	I	II	III	IV	V	VI	VII
	Firm-Level			Relationship-Level			
Dep. Var.:	$\Delta log(loans)_i$	$\Delta\left(\frac{loans}{assets}\right)_i$	ΔIR_i	$\Delta log(loans)_{ij}$	$\Delta\left(\frac{loans}{assets}\right)_{ij}$	ΔIR_{ij}	Δrel_{ij}
KU_i	-0.4236	-0.0164	0.0038				
	(0.001)	(0.044)	(0.049)				
KU_{ij}^P				-0.5573	-0.0208	0.0064	-0.0445
				(0.000)	(0.077)	(0.047)	(0.028)
con_{ij}^P				-0.5828	-0.0409	0.0064	-0.0185
				(0.001)	(0.002)	(0.030)	(0.324)
Firm FE	-	-	-	yes	yes	yes	yes
Bank FE	-	-	-	tes	yes	yes	yes
Clustered SE	-	-	-	firm	firm	firm	firm
Observations	2,726	2,671	2,730	4,283	4,200	4,293	29,314
R-squared	0.004	0.001	0.002	0.652	0.726	0.713	0.579

This table shows the results from estimating equation (1) in columns I to III, and equation (2) in columns IV to VII. The dependent variable is the log change in total loans for firm i after the election (2008-2012) compared to before the election (2003-2007) in column I, the change in loans to assets for firm i in columns II, the change in the average interest rate for firm i in column III, the log change in total loans from bank j to firm i in column IV, the change in loans from bank j to firm i, scaled by firm i's assets in column V, the change in the average interest rate on loans from bank j to firm i in column VI, and takes the value of one if bank j and firm i start a new lending relationship after the election and zero otherwise in column VII. The variable KU_i takes the value of one for firms with a CEO from Korea University in 2007, and zero otherwise, the variable KU_{ij}^P takes the value of one for firm-bank relationships in which firm i has a CEO from the KU network in 2007 and bank j ceases to appoint an executives from Korea University after park's election. The variable con_{ij}^P takes a value between minus one and one, and increases by 0.2 for each year in which firm i has a CEO from an alumni network from which bank j has an executive before Park's election, and decreases for each year in which firm i and bank j are connected to the same alumni network after the election. P-values are reported in parentheses.

Table 4: **Credit Volumes and Interest Rates - Pre-Connected Banks**

	I	II	III	IV	V	VI
Dep. Var.:	$log(loans)_{ijt}$		$\Delta log(loans)_{ij}$	IR_{ijt}		ΔIR_{ij}
	pre	post		pre	post	
$KU_{ij,pre}$	0.4074	0.2667	-0.0546	-0.0030	-0.0036	0.0006
	(0.001)	(0.046)	(0.680)	(0.049)	(0.012)	(0.758)
con_{ijt}	0.6457	0.4904		-0.0049	-0.0063	
	(0.010)	(0.035)		(0.028)	(0.014)	
con_{ij}			0.7213			-0.0082
			(0.002)			(0.008)
Firm FE	yes	yes	yes	yes	yes	yes
Bank FE	yes	yes	yes	yes	yes	yes
Clustered SE	firm	firm	firm	firm	firm	firm
Observations	12,770	11,156	4,049	12,806	11,178	4,068
R-squared	0.734	0.816	0.754	0.723	0.795	0.771

This table shows the results from estimating equation (3). The dependent variable is the log of total lending from bank j to firm i in columns I and II, the log change in total loans from bank j to firm i after the election (2008-2102) compared to before the election (2003-2007) in column III, the average interest rate on loans from bank j to firm i in columns IV and V, and the change in the average interest rate on loans from bank j to firm i in column VI. In columns I and IV the sample is restricted to the pre-election period, in column II and V the sample is restricted to the post-election period. The variable $KU_{ij,pre}$ takes the value of one for firm-bank pairs in which firm i has a CEO from Korea University in 2007 and bank j has an executive from Korea University before and after the election. The variable con_{ijt} takes a value between zero and one increasing by 0.2 for each year firm i and bank j are connected to the same alumni network before the election in columns I and IV, or after the election in columns II and V. The variable con_{ij} takes a value between minus one and one and increases by 0.2 for each year in which firm i has a CEO from an alumni network from which bank j has an executive after the election, and decreases for each year in which firm i and bank j are connected to the same alumni network before the election. P-values are reported in parentheses.

Table 5: **Underlying Mechanism**

	I	II	III	IV	V	VI	VII	VIII
Dep. Var.:	$\Delta log(loans)_{ij}$	$\Delta\left(\frac{loans}{assets}\right)_{ij}$	ΔIR_{ij}	Δrel_{ij}	$\Delta\sigma(log(loans))_{ij}$	$\Delta\sigma(IR)_{ij}$	$\Delta fin\ share_i$	$\Delta fin\ share_{ij}$
KU_i					0.1364	-0.0003	0.0742	
					(0.031)	(0.413)	(0.015)	
KU_{ij}	0.3621	0.0064	-0.0011	-0.0563	-0.1797	-0.0027		0.3007
	(0.141)	(0.483)	(0.719)	(0.307)	(0.074)	(0.000)		(0.000)
con_{ij}	0.5467	0.0283	-0.0061	-0.0297				0.3329
	(0.000)	(0.001)	(0.002)	(0.563)				(0.053)
$KU_j * Risk_i$	-0.0150	0.0002	-0.0001	0.0044				
	(0.256)	(0.761)	(0.728)	(0.131)				
$KU_{ij} * Risk_i$	0.0673	0.0031	-0.0009	0.0183				
	(0.063)	(0.031)	(0.084)	(0.044)				
Firm FE	yes	yes	yes	yes	-	-	-	yes
Bank FE	yes	yes	yes	yes	yes	yes	-	yes
Clustered SE	firm	firm	firm	firm	firm	firm	-	firm
Observations	5,205	5,044	5,228	9,939	59	59	1,624	2,355
R-squared	0.615	0.677	0.651	0.372	0.680	0.825	0.006	0.703

The dependent variable in this table is the log change in total loans from bank j to firm i after the election compared to before the election in column I, the change in total loans from bank j to firm i scaled by firm i's assets in column II, the change in the interest rates for loans from bank j to firm i in column III, a dummy variable that takes the value of one if bank j and firm i start a new lending relationship and zero otherwise in column IV, the change in the standard deviation of the log of loans and interest rates on loans to KU and non-KU firms, respectively for bank j after compared to before the election in columns V and VI, the change in the fraction of loans that firm i uses to refinance existing loans in column VII, and the fraction of loans from bank j to firm i used for refinancing existing loans in column VIII. The variable KU_i takes the value of one for firms with a CEO from Korea University in 2007, and zero otherwise, the variable KU_j takes the value of one if bank j appoints an executive from Korea University after the election, the variable KU_{ij} takes the value of one for firm-bank relationships in which firm i has a CEO from the KU network in 2007 and bank j appoints an executive from Korea University after the election. The variable con_{ij} takes a value between minus one and one and increases by 0.2 for each year in which firm i has a CEO from an alumni network from which bank j has an executive after the election, and decreases for each year in which firm i and bank j are connected to the same alumni network before the election. The variable $Risk_i$ sorts firms into risk deciles based on their interest coverage with the variable taking the value of one for the safest up to ten for the riskiest firms. P-values are reported in parentheses.

Table 6: **Loan Outcomes - Defaults and Workouts**

	I	II	III
Dep. Var.:	$bankruptcy_{it}$	$workout_{it}$	$total\ defaults_{it}$
KU_i	-0.0027	-0.0010	-0.0037
	(0.630)	(0.045)	(0.510)
KU_{ij}	-0.0007	0.0004	-0.0003
	(0.659)	(0.376)	(0.844)
$KU_i * Post_t$	-0.0062	0.0041	-0.0016
	(0.566)	(0.355)	(0.891)
$KU_{ij} * Post_t$	0.0069	0.0581	0.0581
	(0.628)	(0.003)	(0.012)
Bank-Time FE	yes	yes	yes
Clustered SE	firm	firm	firm
Observations	29,475	29,475	29,475
R-squared	0.006	0.009	0.008

This dependent variable in this table is a dummy variable that takes the value of one if firm i files for bankruptcy in year t and zero otherwise in column I, a dummy variable that takes the value of one if firm i files for workout in year t, and zero otherwise in column II, and a dummy variable that takes the value of one if firm i files for either bankruptcy or workout in year t, and zero otherwise in column III. The variable KU_i takes the value of one for firms with a CEO from Korea University in 2007, and zero otherwise, the variable KU_{ij} takes the value of one for firm-bank relationships in which firm i has a CEO from the KU network in 2007 and bank j appoints an executive from Korea University after the election, and the variable $Post_t$ takes the value of one for the post-election period (2008-2012), and zero for the pre-election period (2003-2007). P-values are reported in parentheses.

Appendix A. Additional Tables

Table A.1: News Articles Concerning Appointments of Lee Myung Bak-Related Individuals

Date	Paper, Headline	Content
Jul. 18, 2010	Kyunghang Business "Major Appointments in Financial Sector Have Parachute Appointments Without Question Regardless of Their Expertise"	In the non-governmental financial sector, numerous MB figures with KU, Hyundai, presidential campaign, and presidential transition team ties have been appointed. In fact, 3 out of 4 CEOs of major financial share holding companies (KB, Hana, and Woori) in Korea have all graduated from Korea University.
Dec. 27, 2010	DongA.com "The Sword of Justice Passes Over Public Firms' Parachute Auditors"	Out of 23 auditor positions that were replaced in public firms, 14 (60.8%) positions had backgrounds in President Lees presidential election campaign, work experience in the Blue House, and outside organizations in conservative factions. The Blue House is refusing to give a clear feedback on this concern. Some advisers even hold the theory of inevitability of parachute appointments, arguing that 1) it is a practice that has been done by past administrations, 2) realistically, the administration has to repay the people who have helped the president during the election and 3) the administration has to secure allies during the next presidential election.
Jun. 2, 2011	Yonhap News "Democrats: 53 People Connected to the Government Appointed in the Financial Sector"	53 people with MB ties (presidential transition team, Korea University, Somang Church) were appointed in the financial sector as chairmen, board members, external directors, etc.
Sep. 1, 2011	Pressian "MB's Continued Love for Hyundai Engineering & Construction..."	The opposition Democratic Party vehemently protested against the appointment of Kim Joong-Kyum as Korea Electric Power CEO. Kim had previously been CEO of Hyundai Engineering and Construction. Chang Byung-Wan of the Democratic party pointed out that, faced with difficulty in business operations, what Korea Electric Power needed was someone with great expert knowledge in the relevant field (and/or has a broad, international network of personal connections to leverage), and not someone like Kim who comes from a very different background. Five more appointments of former Hyundai Engineering & Construction employees as CEOs of SEOs.
Oct. 4, 2011	Kyunghang Shinmun "Many Promotions of People from KU and the TK Region in the Prosecutor's Office During MB's Administration"	Senior executives in the public prosecutors office during MB administration have shown a tendency to be promoted if they graduated from Korea University or are from TK (Taegu & Kyeongbuk) regions. According to the Department of Justices report of promotions, 17.6% of chief prosecutors who have been promoted (9 out of 51) for the last 4 years have graduated from Korea University. This is about twice the rate during President Roh Moo-hyuns administration. Last August, Mr. Choi Gyo-il, former Department of Justices director of public prosecutions, was appointed with promotion as Director of Seoul Central District Prosecutors Office, a position that is referred to as the flower of the prosecutors office. He is both from Kyeongbuk region and Korea University.
Oct. 6, 2011	Hankyoreh "MB's Parachute Appointments 332 People"	At a congressional strategic meeting, Kim Jin-Pyo noted that in the most recent inspection of government offices, there were as many as 332 unfair/preferred appointments to key government and public company positions. Kim added that even the mass power outage in September could have been caused by the prevalence of such biased appointments. Congress Land, Transport and Maritime Affairs Committee governs 20 public companies, and 70.5% of the non-executive directors at these companies had been identified as being pro-MB, had endorsed the Hannara Party, had graduated from Korea University, or were from Yeongnam.
Jan. 16, 2012	Pressian "Privatization of KTX, It Was MB's Korea University Figures Controlling After All"	Dongbu (Chairman from KU), Daewoo (Chairman from KU), Saneun that lead the privatization are all on the side of MB. The firms that are widely agreeing on the administrations KTX partial privatization plan all have special connections to President Lee.
Feb. 21, 2012	Media Today "Until the End of the Administration, Appointments Based on Revolving Doors/Parachutes"	Using Social Network Analysis, JoongAng Daily announced that one additional tie with the president would lead to a 43% increase in the chance to be appointed in a high position again. JoongAng Daily also reported that most of 76 officers who were appointed in the "4 major authority institutions" National Intelligence Service, prosecution, police, National Tax Service are from Yeongnam region or Korea University. All institutions generally increased the number of officers who are from Yeongnam region or that graduated from Korea University as time passed. The newspaper also pointed out that it is an unprecedented event that three Seoul Central District Prosecutors in a row are from Korea University.

Table A.1: News Articles Concerning Appointments of Lee Myung Bak-Related Individuals (continued)

Date	Paper, Headline	Content
Mar. 20, 2012	eDaily "4 Years of MB Administration Changed Financial Power Structure"	Since the very beginning of his term as President, there has been controversy surrounding appointments to key government posts – in particular, the administration established very strong ties with alumni of Korea University, Christians who go to Somang Church, and those from the Yeongnam region. These biased appointments were not just restricted to government roles, however. For example, the financial sector was heavily influenced by the MB administrations preference for Korea University, Somang Church, and Yeongnam personnel. In its analysis, E Daily News found evidence of a major transformation in the power structure among managers of major banks since '08. KB financial groups chairman was previously vice-head of MBs special committee on economic recovery. Similarly, Lee Pal-Sung of Woori, and Kim Seung-Yoo of Hana were graduates of Korea University. Saneun financial chairman Kang Man-Su was known to be MBs economic adviser.
Apr. 16, 2012	Segye Daily News "Supposed to Have Hired Experts to Lead Educational Organizations; In Reality 66% Are Unqualified Parachute Appointments"	In June of 2009, President Lee Myung-Bak had promised to pay more attention to fair appointments, with the ministers being held responsible rather than the president intervening in the appointment process. According to Sekye Daily News comprehensive survey of 10 organizations supervised by the Ministry of Education and Science, 66% of the appointees had political ties to the President. Even those institutions requiring higher levels of expertise in science were led by unqualified appointees.
May. 14, 2012	Sedaily "Banks Parachute Kingdom During the MB Administration"	As the current administrations poor performance was publicized through the investigation of major firms, it was also discovered that 73 out of 207 non-executive directors who were appointed during 4 years and 3 months of MB administration are MB figures or from the MB administration. Knowing that over one-third of the commercial bank system is filled with people appointed with their ties, we can assume a serious loophole in the banks checking system. One high official from the financial sector has pointed out that the institution of nonexecutive directors is being used as a means of lobbying for the government, not for the intended purpose of checking and balancing power.
Jul. 24, 2012	news1Korea "80% of Leaders of National Research Council for Economics, Humanities, and Social Sciences Dubious of Being Parachutes"	Representative Sung Wan-jong of Advancement Unification Party criticized the National Research Council for Economic, Humanities, and Social Sciences for an appointment corruption, saying its objectivity and impartiality have been disrupted from the activity. He announced that Out of 23 chief directors under National Research Council, 13 are from President Lees Presidential Transition Committee and Policy Advisory Committee. If you add Ko-So-Yeong (Korea University Somang Church Yeongnam) ties, the number becomes 18.
Oct. 9, 2012	Nocutnews "Media Industry Controlled by MB Loyalist Parachutes"	Broadcasting industry, dominated by MBs special broadcasting advisers and Korea University people... During a parliamentary inspection of the Korea Communications Commission, criticisms arose that the medias independence and impartiality have been disrupted and freedom of press has been diminished after the start of President Lees administration. Congressman Kang Dong-won announced that as soon as MB administration was established, the press special advisers during MBs presidential candidate days and people from Korea University have dominated the press, deteriorating Koreas freedom of press.
Jan. 1, 2013	Seoul Shinmun "1 Out of 2 Public Institution Auditors is Parachute"	118 out of 250 auditors in government institutions and public institutions worked in Blue House or government institutions or had other political backgrounds.
Jan. 2, 2013	Media Today "During 5 Years of MB Government Journalism Was Devasted With Korea University Parachutes"	The three major broadcasting companies MBC, KBS, and SBS were all led by Korea University graduates. Korea University student leaders noted that such bias in the media is shameful, and that even conservatives would criticize the state of affairs.

This table lists articles from the financial press related to the appointment of people from Lee Myung Bak's networks in different places in the administration and the appointment of people from his networks in private banks. The first column shows the date of publication, the second column depicts the source of the article, and the last column summarizes the relevant passages of the article.

Table A.2: News Articles Concerning the Fate of Lee Myung Bak-Related Individuals under Park Geun Hye

Date	Paper, Headline	Content
Feb. 20, 2013	Kyunghang Shinmun "Financial MB Man, Board Chairman of Smile Credit Resigns"	Kim Seung-yu [entered Korea University Finance major in same year as MB], board chairman of Smile Credit, has resigned, leaving one year in his term after resigning from the chairman position of Hana Financial Group. Because the board chairman position of Smile Credit is appointed by the president, he said, I thought it was reasonable to resign after the new president has been elected. With strong ties to President Lee, Board Chairman Kim has been considered one of the major 4 leaders of financial sector, along with Uh Yoon-dae [Korea University alumni], chairman of KB Financial Group, Lee Pal-sung [Korea University alumni], chairman of Woori Financial Group and Kang Man-su [First Minister of Strategy and Finance under MB], chairman of Saneun Financial Group.
March. 23, 2013	Money Today "MB Man Kang Man-Su Resigns... April Mass Resignation Starts"	Chairman Kang Man-Su of KDB Saneun Financial Group, representative MB figure, and Chairman Lee Ji-Song of Korea Land and Housing Corporation, the leader of the biggest public corporation, have resigned. Chairman Kang was considered as a symbol of MB-nomics as President Lees first minister of Ministry of Strategy and Finance. Even though he indicated that he will not step down immediately because of the works like Saneun Bank privatization and KDB Financial University, he seems to have been pressured by President Parks words on replacement. Chairman Uh Yoon-Dae of KB Financial Group and Chairman Lee Pal-Sung of Woori Financial Group might not be able to complete their terms either. The cascade of replacement seems to have already started with Chairman Lees resignation, following resignation of Chairman Kim Kun-ho of Korea Water Resources Corporation.
March. 28, 2013	Newspim "MB Men in Public Enterprises Are Resigning One After Another Creating a Domino Effect"	Chairman Kang Man-su of KDB Financial Group, the most influential person of President Lees administration, has resigned. He has shown signs that he will resign, regardless of his term (1 year left), as the new administration starts. His decision seems to be in line with President Parks recent remarks on selecting officers who follow the philosophies of the new administration. Public officers, like Chairman Kang, from financial sector and public corporations who have ties to President Lee have already resigned or are predicted to resign soon.
Apr. 1, 2013	Newspim "20 CEOs of Financial Public Enterprises Are Changed"	As the major leaders from financial sector who took office during MB administration are resigning without finishing their terms, the public is predicting that stock firms CEOs will follow. The leaders of public corporations affiliated with the stock market are also considered to be in the list of resignation. Chairmen of major financial groups that showed major ties to President Lee are resigning. While Saneun Financial Group has already chosen Hong Gi-taek as the next chairman following ex-Chairman Kang Man-su, KB and Woori financial groups are on their processes to choose their next leaders.
Apr. 10, 2013	Newspim "Board Members of FSS Resign Together, Mass Resignation from 2008 Repeated?"	All 9 board members of Financial Supervisory Service have resigned, making the public wonder whether mass resignation from 2008 would be repeated. On the year 2008, when President Lees administration started, 11 board members have resigned and 6 people were replaced with people from outside. MB administration was distinct in that it specifically elected members to be replaced, rather than following the traditional move to simply investigate the members.
Apr. 19, 2013	Seoul Finance "Are MB Men Financial Sector Chairmen Followed by Public Companies?"	As many representative MB figures start to resign, leaders in the stock market have fears that they might be next in line for replacement. Some of the four major finance leaders, like Chairman Lee Pal-sung of Woori Financial Group and Chairman Kang Man-su of KDB Financial Group, who had ties to President Lee with their schools and hometown already resigned. The public is predicting that the people next in line to be replaced are leaders in securities businesses.

Table A.2: News Articles Concerning the Fate of Lee Myung Bak-Related Individuals under Park Geun Hye (continued)

Date	Paper, Headline	Content
Sep. 23, 2013	Ilyosisa "Park Geun-Hye Administration is Erasing MB Before and After"	The Park administration tries to erase all memories of MB administration by developing investigations of last administrations controversies and scandals and replacing the people who were appointed from MB years. A good example would be the Financial Big 4 appointed during MB who have resigned one after another. Numerous CEOs of public firms have been pressured to resign by themselves, like Mr. Jang Tae-pyung, CEO of the Korean Horse Affairs Association who resigned, leaving 1 year and 2 months left in his term. Mr. Jung Jeong-kil, director of the Academy of Korean Studies, also resigned. Both of them share the fact that they are widely known as MB men.
Nov. 11, 2013	Seoul Shinmun "Weeding Out MB Parachute Appointments in Park Administration... Appointment Cruelty Every 5 Years"	Even though there are legal processes and organizations to prevent the measure, public firms face a mass change in their leaders every 5 years, especially the ones who were appointed by the past administration. During the first 9 months of Park administration, many MB men whose terms have been extended by one year have received the full impact of this change, including Korea Gas Corporation, Korea District Heating Corp., and Korea Exchange. Many officials of the public firms, for this reason, have resigned themselves first, like Korea Technology Finance Corporation, Koscom, and Korea Securities Depository. Also, many Hyundai figures and past participants of presidential transition team resigned, expecting the tide of mass personnel change.
Nov. 12, 2013	Sedaily "End of MB Men in Financial Sector Speeds Up"	Leaders in the financial sector from past administration are getting nervous as the Park administration tries to expand its effort to cut off influences of MB ... For example, Kim Bong-soo, the chief director of Korea Exchange, resigned as one of the representative MB figures who graduated from the Law School of Korea University. Mr. Kim was replaced by Mr. Choi Kyung-soo, the former chairman of Hyundai Securities, whose appointment created some controversies as he himself was involved in President Parks election campaign. Other leaders of financial sector, like Mr. Kim Jung-guk, chief director of Korea Technology Finance Corporation, Mr. Kim Kyung-dong, chairman of Korea Securities Depository, Mr. Woo Ju-ha, chairman of Koscom, all expressed their desire to resign as MB men who received pressures from the new administration. Also, Kang Man-su, Lee Pal-sung, Uh Yun-dae, and Kim Seung-yu who were called the Big 4 of the financial sector during MB administration all resigned. One representative of the financial sector commented, Until now every time the administration changes, the financial sector repeated its parachute appointments, which in most cases ended in a negative ending. I am worried as the new administration tries to erase the influences of the past administration completely, a big tornado would arise in the financial sector at the end of this year.

This table lists articles from the financial press related to resignations of people from Lee Myung Bak's networks in different places in the administration and from private banks following the election of Park Geun Hye. The first column shows the date of publication, the second column depicts the source of the article, and the last column summarizes the relevant passages of the article.

Table A.3: News Articles Concerning the Appointment of Park Geun Hae-Related Individuals in Banks

Date	Paper, Headline	Content
Apr. 5, 2013	Seoul Shinmun "The Repayment Appointment of People From Sogang University"	The new appointment of Mr. Hong Gi-taek, professor of Chung-Ang University, as the president of Saneun Financial Group is interpreted as a strong move to change the tide of finance by placing personnel at the front who share the governmental management philosophy with the president. Mr. Hong, considered as a typical "Sogang School" and was a member of the 1st Economics Department of Commission on the 18th Presidential Transition. Mr. Hong has been known in the field of international finance. He is also a founding member of National Future Research Institute, a presidential think tank of President Park. He has served as the assistant of economics and finance policies to President Park who went to the same university. He is known for his preciseness and his early adopting for IT. However, he does not have any tangible finance experiences. He once served both in transition team and as the nonexecutive director of Nonghyup Financial Group, but stopped once a controversy arose. He was also known for his peculiar actions and words while he served in the transition team. Saneun is expressing both concerns about his lack of experience and excitement for his political ties.
Sep. 1, 2014	Kyunghang Shinmun "Even the Auditor of Export-Import Bank in Controversy of Pro-Park Parachute"	Controversies are rising as Mr. Gong Myung-jae, a person from President Park Geun-hyes presidential election campaign, is appointed as the auditor of Export-Import Bank. He is a pro-Park personnel who graduated from Sogang University with an economics degree just like President Lee Duk-hoon. Since the beginning of the Park administration, personnel who graduated from Sogang University are being appointed in finance companies. Former president of Woori Bank Lee Duk-hun who graduated from Sogang University took office last March as president of Export-Import Bank. He has been considered as one of the main ties of "So-Kum-Hoi" as the center of economic ties of Sogang University. President of Saneun Financial Group, Mr. Hong Gi-taek- is also from Sogang University.
Dec. 2, 2014	Kyunghang Shinmun "So-Kum-Hoi"	One of the most dynamic seats after a change in administration is the personnel department of banks. During the term of President Roh Moo-hyun, Busan Commercial High School was referred to as the "Harvard Commercial High School". However, with the administration of President Lee Myung-bak, this group lost its power. Dongji Commercial High School, however, did not have as many graduates only Choi Won-Byung, president of Nonghyup or Lee Hyu-won, president of Shinhan Investment, were selected. Instead, graduates from Korea University replaced the seats of leadership position in the banks. There was the age of the Great 4 Kings with Kim Seung-yoo (Hana), Lee Pal-sung (Woori), Uh Yoon-dae (KB) and Kang Man-su (the Korea Development Bank) as presidents. Now, the financial industry is being controlled by graduates from Sogang University with President Park Geun-hye's arrival. Lee Kwang-gu, the appointee for the next president of Woori Bank and newly appointed president of KDB Daewoo Securities Hong Sung-guk are all members of "So-Kum-Hoi" (a group of financiers who graduated from Sogang University). Both of the firms are owned by the government, and even though there is a recommendation committee, it is useless if the central power appoints someone. Even though it did not look powerful initially, president of Export-Import Bank, president of Koscom, president of LIG Insurance, president of Shinhan Capital have all come from this group, increasing in its dominance.

This table lists articles from the financial press related to the appointment of people from Park Geun Hae's networks in private and government banks. The first column shows the date of publication, the second column depicts the source of the article, and the last column summarizes the relevant passages of the article.

Table A.4: **Credit Volumes and Interest Rates - Bank-Level Clustering**

	I	II	III	IV	V	VI	VII
	Firm-Level			Relationship-Level			
Dep. Var.:	$\Delta log(loans)_i$	$\Delta\left(\frac{loans}{assets}\right)_i$	ΔIR_i	$\Delta log(loans)_{ij}$	$\Delta\left(\frac{loans}{assets}\right)_{ij}$	ΔIR_{ij}	Δrel_{ij}
KU_i	0.1666	0.0149	-0.0018				
	(0.012)	(0.006)	(0.029)				
KU_{ij}				0.6135	0.0228	-0.0053	0.0233
				(0.001)	(0.004)	(0.016)	(0.019)
con_{ij}				0.5910	0.0189	-0.0044	-0.0035
				(0.009)	(0.019)	(0.026)	(0.651)
Firm FE	-	-	-	yes	yes	yes	yes
Bank FE	-	-	-	yes	yes	yes	yes
Clustered SE	-	-	-	bank	bank	bank	bank
Observations	3,738	3,536	3,749	6,110	5,835	6,136	23,339
R-squared	0.001	0.001	0.001	0.660	0.0694	0.691	0.542

This table shows the results from estimating equation (1) in columns I to III, and equation (2) in columns IV to VII. The dependent variable is the log change in total loans for firm i after the election (2008-2012) compared to before the election (2003-2007) in column I, the change in loans to assets for firm i in columns II, the change in the average interest rate for firm i in column III, the log change in total loans from bank j to firm i in column IV, the change in loans from bank j to firm i, scaled by firm i's assets in column V, the change in the average interest rate on loans from bank j to firm i in column VI, and takes the value of one if bank j and firm i start a new lending relationship after the election, and zero otherwise, in column VII. The variable KU_i takes the value of one for firms with a CEO from Korea University in 2007, and zero otherwise, the variable KU_{ij} takes the value of one for firm-bank relationships in which firm i has a CEO from the KU network in 2007 and bank j appoints an executive from Korea University after the election. The variable con_{ij} takes a value between minus one and one, and increases by 0.2 for each year in which firm i has a CEO from an alumni network from which bank j has an executive after the election, and decreases for each year in which firm i and bank j are connected to the same alumni network before the election. P-values are reported in parentheses based on bank-level clustering using the wild-bootstrap method developed in Cameron, Gelbach and Miller (2008).

Table A.5: **Credit Volumes and Interest Rates - Long-Connected Firms**

	I	II	III	IV	V	VI	VII
	Firm-Level			Relationship-Level			
Dep. Var.:	$\Delta log(loans)_i$	$\Delta\left(\frac{loans}{assets}\right)_i$	ΔIR_i	$\Delta log(loans)_{ij}$	$\Delta\left(\frac{loans}{assets}\right)_{ij}$	ΔIR_{ij}	Δrel_{ij}
KU_i	0.1789	0.0160	-0.0028				
	(0.099)	(0.018)	(0.040)				
KU_{ij}				0.5931	0.0200	-0.0076	0.0114
				(0.008)	(0.028)	(0.001)	(0.188)
con_{ij}				0.5857	0.0280	-0.0050	-0.0036
				(0.000)	(0.001)	(0.013)	(0.659)
Firm FE	-	-	-	yes	yes	yes	yes
Bank FE	-	-	-	yes	yes	yes	yes
Clustered SE	-	-	-	firm	firm	firm	firm
Observations	3,738	3,530	3,749	6,110	5,835	6,136	23,339
R-squared	0.001	0.001	0.001	0.659	0.703	0.691	0.542

This table shows the results from estimating equation (1) in columns I to III, and equation (2) in columns IV to VII. The dependent variable is the log change in total loans for firm i after the election (2008-2012) compared to before the election (2003-2007) in column I, the change in loans to assets for firm i in columns II, the change in the average interest rate for firm i in column III, the log change in total loans from bank j to firm i in column IV, the change in loans from bank j to firm i, scaled by firm i's assets in column V, the change in the average interest rate on loans from bank j to firm i in column VI, and takes the value of one if bank j and firm i start a new lending relationship after the election, and zero otherwise, in column VII. The variable KU_i takes the value of one for firms with a CEO from Korea University in 2003, and zero otherwise, the variable KU_{ij} takes the value of one for firm-bank relationships in which firm i has a CEO from the KU network in 2003 and bank j appoints an executive from Korea University after the election. The variable con_{ij} takes a value between minus one and one, and increases by 0.2 for each year in which firm i has a CEO from an alumni network from which bank j has an executive after the election, and decreases for each year in which firm i and bank j are connected to the same alumni network before the election. P-values are reported in parentheses.

Table A.6: **Credit Volumes and Interest Rates - Government Banks**

	I	II	III
Dep. Var.:	$\Delta loan_i$	$\Delta\left(\frac{loans}{assets}\right)_i$	ΔIR_i
KU_i	0.3657	0.0130	-0.0041
	(0.013)	(0.177)	(0.004)
Observations	2,653	2,518	2,657
R-squared	0.013	0.001	0.003

This table shows the results from estimating equation (1) for government bank credit. The dependent variable is the log change in total loans for firm i after the election (2008-2012) compared to before the election (2003-2007) in column I, the change in loans to assets for firm i in columns II, and the change in the average interest rate for firm i in column III. The variable KU_i takes the value of one for firms with a CEO from Korea University in 2007, and zero otherwise. P-values are reported in parentheses.

Table A.7: **Credit Volumes and Interest Rates - No State Bank Credit Years**

	I	II	III	IV	V	VI	VII
	Firm-Level			Relationship-Level			
Dep. Var.:	$\Delta log(loans)_i$	$\Delta\left(\frac{loans}{assets}\right)_i$	ΔIR_i	$\Delta log(loans)_{ij}$	$\Delta\left(\frac{loans}{assets}\right)_{ij}$	ΔIR_{ij}	Δrel_{ij}
KU_i	0.1372	0.0135	-0.0014				
	(0.045)	(0.017)	(0.097)				
KU_{ij}				0.6880	0.0329	-0.0063	0.0128
				(0.000)	(0.002)	(0.002)	(0.006)
con_{ij}				0.6685	0.0343	-0.0056	-0.0070
				(0.001)	(0.005)	(0.012)	(0.508)
Firm FE	-	-	-	yes	yes	yes	yes
Bank FE	-	-	-	yes	yes	yes	yes
Clustered SE	-	-	-	firm	firm	firm	firm
Observations	3,486	3,279	3,494	5,154	4,903	5,176	20,387
R-squared	0.001	0.001	0.001	0.701	0.740	0.720	0.564

This table shows the results from estimating equation (1) in columns I to III, and equation (2) in columns IV to VII excluding firm-year observations for which firm i borrows from a government bank. The dependent variable is the log change in total loans for firm i after the election (2008-2012) compared to before the election (2003-2007) in column I, the change in loans to assets for firm i in columns II, the change in the average interest rate for firm i in column III, the log change in total loans from bank j to firm i in column IV, the change in loans from bank j to firm i, scaled by firm i's assets in column V, the change in the average interest rate on loans from bank j to firm i in column VI, and takes the value of one if bank j and firm i start a new lending relationship after the election, and zero otherwise, in column VII. The variable KU_i takes the value of one for firms with a CEO from Korea University in 2007, and zero otherwise, the variable KU_{ij} takes the value of one for firm-bank relationships in which firm i has a CEO from the KU network in 2007 and bank j appoints an executive from Korea University after the election. The variable con_{ij} takes a value between minus one and one, and increases by 0.2 for each year in which firm i has a CEO from an alumni network from which bank j has an executive after the election, and decreases by 0.2 for each year in which firm i and bank j are connected to the same alumni network before the election. P-values are reported in parentheses.

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