Political Connections and Allocative Distortions*

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Abstract

This paper exploits a unique institutional setting to examine the effects of firms' political connections on the allocation of government procurement contracts. After winning the presidential election in Korea in 2007, the new president appoints several members of his networks as CEOs of state-owned firms. In turn, these state firms allocate significantly more procurement contracts to private firms with a CEO from the same network. The systematically poor execution of contracts allocated to connected firms suggests that contracts are misallocated. Back of the envelope calculations suggest that each dollar in contract volume transferred from non-connected to connected firms leads to a cost of 17–26 cents to the economy, resulting in a total annual cost of about 0.21–0.32% of GDP.

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1 Introduction

In a seminal paper, Fisman (2001) documents a positive relationship between political connections and firm value. While several empirical studies confirm this relationship for a large set of countries[1] and provide evidence that politically connected firms exhibit better real performance,[2] the underlying mechanism is largely unexplored. Given the large amount of resources allocated by the government, a thorough understanding of the underlying mechanism is important, because different mechanisms have very different implications for economic efficiency and distinct policy implications.

Several challenges impede the identification of the underlying mechanism. To begin with, political connections emerge endogenously. Connections formed through educational, professional, or social ties are subject to homophily, the tendency of individuals with similar traits to associate with each other. Thus, politically connected firms may simply benefit from the political agenda of a connected politician who shares a similar ideology.[3] Similarly, firms connected to a politician through campaign funding are likely to support candidates whose agenda they expect to benefit them. Even if it were possible to identify a causal effect of political connections, evaluating the effects of connections on economic efficiency remains challenging. Politicians may be connected to firms which are strategically important and exert positive externalities. Then, it could be optimal to allocate more government funds (Faccio, Masulis, and McConnell 2006; Duchin and Sosyura 2012) and state bank credit (Khwaja and Mian 2005) to those firms, even if they otherwise appear less profitable and riskier.

I overcome these identification challenges by exploiting a unique institutional setting that generates variation in connections within a given firm, at a given point in time. This allows me to compare changes in government contract allocation to the *same firm at a given point in time*. In Korea, the president has the power to appoint the CEOs of state-owned firms. These state firms play an important role as intermediaries in allocating public procurement

[1] Roberts (1990), Johnson and Mitton (2003), Jayachandran (2006), Faccio (2006), Ferguson and Voth (2008), Bunkanawanicha and Wiwattanakantang (2009), Faccio and Parsley (2009), Goldman, Rocholl, and So (2009), Cooper, Gulen, and Ovtchinnikov (2010), Amore and Bennedsen (2013), Acemoglu, Johnson, Kermani, Kwak, and Mitton (2014), Acemoglu, Hassan, and Tahoun (2015), Akey (2015).

[2] For example, politically connected firms have better access to financing (Khwaja and Mian 2005; Leuz and Oberholzer-Gee 2006; Claessens, Feijen, and Laeven 2008; Li, Meng, Wang, and Zhou 2008), are more likely to receive government funds and to be bailed out (Faccio, Masulis, and McConnell 2006; Duchin and Sosyura 2012; Cingano and Pinotti 2013), receive more government contracts (Goldman, Rocholl, and So 2013; Tahoun 2014), and can avoid costly compliance with regulations (Fisman and Wang 2015).

[3] Knight (2007) shows that firms in industries that were expected to benefit from George Bush's political agenda before the 2000 Presidential election experienced an increase in stock prices when Bush was elected.

contracts to private firms. Following his election as President of Korea in 2007, Lee Myung Bak appoints a large number of people from two of his networks as CEOs in some of the state firms.[4] Thus, private firms with a CEO from one of the president's networks suddenly become connected to state firms with a newly appointed CEO from the same network, but not to other state firms. This allows me to examine changes in public procurement contract allocation from *different* state firms to the *same* private firm.[5]

To begin with, I find that after the election, private firms connected to the new president's networks experience a significantly higher increase in contract volume than non-connected firms. This increase could be driven by factors unrelated to connections to one of the president's networks. The new president may implement policies that systematically benefit connected firms. For example, if connected firms are labor intensive and the new president reduces labor market regulations, then connected firms may be able to hire more workers, expand, and apply for more government contracts.

A simple comparison of connected and non-connected firms cannot rule out such systematic changes in connected firms' demand for government contracts. However, variation in connections to different state firms *for the same private firm* allows me to control for changes in connected firms' demand for government contracts. If connected firms are able to expand and apply for more government contracts after the election, they should receive more contracts from all state firms. Instead, I find that the same private firm experiences a significantly higher increase in contract volume from state firms with a newly appointed CEO from the same network.[6] Thus, the increase in contracts allocated to connected firms is not driven by a change in connected firms' demand for government contracts.

A higher increase in contracts allocated to connected firms could also be driven by systematic changes in the supply of government contracts. Suppose that members of the president's networks share an affinity for infrastructure projects and acquire specific skills to implement

[4]The first network comprises alumni from Korea University, the school he graduated from. The second network consists of former executives of Hyundai Engineering & Construction, the firm where he worked before going into politics. Firms connected to these networks experience 2.21 (4.45) percentage points higher returns the day (week) after Lee Myung Bak's nomination as his party's presidential candidate in a close election. This amounts to 8.51 percent of connected firms' combined market value, and 0.63 percent of total KOSPI (Korea's main stock market index, similar to S&P 500) market capitalization. Connected firms also exhibit higher growth in assets, sales, investment, and leverage after the election.

[5]Public procurement contracts are an important source of government investment, accounting for 10-20% of GDP in developed countries (OECD 2015).

[6]The *additional* contracts allocated to connected firms explain about 20% of the increase in connected firms' market value after the president's nomination.

such projects. Then, the president may want to promote investment in infrastructure and appoints CEOs from his networks to state firms that implement infrastructure projects. At the same time other people from his networks are employed in private firms that execute infrastructure projects. This common focus on infrastructure projects could explain the higher increase in contracts allocated to private firms with a CEO from one of the president's networks by state firms in which the president appoints a CEO from the same network.

To assess this alternative explanation, I control for changes in investment at the state firm level. That is, for each state firm, I compare changes in contract allocation to connected and non-connected firms that operate in the same industry. Even for this within industry analysis, connected firms receive more contracts from state firms in which the president appoints a CEO from the same network. Detailed information on contract types (e.g., real estate, roads, utilities, etc.) allows me to further sharpen this analysis. For each state firm, I compare changes in contract allocation to connected and non-connected firms that execute the same type of contract and find that the results are unaffected. Even after controlling for more granular levels of contract types (e.g., road repair, road extension, road maintenance, etc.) the results are qualitatively unaffected.

To explain these results, state firm investment would need to change *within* these narrowly defined contract types such that private firms with a CEO from one of the president's networks receive more contracts of a given type, but non-connected firms that execute contracts of the same type do not receive more contracts. For example, a given state firm would need to change investment in road maintenance contracts in such a way that connected firms receive more contracts, but non-connected firms, which also execute road maintenance contracts, do not receive more contracts. Additionally, any story that could explain this result would need to apply to virtually all contract types not just road maintenance contracts. Furthermore, any alternative story would also need to explain significant changes in the quality of contract execution for contracts allocated to connected firms after the election (see below).

To further strengthen the interpretation of the results, I exploit appointments of connected state firm CEOs that do *not* change connectedness to private firms with a CEO from the same network. Some of the state firms in which the president appoints a CEO from one of his networks already have a CEO from the same network before the election.[7] For these state

[7]State firms that have a CEO from the same one of the president's networks both before and after the election do not differ from state firms in which he appoints a connected CEO only after the election in terms of size, the volume of contracts allocated, and the change in the volume of contracts allocated after the election.

firms, connectedness to private firms with a CEO from the same network does *not* change after the election. However, if the president appoints CEOs from his networks to implement a specific agenda, this also applies to these state firms. I find that private firms with a CEO from one of the president's networks do not experience a higher increase in contracts from those state firms that have a CEO from the same network both *before and after* the election.[8]

It could be that state firms which already have a CEO from the new president's networks before the election allocate different types of contracts that are not related to the president's agenda. For example, the new president may want to increase investment in infrastructure, but state firms that have a CEO from one of his networks before the election may not allocate infrastructure contracts. To rule out this possibility, I restrict the sample to the set of contracts that is allocated by both types of state firms in which the new president appoints a connected CEO. Thus, any remaining agenda could also be implemented by state firms that already have a CEO from one of the president's networks before the election. However, for this restricted set of contracts, connected firms still only receive more contracts from state firms in which the president appoints a CEO from the same network and that did *not* have a CEO from the same network before the election, but not from state firms that have a CEO from one of the president's networks both before and after the election. This provides additional evidence that the results are driven by connections rather than the new president's agenda.

Next, I assess how connections affect the quality of contract execution. Data on contract amendments, including information on contract performance (delays, financial problems, construction mistakes, etc.), is available for construction contracts. After the election, contract performance significantly worsens for contracts allocated to connected firms relative to contracts allocated to non-connected firms. The effect is entirely driven by contracts allocated to private firms whose CEO is from the same network as the newly appointed state firm CEO. The results also hold after controlling for time-series changes in the performance of contracts allocated by a given state firm (state firm-time fixed effects), and contracts allocated to a given private firm (firm-time fixed effects). This suggests that connections lead to a misallocation of contracts. Back of the envelope calculations suggest that the annual cost incurred due to bad execution of misallocated contracts amounts to about 0.21–0.32% of GDP.

One concern with the interpretation of the results is that contracts allocated to connected

[8]This suggests that connections between the state firm and the private firm CEO affect contract allocation irrespective of connections to the president. The role of the president in allocating more resources to connected private firms is to increase the control over resource allocation for members of his networks.

firms might be systematically different and ex ante more likely to perform badly. State firms may allocate more complex contracts to connected firms as positive effects of connections are particularly valuable for these contracts. To mitigate this concern, I sort contracts according to complexity of the construction project based on the very detailed description of the project in the contract. Additionally, I control for the value of the contract, the contract allocation method, the contract signing date, and the type of construction. Based on these observable characteristics, contracts allocated to connected firms appear to be somewhat *less* complex, and controlling for these characteristics make the results even slightly stronger. This strongly suggests that the poor performance of contracts allocated to connected firms is not related to differences in complexity. Nor can differences in contract performance be justified by differences in the cost of construction. For contracts allocated to connected firms, construction costs increase *more* frequently during the execution of the contract.[9]

Studying changes in the allocation of credit by private banks, I find that politically connected firms also benefit from changes in resource allocation in private markets. Following the election, private financial firms appoint CEOs and board members with connections to the new president's networks. This includes a large number of alumni from Korea University (KU network), the school the president graduated from. After the election, firms connected to the KU network experience a higher increase in leverage and a larger reduction in interest rates than non-connected firms. Additionally, the positive relationship between firms' default risk and interest rates breaks down for KU network firms after the election.

An alternative explanation for these results could be that banks are willing to provide more credit at a cheaper price to KU network firms due to their political connections. For example, if political connections increase the likelihood of government bailouts (Duchin and Sosyura 2012), connected firms may become better borrowers from a bank's perspective. To assess this alternative explanation, I examine changes in the access to and cost of credit for firms with a CEO that is a former Hyundai Engineering & Construction executive (HEC network), the firm where the president worked before going into politics. These firms also become politically connected and experience the same increase in firm value and government contract volume after the election. However, they do not become connected to private banks as those banks do not appoint members of the HEC network, who are typically engineers. I find that firms connected to the HEC network do not experience an increase in leverage and

[9]Further robustness tests mitigate concerns about an insurance effect of connections against extreme outcomes, and differences in the reporting of construction problems for connected contracts. These tests are described in detail in Section 6.

a decrease in their cost of credit after the election. This suggests that better access to credit for KU network firms is not directly driven by political connections, but by an increase in connections to private banks after the election.

This paper contributes to the literature on the effects of political connections on economic outcomes. While early papers in the literature examine the implications of political ties on firm profits, more recently, a small number of studies examine the effects of political connections on economic efficiency. Most empirical evidence on the effects of political connections is interpreted as evidence of rent-seeking with potentially detrimental effects. Khwaja and Mian (2005) show that state banks in Pakistan allocate more credit to politically connected firms that are more likely to default on the loans. Duchin and Sosyura (2012) argue that politically connected firms that obtained TARP funds show lower profitability going forward. Similarly, Faccio, Masulis, and McConnell (2006), Amore and Bennedsen (2013) and Cingano and Pinotti (2013) argue that political connections lead to more resources being directed to unprofitable firms.[10] For a sample of Chinese firms, Fisman and Wang (2015) document that politically connected firms avoid compliance with costly regulations, leading to more worker fatalities.

Although prior studies take great care in minimizing the set of alternative explanations, there are still lingering concerns about confounding factors that affect the comparison of politically connected and non-connected firms. Politicians may be connected to firms that are important for the economy and exert positive externalities. In this case, one cannot rule out that targeted allocation of government resources toward these firms, and different enforcement of regulations, are part of an efficient political agenda that internalizes the positive externalities to the economy. By exploiting variation in political connections to different state firms for the same private firm at a given point in time, my paper mitigates concerns about differences in firm characteristics. My findings thus suggest that after controlling for potentially confounding factors, resource allocation toward politically connected firms can be associated with economic costs. The results in the paper suggest that politically connected firms benefit through a network channel. Rather than directly influencing the allocation of government contracts, the president appoints people from his networks as state firm CEOs, providing them with additional resources to be allocated to connected firms. Additionally, while previous papers document that changes in political power affect the allocation of government resources, this paper provides evidence that the effects also extend to private markets.

[10]This is consistent with the findings in Cohen and Malloy (2014) that firms that depend on government contracts appear less profitable.

The paper also relates to the literature on the economic implications of social networks[11] by providing micro-level evidence that networks transmit rents from political connections. Changes in political power effectively alter the amount of resources controlled by different networks. Moreover, this paper adds to the literature assessing the importance of CEOs for firm value, economic outcomes, and decision-making[12] by documenting that CEOs' connections to powerful networks have a significant impact on firms' economic performance. Finally, the paper contributes to the literature on the allocation of public procurement contracts. The results in the paper show that connections between buyers and sellers may have detrimental effects on the allocation and execution of public procurement contracts.[13]

An important question is the external validity of the results. Political influence over the appointment of state firm CEOs and people in important roles in the administration is pervasive (see Table A.3). Even for the U.S., Acemoglu et al. (2014) conjecture that financial firms connected to Timothy Geithner benefitted from the appointment of socially connected people during the financial crisis. Thus, the network channel documented in this paper, that politicians increase their networks' control over the allocation of government resources by appointing people from their networks into important positions, is likely to be relevant for a large set of countries. In terms of the dominating mechanism in the data, economic reasoning suggests that the results are most likely to apply in countries with a similar institutional environment.[14] However, evidence on allocative distortions due to social connections has also been documented for developed countries with low perceived corruption,[15] suggesting that the rent-seeking channel documented in this paper is also plausible in for countries with a different institutional environment.

[11]Insurance and risk-sharing (Townsend 1994), social collateral (Karlan 2007), peer effects (Sacerdote 2001; Bandiera and Rasul 2006; Lerner and Malmendier 2013; Fracassi 2014), information flow (Bandiera and Rasul 2006; Conley and Udry 2010; Cohen, Frazzini, and Malloy 2010; Engelberg, Gao, and Parsons 2012; Duchin and Sosyura 2013), taste-based discrimination (Hwang and Kim 2009).

[12]Bertrand and Schoar (2003), Malmendier and Tate (2005), Perez-Gonzales (2006), Bertrand (2009), Hirshleifer, Low, and Teoh (2012).

[13]Goldman, Rocholl, and So (2013), Tahoun (2014), Brogaard, Denes, and Duchin (2015), and Baltrunaite (2016) document a positive correlation between political connections and the volume of public procurement contracts allotted to firms.

[14]Korea ranked 40th in the Transparency International's Corruption Perception Index when Lee Myung Bak was elected as president.

[15]Germany (Haselmann, Schoenherr, and Vig 2015), U.S. (Hochberg, Ljungqvist, and Lu 2010).

2 Institutional Background

The event that provides exogenous variation in firms' political connectedness is the nomination of Lee Myung Bak as the Grand National Party (GNP)'s presidential candidate and his subsequent election as Korean president.

2.1 Presidential Election

In December 2007, South Korea elected a new president. The president is elected directly by the public, and the main political parties nominate one candidate each. The two main contenders in the presidential race both came from the GNP. Hence, the GNP's candidate nomination effectively determined the next president.[16] Results from public opinion polls made up an important fraction of the total votes for the GNP nomination.[17] In the months before the election, Lee Myung Bak was the odds-on favorite, leading polls robustly by around ten percentage points (Figure A.1).

During the run-up to the election, Lee Myung Bak's popularity was severely affected by the "Dokokdong Land Scandal". Suspicions about the true ownership of land, officially owned by his brother Lee Sang Eun, were fueled by a prosecutor's office announcement on August 13, stating that the respective land was not Lee Sang Eun's property. It seemed likely that Lee Myung Bak was involved and had participated in criminal activities as the respective land was sold to POSCO, whose CEO, a former consultant to the GNP, decided to purchase the land for more than ten times the initial purchase price, despite serious reservations on part of POSCO's management.

The resulting speculations harmed Lee Myung Bak's reputation, causing a severe drop in polls. From August 8 to August 14 the lead over Park Geun Hae declined from 9.4% to 5.8% (Figure A.1). As a consequence (Lee Myung Bak was considered the pro-economy candidate), the main stock price index, KOSPI, experienced a drop of 7.44% the next trading day (Figure A.2). The dramatic events led Lee Myung Bak to hold an unscheduled press conference, assuring that the allegations against him were false. Stock prices continued to drop on August 17 as speculations continued to grow and the likelihood of his election

[16] Lee Myung Bak, who was ultimately nominated by the GNP, won the presidential election on December 19, 2007 with a 22.6% lead over his main rival.

[17] Appendix A provides a detailed explanation of the election system.

decreased further. Eventually, Lee Myung Bak was elected as GNP candidate on Sunday, August 19 with 49.56% of the total votes (Park Geun Hae: 48.06%) leading to an increase in the KOSPI increased by 5.38% after the election (Figure A.2).

2.2 Definition of Political Connections

Lee Myung Bak graduated from Korea University Business School and served as a CEO at Hyundai Engineering & Construction, before going into politics. A firm is considered politically connected if its CEO is either a Korea University Business Administration graduate (KU network), or a former Hyundai Engineering & Construction executive (HEC network). Many firms have one CEO over the entire sample period, typically family-controlled firms. Other firms appoint their CEOs in fixed cycles every one to three years. As Lee Myung Bak came into office from late February 2008, companies only benefit from connections after this date. I follow two rules in determining connectedness. A firm is considered connected if: i) one of its CEOs is either a KU or HEC network member at the time of the GNP candidate nomination on August 19, 2007, and is not replaced by a non-connected CEO in a regular election cycle in the first half of 2008, ii) or a connected CEO is appointed in a regular cycle in the first half of 2008.[18]

To mitigate concerns about the endogeneity of CEO appointments with respect to procurement contract applications, I define political connectedness as a sticky measure that is not updated. The 59 firms connected to one of Lee Myung Bak's networks at the time of his election are considered to be connected for the full sample period, regardless of later CEO appointments. All results are stronger when updating the connectedness measure. Moreover, in robustness tests, I drop firms that appoint a connected CEO during the three years before the election to ensure that differences in procurement contract allocation are not driven by endogenous CEO appointments in anticipation of Lee Myung Bak's election.

2.3 Network Channel

The Korean president takes a dominant role in government and has the power to appoint senior public officers (e.g., ministers, political advisors, chief prosecutors, and state firm CEOs). There is overwhelming evidence of the appointment of connected people during

[18]If a CEO is replaced by his son, the father's connections are considered as well.

Lee Myung Bak's presidency. After his 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%, the share of chief political advisors (senior secretaries in the Blue House) increased from 14.7% to 22.9%, and the number of CEOs from Korea University and Hyundai Engineering & Construction among the 42 state firms in the sample firms increased by 9. Ministers, prosecutors, and state firm CEOs in turn decide about appointments and promotions of people at lower levels of the administration, leading to a trickle-down effect.

3 Data

The data for this paper is collected from five sources: accounting data is from Mint Korea, stock market data from Bloomberg, data on CEO appointments comes from the Commercial Registration System governed by the Supreme Court of Korea, the Annual Dictionary of Korea Business Magnate provides information on CEOs' CVs, and procurement contract data comes from the Korea online e-Procurement System website. All data is either freely available online, or can be obtained against a fee. The sample comprises the 630 companies listed in the KOSPI index on August 20, 2007 the day after the GNP candidate election.[19] Since a new president was elected in 2012, the sample period ends in 2011. For all tests, the start of the sample is set such that there is a symmetric window around the event.

3.1 Accounting and Stock Market Data

Accounting data is summarized in Table 1, Panel A.[20] I report pre-election data (before 2007), to ensure that the comparison of connected and non-connected firms is largely uninfluenced by the effects of Lee Myung Bak's election. Average firm size is 3,197 million KRW in book assets, mean sales are 1,834 million KRW. Firms' average return on assets is 3.00%, net investment is 4.43%, and the mean bank loans to asset ratios is 3.80%. In terms of observable variables, connected and non-connected firms look very similar. None of the differences in firm characteristics in Panel A are statistically significant at the 10% level. Stock market data is from Bloomberg. The datasets are matched by ticker symbol.

[19]The sample excludes stocks of mutual funds. Including these stocks makes all results stronger.

[20]All accounting data is winsorized at the 1% level, to minimize the impact of outliers and data errors.

3.2 Network 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. I match CEOs appearing in the data between 2005 and 2011 with data from the 2010 Annual Dictionary of Korean Business Magnate published by Mailnet & Biz using CEOs' names and dates of birth, and the company name. The data contains information on academic degrees and professional careers. Missing information is completed using older volumes of the same source, or online research. I identify 1924 CEOs. For 1846 CEOs (95.95%) information on their university degree is available (Table 1, Panel B). The dominant university among CEOs is Seoul National University (465), followed by Yonsei University (219), and Korea University (214). Korea University graduates comprise 11.55% of all CEOs. There are 100 CEOs connected to one of the president's networks in the data: 66 connected to the KU network, and 34 to the HEC network. Firm connections are listed in Table 1, Panel C. In the full sample, 59 firms are connected (9.37%): 40 to the KU network (6.35%), and 19 to the HEC network (3.02%). For the subsample of 368 firms with procurement contracts, 40 are connected (10.87%). Of the 195 firms with procurement contracts from state firms, 31 are connected (15.90%), and among the 80 firms with construction contracts, 21 are connected (26.25%).

3.3 Procurement Contract Data

Panel D in Table 1 provides descriptive data on the subset of procurement contracts allocated to KOSPI firms during the sample period. Comprehensive data on procurement contracts is available from the Korea online e-Procurement Service.[21] The data contains information on the enrolment of a project and the contract allocation procedure. After an applicant is selected, the firm's name and contract signing date are announced. For the subset of construction contracts the system also lists future contract amendments.

During the sample period there is some minor M&A and spin-off activity. I treat companies that merged during the sample period and companies that split up as one entity throughout to make contract volumes comparable over time. Overall 368 of the 630 companies (58.41%) sign at least one contract during the sample period. Contracts to KOSPI

[21]The data is available at www.g2b.go.kr. Coverage increases from 55% of total public procurement in 2004 to 60% in 2007, and 73% in 2010.

companies account for only 1.43% of all contracts in the database, but 27.44% of total contract volume. For the 368 firms with procurement contracts, they account for 3.24% of firms total assets before and 6.55% after the election.The procurement contract database lists both contracting parties. This allows me to identify the subsample of contracts issued by state firms. These contracts make up 14.56% of contracts to KOSPI firms. In total, 42 state firms sign contracts with 195 KOSPI firms during the sample period. I collect data on state firm executives from the 2010 Annual Dictionary of Korean Business Magnate.

4 Empirical Strategy

This section describes the empirical strategy employed in this paper to identify the mechanism underlying the increase in politically connected firms' market valuation after Lee Myung Bak's election. To identify a direct effect of connections, I examine systematic changes in the allocation of public procurement contracts. Analyzing changes in contract execution allows me to evaluate the effect of connections on the quality of contract allocation.

4.1 Contract Allocation

First, I analyze systematic changes in public procurement contract allocation after Lee Myung Bak's election as President of Korea. Let y_{it} be the volume of contracts allocated to firm i in period t, scaled by firm i's total assets in the year of the election, α_t denote time-specific effects, and A_{it} denote firm characteristics. Let D_i denote a dummy variable taking the value of one for firms connected to one of the president's networks, and zero for non-connected firms. Assuming a linear model, total contract volume can be represented as: $y_{it} = \alpha_t + \beta_t \cdot A_{it} + \mu_t \cdot D_i + \epsilon_{it}$.

I collapse the data into a pre-election period $t = 0$ from the third quarter of 2004 to the first quarter of 2008, the quarter before the new president's inauguration, and a post-election period $t = 1$ from the second quarter of 2008 to the end of 2011.[22] First-differencing implies the following regression equation:

$$\Delta y_i \quad = \quad \Delta\alpha + (\beta_1 \cdot A_{i1} - \beta_0 \cdot A_{i0}) + \Delta\mu \cdot D_i + \Delta\epsilon_i \tag{1}$$

[22]I collapse the pre- and post-election period data into one observation each by accumulating each firm's contracts after inflating/deflating contract volumes to 2007 Korean won and computing the average annual contract volume for the pre- and post-election period.

where $\Delta z = z_1 - z_0$. The parameter of interest $\Delta\mu$ measures the effect of connectedness to the president's networks on contract allocation after the election.[23]

Identifying a causal effect of connections on contract allocation is challenging. If connected firms benefit from policies implemented by the new president, this may enable them to apply for more government contracts. Similarly, if connected firms have other benefits from the president's agenda, for example better access to finance, they might be able to increase investment and apply for more government contracts. This would lead to an upward bias in the estimation of $\Delta\mu$. Additionally, if the new government increases investment in areas that benefit connected firms, the estimate of $\Delta\mu$ would be further biased upwards.

Ideally, one would like to control for changes in connected firms' ability to apply for government contracts ($A_{i1} - A_{i0} \neq 0$), or an increase in the supply of contracts that benefit connected firms ($\beta_1 - \beta_0 \neq 0$). This could be achieved by saturating equation (1) with firm fixed effects ($\Delta\alpha_i$). Note that adding firm fixed effects ($\Delta\alpha_i$) in the differenced model is equivalent to adding firm-time fixed effects in the two period model and controls for *time-varying* changes in firm characteristics, including changes in the ability to apply for contracts. However, including firm fixed effect not only absorbs changes in firm characteristics, but also absorbs the connectedness measure D_i.

One feature of the institutional setting in this paper generates variation in connectedness for the *same* firm at a given point in time. In Korea, CEOs of state firms are directly appointed by the president. After his inauguration, the new president appoints a large number of CEOs from his networks in state firms that previously had a CEOs from other networks. Thus, private firms with a CEO from one of the president's networks become connected to state firms with a newly appointed CEO from the same network, but not to other state firms. This allows me to analyze changes in contract allocation on the private firm-state firm relationship level. This controls for time-varying changes in connected firms' ability to apply for government contracts and systematic changes in the supply of contracts that benefit connected firms without absorbing the connectedness measure:

$$\Delta y_{ij} = \Delta\alpha + \Delta\alpha_i + \Delta\alpha_j + \Delta\theta \cdot D_i + \Delta\rho \cdot D_j + \Delta\mu \cdot D_{ij} + \Delta\epsilon_{ij} \quad (2)$$

[23] Contract allocation is effectively a zero-sum game. An additional contract allocated to a connected firm means one fewer contract allocated to a non-connected firm. Thus, the estimates might be biased due to a double counting of contracts reallocated from non-connected to connected firms. Moreover, if connections to the previous president had a similar effect on contract allocation the estimates could be biased further. Appendix B describes the procedure to adjust the estimates accordingly.

where j subscripts state firms. The variable Δy_{ij} is the change in contract volume allocated from state firm j to private firm i, D_j is one for state firms in which the new president appoints a CEO from one of the his networks, and zero for other state firms, D_{ij} is one for private firm-state firm pairs in which the president appoints a CEO at state firm j, from the same network as the CEO of private firm i, and zero otherwise. The parameter $\Delta\alpha_j$ controls for the average level of changes in the volume of contracts allocated by state firm j across all private firms.

Adding firm fixed effects ($\Delta\alpha_i$) to equation (2), absorbs the average level of changes in contracts for firm i from all state firms. This controls for changes in government investment that benefit connected firms and for changes in the demand for government contracts. Intuitively, if connected firms benefit from general changes due to the new president's political agenda or are able to apply for more government contracts, this should lead to an increase in procurement contracts allocated to connected firms from all state firms. In contrast, if connections to the president's networks drive the results, the increase in contract volume should be stronger for state firms in which the president appoints a CEO from the same network.

The main concern with this analysis is that the president appoints CEOs from his networks in state firms that implement an agenda that benefits connected firms. This would explain a higher increase in contracts allocated to connected firms for these state firms relative to other state firms, leading to an upward bias in the estimation of $\Delta\mu$. To mitigate this concern, I saturate equation (2) with state firm-industry fixed effects ($\Delta\alpha_j * ind_i$). That is, I compare changes in investment for the same state firm to connected and non-connected firms in the same industry. To further sharpen this analysis, I examine changes in contract allocation at the state firm level within narrowly defined categories of contracts types k (real estate, road constructions, etc.) and even more granular levels of contract types (road maintenance, road extension, road repair, etc.) ($\Delta\alpha_j * contract\ type_k$). Thus, generating an upward bias in the estimate of $\Delta\mu$ requires a change in government investment within those contract categories that is unique to state firms in which the president appoints a CEO from one of his networks and that benefit connected firm, but not non-connected firms that execute the same type of contracts as the connected firms.

4.2 Contract Performance

Contract outcomes allow me to differentiate between a positive and a negative role of connections. For the subset of construction contracts, the database lists contract amendments. I define Z_c as a dummy variable that takes the value of one if contract c exhibits adverse contract outcomes (delays, financial problems of the contracting firm, construction mistakes, etc.), and zero otherwise. The empirical strategy is identical to the analysis regarding changes in procurement contract allocation, except that the estimation is on the contract level:

$$\begin{aligned} Z_c &= \alpha + \gamma_1 \cdot event_t + \gamma_2 \cdot D_i + \gamma_3 \cdot D_j + \gamma_4 \cdot event_t * D_i \\ &\quad + \gamma_5 \cdot event_t * D_j + \gamma_6 \cdot D_{ij} + \gamma_7 \cdot event_t * D_{ij} + \epsilon_{ij} \end{aligned} \tag{3}$$

where $event_t$ is a dummy variable taking the value of one after, and zero before the election. All other variables are defined as before. The estimation can be saturated by firm-time fixed effects ($\alpha_i * event_t$) to control for time-varying changes in contract execution at the firm level, and state firm-time fixed effects ($\alpha_j * event_t$) to control for time-variation in contracts allocated by a given state firm. A positive role of connections predicts a positive value of γ_7, whereas a detrimental role predicts a negative value. The identification of the underlying mechanism hinges on implicit assumptions, for example that contracts allocated to connected and non-connected firms are ex ante equally likely to exhibit adverse outcomes. In Sections 6.4 and 6.5, I discuss the assumptions underlying the interpretation of the results, and examine their validity by performing additional tests.

5 Market Value and Firm Performance

This section reports evidence from stock price reactions and changes in real firm performance of connected relative to non-connected firms to validate the relevance of connections to Lee Myung Bak's networks as defined in the paper.

Figures 1 and 2 depict kernel density plots showing cumulated log returns of connected (black line) and non-connected (gray line) firms, after the prosecutor's office announced Lee Myung Bak's potential involvement in the Dokokdong Land scandal, and after his nomination as the GNP's candidate for the presidential election, respectively.[24] Figure 1 documents a

[24]Stocks of the firms connected to Park Geun Hae (Lee Myung Bak's main rival) are excluded from the sample for the return tests. Firms considered to be connected to Park Geun Hae comprise four KOSPI listed

clear leftward shift in the distribution of stock returns for connected firms both on the day (left Panel) and the two days (right Panel) after the prosecutor's office announcement related to Lee Myung Bak's potential involvement in criminal activities. Figure 2 shows a rightward shift in the distribution of stock returns for connected firms on the day (left Panel) and in the week (right Panel) after Lee Myung Bak's election as GNP candidate. The evidence from the graphical analysis suggests that the market value of firms connected to one of Lee Myung Bak's networks is positively correlated with the likelihood of his election, and that differences in returns for connected and non-connected firms are not driven by outliers.

Table 2 statistically confirms the insights from the graphical analysis in Figures 1 and 2. Panel A depicts the results for the days following the prosecutor announcement regarding the Dokokgong Land scandal. On the day of the announcement, connected firms experience on average a 2.41 percentage point lower stock return (column I). Over the two days after the announcement, the negative effect is even stronger, with 2.93 percentage points (column II). The effect is somewhat weaker for the sample of firms connected to the KU network with 1.78 and 2.34 percentage points (columns III and IV), compared to firms connected to the HEC network with 3.74 and 4.17 percentage points (columns V and VI). Adding firm controls (two-digit NAICS industry codes, log of market capitalization) does not affect the results (columns VII and VIII). Dropping firms that appointed connected CEOs during the last three years before the election (columns IX and X), and adding firm controls to this reduced sample (columns XI and XII), does not affect the results either.

Panel B depicts the results for the days after Lee Myung Bak's victory in the GNP nomination election. On the day after the election connected firms outperform non-connected firms by 2.21 percentage points (column I). In the week after the election the difference increases to 4.45 percentage points (column II). Since the probability of Lee Myung Bak's nomination was about 50% before the election, the true value of political connections is about twice the estimated effect. Since the president in Korea can only serve for one five-year term, the estimated effect represents the value of five years of connections to the president. For firms connected to the KU network the effect is weaker with 1.50 and 2.76 percentage points (columns III and IV), compared to firms connected to the HEC network with 3.70 and 8.01 percentage points (columns V and VI). The effect is slightly lower when controlling for industry fixed effects and firm size with 2.04 and 4.17 percentage points (columns VII and VIII). Dropping firms that appointed a connected CEO within the three years before

firms where her relatives either earn stocks or serve as CEO or board member. The return of those firms shows the exact opposite pattern compared with the returns of firms connected to Lee Myung Bak.

the election (columns IX and X), and adding controls to this reduced sample (columns XI and XII), does not affect the results. This suggests that the results are not affected by endogenuous CEO appointments in anticipation of Lee Myung Bak's election. For the analysis in this paper, evidence from stock price reactions establishes the validity of the definition of connections to the new president through the KU and HEC networks. Appendix C discusses additional tests that reduce the set of alternative explanations for the observed differences in stock price reactions between connected and non-connected firms.

Table 3 shows changes in real performance for connected relative to non-connected firms in the period after the election, relative to the period before the election. Consistent with the prior literature, connected firms experience 14.11% higher growth in total assets (column I), a 16.82% higher increase in sales, a 42.11% higher increase in investment (column III), and a 2.43 percentage point increase in their bank debt to assets ratio (column IV).

6 Results

This section presents the results from the empirical analysis by estimating equations (1) to (3) and describes additional tests corroborating the interpretation of the results.

6.1 Allocation of Procurement Contracts

Figure 3 depicts the change in contract volume, scaled by firm assets, for connected (black line) and non-connected (gray line) firms. Before the election connected and non-connected firms exhibit similar growth rates in contract volume. However, from 2008, connected firms show a significantly higher growth rate in contract volume than non-connected firms.

Table 4 summarizes the results from the estimation of equation (1), statistically confirming the insights from the graphical analysis in Figure 3. The increase in their annualized contract volume to assets ratio after the election is 3.03 percentage points higher for connected firms than for non-connected firms (column I). For the sample that drops firms appointing a connected CEO in the three years before the election, the effect is slightly stronger, with 3.47 percentage points (column II).[25] The results in Table 4 document a positive correla-

[25]The results could be biased by changes in the average contract length as the full contract volume is accounted to the period in which the contract is allocated. However, contract length does not significantly change for connected and non-connected firms after the election.

tion between connectedness to one of the president's networks and an increase in contract volume.[26]

Columns III to XIV depict the results from the analysis at the state firm-private firm relationship level (equation (2)). Analysis at this level allows me to control for an increase in connected firms' demand for government contracts and changes in government investment that benefit connected firms. If the increase in contract volume stems from changes in connected firms' demand for government contracts or changes in government investment, connected firms should experience an increase in contracts from all state firms. However, if connections to one of the president's networks drive the increase in contract volume, the effect should be stronger for firms in which the president appoints a CEO from the same network as the private firm CEO (KU or HEC network).[27] The results in column III show that, after the election, connected firms experience a 0.33 percentage points higher increase in contract volume from state firms with a newly appointed CEO from the same network. The results become even stronger when saturating the estimation with firm fixed effects (0.39 percentage points, column IV), and state firm fixed effects (0.39 percentage points, column V).[28] The effects are almost identical in magnitude when dropping firms that appointed a connected CEO in the three years before the election (columns VII–IX). The higher increase in contract volume from state firms with a CEO from the same network as the private firm CEO for the *same* firm suggests that the increase in contract volume is driven by connections, rather than changes in connected firms' demand for government contracts or their sensitivity to the new president's agenda.

6.2 Endogenous CEO Appointments

The main concern with the analysis on the state firm-private firm relationship level is that the president appoints CEOs from his networks in state firms that implement an agenda that benefits connected firms. For example, suppose that Korea University graduates share an affinity for infrastructure construction and acquire special skills to implement infrastructure

[26]The results are qualitatively identical for the subsample of contracts allocated by state firms (Table A.4).

[27]Since not all private firms execute contracts of the type issued by a particular state firm, I only treat state firms that sign at least one contract with a firm from the same industry as potential contracting partners for the respective firm. All results are robust to treating all firms as potential contracting partners for each state firm, or only firms that actually sign a contract with the state firm (Table A.6).

[28]As a placebo test, I randomly assign state firms to the KU network and the HEC network and reestimate the specification in column V (10,000 random assignments). The estimate from this placebo test is larger than the point estimate in column V in 2.44% of the cases.

projects. Then, the president may want to promote investment in infrastructure, and Korea University graduates might be more likely to be employed in private firms that execute infrastructure projects. This common focus on infrastructure construction could lead to more contracts being allocated from state firms in which the president appoints a KU network CEO to private firms with a CEO from the KU network after the election.[29]

To mitigate this concern, I control for changes in investment at the state firm level by saturating equation (2) with state firm-industry fixed effects. This allows me to compare changes in contract allocation from a given state firm to connected and non-connected firms from the same industry. Even for this within industry analysis, connected firms receive more contracts from state firms in which the president appoints a CEO from the same network compared with other state firms, relative to non-connected firms (Table 4, columns VI and X). Detailed data on contract types (electricity, real estate, road construction, etc.) allows me to sharpen the analysis further. I find that after controlling for contract types at the state firm level, the results continue to hold (columns XI and XIII). The results are robust to even more granular definitions of contract types (road extension, road maintenance, road repair, etc.) (columns XII and XIV). To explain these results, investment in state firms in which the president appoints a CEO from his networks would need to change within a given contract type such that connected firms receive more contracts, but non-connected firms that execute the same type of contract do not receive more contracts.[30]

To further examine the possibility of changes in state firm investment, I perform a placebo test by exploiting appointments of members of the president's networks as CEOs of state firms that do *not* change connectedness to private firms with a CEO from the same network. Some state firms in which the president appoints a CEO from the KU network, already have a KU network CEO before the election. If state firms in which the president appoints a CEO from one of his networks implement an agenda that benefits connected firms, these state firms should allocate more contracts to private firms with a CEO from the KU network

[29]State firms in which the new president appoints CEOs from the KU and HEC network do not allocate more contracts to firms with a CEO from the same network (Table A.5, columns I and II) and are not more likely to sign a contract with a firm that has a CEO from the same network before the election (columns III and IV). Additionally, there is no increase in contract allocation to connected firms from these state firms before the election (Figure 4). This suggests that the president does not appoint connected CEOs in firms that are generally more likely to allocate contracts to connected firms.

[30]A related concern could be that changes in state firm investment could be geographically restricted and benefit connected firms that operate in a specific geographical area. However, connected firms are not clustered in a different area compared to non-connected firms. Additionally, the firms in the sample are large firms whose operations are not limited to a specific area in Korea.

after the election. In contrast, under the connections view, there should be no change for these state firms as they are connected to private firms with a KU network CEO before and after the election. Columns I to III in Table 5 show that private firms with a KU network CEO do not experience an increase in contracts from state firms that have a KU network CEO both before and after the election.

Differences in changes in contract allocation between state firms in which the president appoints a connected CEO and that have a CEO from the same network before the election and state firms in which the president appoints a connected CEO but that have a CEO from a different network before the election is not driven by differences in the types of contracts that they allocate. When I reduce the sample to the types of contracts that account for at least ten percent of the contracts allocated by state firms that have a CEO from the KU network before and after the election (roads, harbor, education, utilities, and other real estate)[31] and overlap with the types of contracts allocated by state firms in which the president appoints a CEO from his network, but that have a CEO from a different network before the election, the results are unchanged (Table A.7). This suggests that the results are not driven by endogenous appointments of connected CEOs in state firms that implement an agenda that benefits connected firms.

6.3 Contract Performance

In Table 6, I test for differences in contract performance for the subset of construction contracts for which the database records amendments (equation(3)).[32] I define contract performance as a dummy variable that takes the value of one in case any adverse event occurs during the execution of the contract (delays, construction mistakes, financial problems of the contracting firm, etc.), and zero otherwise. Contracts allocated to firms connected to one of the president's networks are 11.48 percentage points more likely to be perform badly after the election relative to contracts allocated to non-connected firms, compared with the period before the election (column I).[33] Adding firm fixed effects slightly reduces the effect to 8.78 percentage points (column II). For the subsample of construction contracts issued by state

[31] Including contract types that account for less than ten percent of the contracts allocated by state firms that have a CEO from the KU network before and after the election (storage, landscape work) does not affect the results.

[32] For 27 of the 10781 construction contracts the contract number is missing in the database. Therefore, it is not possible to identify amendments for those contracts.

[33] 30.33% of construction contracts exhibit bad performance. For the sample of contracts allocated by state firms, the fraction of badly performing contracts is somewhat higher with 39.93%.

firms, the magnitude of the effect is stronger with 20.55 percentage points (column III), and 16.75 percentage points when adding firm fixed effects (column IV).

The main test compares contracts allocated to connected firms by state firms in which the president appoints a CEO from the same network as the private firm's CEO to contracts from other state firms allocated to the same firm. Contracts signed between CEOs from the same network are 40.50 percentage points more likely to perform badly than contracts from other state firms (column V). Controlling for time-series changes in the performance of contracts allocated to a given firm (firm*event fixed effects) and time-series changes in the performance of contracts being allocated by the same state firm (state firm*event fixed effects), the effect is slightly larger with 43.74 percentage points (column VI). Together, the results in Table 6 suggest that connections lead to a misallocation of contracts.

Additionally, for contracts allocated to connected firms, construction costs are more likely to increase after the contract is signed (see Table 7). The increase in costs does not seem to be related to differences in ex ante pricing. The difference between the maximum amount the government is willing to pay for a given construction project and the winning bid is not statistically different for auctions won by connected or non-connected firms. Thus, the lower quality of contract execution cannot be justified by lower construction costs. Instead, the results in Table 7 suggest that contracts allocated to connected firms are executed badly and construction costs are higher than for contracts allocated to the same firm from other state firms.

6.4 Differences in Contracts

The interpretation of the results in Table 6 hinges on the assumption that contracts allocated to connected firms are ex ante as likely to exhibit bad performance as contracts allocated to non-connected firms. Instead, differences in contract performance could be driven by the fact that state firms allocate the most complex contracts to connected firms.

To test for the effects of connections on contract performance one would ideally like to compare the performance of identical contracts allocated to connected and non-connected firms. To get closer to this ideal test, I control for observable contract characteristics that are correlated with contract complexity. First, I split contracts into three categories of contract complexity (low, medium, high) based on the description of the construction project

in the procurement contract database, pictures of the construction project, and information on landscape conditions. Panel A in Table 8 shows that low complexity constructions are significantly less likely to perform badly with 17.39% of contracts experiencing negative events during execution, compared to medium complexity contracts with 49.12%, and high complexity contracts with 62.45%. To avoid enforcing a linear relationship, I add dummies for each of the three categories to the regression. Second, I add dummies for the type of construction project (see Panel B).[34] Third, I control for contract volume (log of contract volume), as larger constructions are more likely to be more complex (Bajari, McMillan, and Tadelis 2009). The smallest quarter of contracts is significantly less likely to exhibit negative outcomes with 28.18%, compared to the largest quarter of contracts with 54.76% (see Panel C). Finally, I control for the contract allocation method,[35] as contracts allocated through auctions (in particular limited auctions) are more complex projects compared to more standardized contracts for which a firm is directly selected (see Panel D). The last column in Table 8 shows that more complex contracts, larger contracts, and contracts allocated through auctions are also more likely to experience increases in construction costs.

The results are collected in Table 9. From the outset, it is important to note that contracts allocated to connected firms are neither significantly larger nor more likely to be allocated through auctions after the election compared with the pre-election period and even slightly less complex, relative to non-connected firms. Accordingly, I find that controlling for observable contract features does not qualitatively affect the results. Contracts allocated to connected firms are 5.90 percentage points more likely to perform badly after the election (column I). The effect is quantitatively almost identical with 6.12 percentage points after adding firm fixed effect (column II). For contracts allocated by state firms, the magnitude of the effect is even larger (columns III–IV). Most importantly, the performance of contract allocated to private firms from connected state firms remains significantly worse than the performance of contracts allocated to the same private firm from other state firms, with similar economic magnitudes compared to their counterparts in Table 6 (columns V–VI).[36]

[34]Breaking up the construction projects in finer categories (road construction, road extension, road maintenance, etc.) leaves the results unaffected.

[35]There are four different types of contract allocation methods: i) regular auction, where any firm whose total score according to some pre-specified qualitative criteria is above a certain threshold may apply, ii) limited auctions, where only firms with the ability to perform certain pre-specified tasks may apply, iii) pre-selected auctions, where only previously selected firms may apply, and iv) direct contract allocation, where the seller is chosen directly without an auction procedure.

[36]One concern could be that state firms allocate contracts to non-connected firms that provide better incentives (incentive contracts). However, while this type of contract has become popular in the US, incentive contracts are not common in public procurement in Korea during the sample period.

Not only are the coefficients stable after including controls for observable contract characteristics that proxy for contract complexity, the controls also significantly contribute to explaining variation in contract outcomes leading to a large increase in R-squared. This suggests that they capture important aspects of contract complexity (Oster 2015). For the main specification, the point estimate is even larger and R-squared increases by almost 50% after controlling for observable contract characteristics (column V). This strongly suggests that the poor performance of contracts allocated to connected firms is not related to contract complexity.

Additionally, the results on cost increases also become slightly stronger after controlling for contract complexity (Table 10). For the main specification (column V) the point estimate is larger after controlling for observable proxies for contract complexity, while the R-squared increases by 40% compared to the baseline specification in Table 7, column V. This further strengthens the evidence that differences in contract performance are not driven by differences in contract complexity, but are due to a misallocation of contracts to connected firms.

One reason why contracts allocated to connected firms perform worse is that connections may lead to lax monitoring of connected firms. Information about the appointment date of CEOs in state firms allows direct testing for the effect of connections on ex-post performance for arguably identical contracts. Contracts allocated right *before* (the quarter before) the appointment of a connected CEO in the respective state firm are not subject to distortions in contract allocation as they are still allocated by the previous CEO. However, after the new CEO is appointed, they are executed under the influence of connectedness.[37] Examining the performance of those contracts isolates the effect of connections on ex post contract performance. Interestingly, contracts executed under the new CEO but allocated under the previous CEO do not show significant differences in contract performance compared with contracts allocated and executed under the old CEO (column VII). Adding firm fixed effects does not qualitatively affect the results (column VIII). This suggests that bad contract performance is not driven by lax monitoring of connected firms but by distortions in the allocation of contracts. Additionally, this evidence suggests that the results are not driven by differences in reporting for connected contracts, which should also apply to the set of

[37] 98.91% of all construction contracts for KOSPI firms in the public procurement system have an execution period of more than one month, 97.37% of more than two months, and 94.88% more than three months. Therefore, I consider the contracts allocated in the quarter before the connected CEO's appointment as mostly executed under the new CEO.

contracts issued under non-connected but executed under connected CEOs.

Worse contract performance could be explained by differences in initial contract design for contracts allocated to connected firms. State firm CEOs could draft more stringent contracts when allocating contracts to connected firms. This could lead to more delays and increases in construction costs ex post. From the outset it is important to note that contracts allocated through the Public Procurement Service as standardized and do not differ in their general design. Additionally, drafting contracts more stringent for connected firms makes their performance appear worse ex ante which state firm CEOs would rather want to avoid. Another concern is that state firms could trade off bad contract execution with reduced screening costs when allocating contracts to connected firms. For search costs to justify the worse contract execution documented in the paper, these costs would need to amount to 16.54–25.55% of contract value or 3,666–5,663 million Korean won for the average construction contract allocated by state firms in the sample (see Section 7.2). Moreover, excluding the first contract allocated by a given state firm to a given firm each before and after the election does not qualitatively and quantitatively affect the results. Thus, even for contracts where search costs are arguably lower (the state firms already interacted with the firm before), contracts allocated to connected firms perform significantly worse than contract allocated to non-connected firms.

6.5 Insurance against Extreme Outcomes

State firm CEOs might accept worse contact performance if they expect that connections will serve as insurance against extreme outcomes. Cases of extreme delays and increases in costs could attract public attention, which the state firm CEO wants to insure against. To examine this alternative explanation, I estimate the results on contract performance replacing the dependent variable from a dummy variable which is one if the contract exhibits adverse performance, with the number of negative events that occur during the execution of the contract. The results are gathered in Table 11. Column I shows that contracts allocated to connected firms exhibit a higher increase in adverse contract outcomes of 0.27 per contract after the election compared with contracts allocated to non-connected firms. Controlling for firm fixed effects the difference is 0.21 (column II). The effect is almost identical for the sample of contracts allocated by state firms (columns III and IV). The difference is entirely driven by contracts signed between connected CEOs (columns V to VI). The results suggest that when taking into account the severity of negative contract performance, contracts signed

between connected state and private firms perform even worse. Thus, differences in contract allocation cannot be explained by risk-aversion of state firm CEOs.

6.6 Direct Connections to the President

The president may use his network ties to state firm CEOs from the KU and HEC network to influence contract allocation toward connected firms. To check whether contract allocation is influenced directly by the president, I cross-match state firms with KU network CEOs with private firms with a CEO from the HEC network and vice versa. This cross-matching of CEOs from different networks effectively mutes the indirect network channel, while sustaining the channel of connections to the president. Columns I and II in Table 12 show that firms with a CEO from one of the president's networks experience a slightly higher increase in procurement contracts allocated by state firms with a CEO from a different one of the president's networks. However, the difference is not statistically significant. Additionally, the results in columns III and IV show that the likelihood of bad contract performance is in fact slightly lower for these contracts. This suggests that direct influence of the president on contract allocation is limited. This is also consistent with the results from the placebo test described in Section 6.2. State firms in which the president appoints a CEO from the KU network and that already had a CEO from the KU network before the election do not increase contract allocation to connected firms after the election suggesting that network connections between the private firm and the president do not significantly affect the amount of contracts allocated to these firms.

7 Private Rents from and Social Costs of Contract Misallocation

In this section, I perform a simple back of the envelope calculation that relates the rents from *additional* procurement contracts allocated to connected firms to the increase in market value in the week after Lee Myung Bak was nominated GNP candidate for the presidential election.[38] Additionally, I calculate the total costs from the negative externalities caused by the poor execution of contracts allocated to connected firms. The computations are based

[38]Comparing the rents from procurement contracts over Lee Myung Bak's presidency and the change in market valuations requires that the market's expectations regarding the benefits from political connections span the same time period. This is given in the Korean case as the president can only serve for one term.

on several simplifying assumptions and should only be viewed as rough approximations.

7.1 Rents from Changes in Contract Allocation

To compute the rents from additional procurement contracts allocated to connected firms after the election, I calculate the total value of additional contracts allocated to each connected firm over Lee Myung Bak's presidency. To control for the time-series increase in the volume of contracts allocated to all firms, I subtract the average growth rate of procurement contracts over *all* firms from connected firm's contract volume growth rate.[39] Finally, I sum the increase in contract volume over all connected firms and multiply the total contract volume with the average profit margin:

$$Profits = margin \cdot \sum_i \left(\left[\left(\frac{\Delta contract\ volume}{assets} \right)_i - \overline{\frac{\Delta contract\ volume}{assets}} \right] * assets_i \right) \quad (4)$$

where $margin$ is the average profit margin, $\left(\frac{\Delta contract\ volume}{assets}\right)_i$ is firm i's contract growth rate, $\overline{\frac{\Delta contract\ volume}{assets}}$ is the average growth rate in the sample, and $assets_i$ is firm i's total assets in 2007. In the estimate of the profit margin for public procurement contracts, I follow Bajari, Houghton, and Tadelis (2014), who estimate a median profit margin of 12.1 percent for winning bids in public procurement contracts in the US from 1999 to 2005.[40] Clearly, the computation is subject to several implicit assumptions, and is only approximate. For example, it abstracts from changes in profit margins for connected contracts and the possibility that changes in the allocation of contracts affect other operations in the firm.

To compute the total increase in firm value due to political connections, I multiply each connected firm's cumulated return in the week after Lee Myung Bak's nomination as GNP candidate, corrected for the return of non-connected firms, with the stock market capitalization on the last trading day before the election.[41] Since the value of political connections

[39] This corrects for a potential double-counting of contracts allocated from non-connected to connected firms.

[40] The contracts in Bajari, Houghton, and Tadelis (2014) are constructions contracts as are the additional contracts allocated to connected firms after Lee Myung Bak's election. According to Standard and Poor the construction industry was relatively competitive with low profit margins during that time period. This suggests that the estimate is rather conservative.

[41] Note that for stock price changes the return of non-connected firms is the correct benchmark. For firms that are not connected to either candidate the election of Lee Myung Bak over Park Geun Hae has no effect on their stock price provided that the effects of political connections would be equal for both candidates.

incorporated in stock prices is the value of political connections times the probability that firms benefit from political connections, the estimates from Table 2 underestimate the full value of political connections. Since the election was close, I assume that the market's prior expectation of the probability of Lee Myung Bak's election was 50%. Hence, I multiply the effect by two to account for the fact that the results in Table 2:

$$\Delta Market\ Value = 2 \cdot \sum_i \left([ret_i - \overline{ret^{nc}}\ ] * market\ cap_i \right) \tag{5}$$

where ret_i is firm i's return over the week after Lee Myung Bak's nomination as GNP candidate, $\overline{ret^{nc}}$ is the average return of non-connected firms in the week after Lee Myung Bak's nomination, and $market\ cap_i$ is firm i's market capitalization on the day before Lee Myung Bak's nomination.

The total increase in procurement contract volume *due to political connections* amounts to 8,331 billion won, which multiplied by the profit margin means a cumulated profit of 1,008 billion won. The increase in market value *due to political connections* amounts to 5,061 billion won for all firms. This suggests that the increase in profits from procurement contracts explains about 19.92% of the increase in politically connected firms' market value. When considering only firms that are active in the public procurement market the share is about 42.18%. Thus, rents from additional public procurement contracts constitute a significant fraction of firms' benefits from political connections.

7.2 Social Costs of Contract Misallocation

I define the social costs of contract misallocation similar to Lewis and Bajari (2011):

$$SocialCost = \sum_c \Delta\ P(delay)_c \cdot Cost\ of\ Delay_c \tag{6}$$

where c subscripts contracts, $\Delta\ P(delay)_c$ is the difference in the probability of delay for the same contract being allocated to a connected compared to a non-connected firm, and $Cost\ of\ Delay_c$ is the cost of delay. Calculating the costs generated by delays is challenging and requires several strong assumptions. Thus, the calculations in this section should be viewed as back of the envelope calculations that provide a rough proxy of the costs generated by the misallocation of government contracts to connected firms.

The data on contract amendments provides information on the probability of delays for contracts allocated to connected and non-connected firms, but does not provide information on the length and cost of delays. Thus, I collect information on the cost of delays in constructon contracts and the length of delays from other empirical studies. For a comprehensive sample of public procurement contracts in Italy with a set of contracts and average contracts size similar to the data used in this paper, D'Alpaos et al. (2013) and Guccio, Pignataro, and Rizzo (2014) provide data on the length of delays relative to contract volume, conditional on a contract being delayed. D'Alpaos et al. (2013) report average delays and average contract execution periods for six different categories of construction contracts (see Table 13, column II). I match the nineteen contract types as defined in this paper and reported in Table 8 to those six categories.

To determine the probability of delay for a contract allocated to connected firms compared with contracts allocated to non-connected firms, I follow two separate approaches. First, I use descriptive data on delays separately for all contract categories and compute the difference in the probability of delay for contracts allocated to connected and non-connected firms (Table 13, column III). Second, I estimate the contract performance regression in column VI of Table 6 for delays as the outcome variable, which yields a higher probability of delays for connected contracts of 0.5124 (column V). Next, I compute the *expected* delay relative to the initial contract length for all contract categories by multiplying the average delays with the difference in the probability of delay for connected contracts relative to contract allocated to non-connected firms (columns V and VI). For the first approach, the expected increase in delays for contracts allocated to connected firms is 18.19% of the initial contract length, for the second approach, the expected increase is 28.10% of the initial contract length.

Regarding the costs of delays, Lewis and Bajari (2011) estimate for a set of construction contracts in the U.S. that a 33% reduction in execution time reduces negative externalities by about 30% of contract value. Assuming that negative externalities are linear in the number of construction days, an 18.19% increase in the contract execution period, increases negative externalities by 16.54% of contract value, and a 28.10% increase in the construction period leads to a 25.55% increase in negative externalities. Clearly, the set of contracts in Lewis and Bajari (2011) is not identical to the contracts allocated to connected firms after Lee Myung Bak's election and externalities might differ between the U.S. and Korea. Thus, the numbers should only be seen as rough estimates for the costs of delays in this paper.

The total amount of *additional* contracts allocated to connected firms, that is contracts

above the average growth rate in contract volume for all firms in the sample, after Lee Myung Bak's election makes up for 9.90% of total public procurement contract volume. In 2013, total public procurement accounts for about 12.8% of GDP in Korea (OECD 2015). Thus, the total value of additional contracts allocated to connected firms is equivalent to 1.27% of GDP. Given the estimated 16.54–25.55% of contract value in negative externalities, the total amount of negative externalities therefore amounts to about 0.21–0.32% of annual GDP. This estimate is likely to be conservative for several reasons. First, in this paper, I identify firms connected to the president through two networks (KU and HEC). Most likely, there are firms connected through other networks on which data is not available. Second, the misallocation of contracts to connected firms also increases the cost of construction (see Table 7). Third, the misallocation of contracts may introduce additional negative externalities, for example by distorting competition.

8 Allocation in Private Markets

This section provides evidence that changes in political power also affect the allocation of resources in private markets. Although the Korean president has no direct legal power to decide appointments of executives in private firms, Lee Myung Bak's election has an indirect impact on private firms' appointments. Under Lee Myung Bak the number of ministers, chief political advisors, chief prosecutors and state firm CEOs from his networks increases sharply. This also affects the equilibrium in private labor markets. In an effort to increase their connectedness to the administration, financial firms appoint executives from the new president's networks, including a large number of KU alumni, after the election.[42] There is no appointment of a former HEC network member in any of the financial conglomerates, as HEC network members are typically engineers, who tend not to be employed in the finance industry.

8.1 Access to Finance

Column I in Table 14 shows that in the three years after the election the bank loans to assets ratio of firms connected to the KU network increases by 3.56 percentage points relative to non-connected firms. One explanation for this effect is that banks are more willing to lend to

[42]Edaily, March 20, 2012, "4 years of MB government change the power map of finance".

firms connected to the KU network as their political connections make them higher quality borrowers, for example because they are more likely to be bailed out by the government (Faccio, Masulis, and McConnell 2006). Firms connected to the HEC network provide a control group for assessing this alternative explanation. They also benefit from political connections after the election, but do not experience an increase in connections to financial firms. While firms connected to the HEC network experience an increases in their bank loans to assets ratio of 0.56 percentage points more than non-connected firms (column II), the increase is significantly lower than for firms connected to the KU network (column III). Columns IV and V show that KU network firms do not generally perform better after the election compared with HEC network firms. Instead, firms connected to the HEC network grow faster than firms connected to the KU network, and experience a higher increase in market values after Lee Myung Bak's nominaton (Table 2).

8.2 Cost of Credit

Next, I examine changes in the cost of credit. Since contract-level data on bank loans is not available, I approximate interest rates by dividing total interest expenses by total firm debt. Since firms may not obtain all loans from banks that appoint a CEO or board members from the KU network after the election, any observed changes should be a lower bound for the real effects.[43] Table 15 depicts changes in interest rates after the election. Firms connected to the KU network experience a decrease in the cost of credit by 58 basis points relative to non-connected firms in the three years after the election compared with the three years before (column I). Controlling for profitability, cash holdings and leverage, the relative decrease in interest rates is slightly stronger with 65 basis points (column II). For firms connected to the HEC network, there is no significant change in interest rates after the election (columns III and IV).

[43]While the official state bank share is around 29% during the sample period, this includes Woori Bank and Nonghyub Bank. Together, these banks have a market share of 19%. Despite partial government ownership, they operate independently, without government influence (S&P Banking Industry Risk Assessment: Korea 2011). Thus, the aggregate share of state bank lending in total lending is only around 10% during the sample period (and is even lower for the large KOSPI firms in the sample).

8.3 Allocation of Credit

Connections between banks and firms may improve the allocation of credit by improving screening and monitoring, or lead to a misallocation of credit due to favorable treatment of connected firms. To differentiate between these alternative mechanisms, I examine changes in the relationship between firm risk and the cost of credit in Table 16. Interest rates should be higher for firms that are more likely to default over the next twelve months.[44] For the full sample, this relationship is strong and persistent before and after the election (columns I and II). While the relationship between firm risk and the cost of credit holds for non-connected firms (columns III and IV), for firms connected to the KU network the relationship is only positively significant before the election (column V). After the election the relationship disappears almost completely (column VI). For firms connected to the HEC network, the relationship between firm risk and interest rates does not change after the election (columns VII and VIII).

It could be that financial firms are able to gather more soft information on firms connected to the KU network and therefore put a lower weight on hard information in determining interest rates. A graphical depiction of the distribution of interest rates in Figure 5 suggests that this interpretation of the results is unlikely. The left plot shows that for non-connected firms the distribution of interest rates is similar after the election (black line), compared with the period before the election (gray line). In contrast, there is a clear leftward shift in the distribution of interest rates for firms connected to the KU network. In particular, the dispersion in interest rates is much lower after the election for firms connected to the KU network. This reduction in dispersion is inconsistent with better acquisition of soft information. Better information acquisition should lead to more dispersed interest rates as it allows banks to better differentiate between good and bad borrowers. For dispersion in interest rates to significantly decrease after the election as depicted in Figure 5, soft information would need to be strongly negatively correlated with hard information.

Finally, Figure 6 shows that for non-connected firms (left panel), the distribution of default risk is almost identical before and after the election. In contrast, for KU network firms (middle panel), default risk is higher and more dispersed after the election. This suggests that lower interest rates cannot be explained by an observable reduction in default risk for firms connected to the KU network. Altogether, the evidence from the financial

[44] I estimate an annual probability of default from the default risk model in Campbell, Hilscher, and Szilagyi (2008).

sector suggests that political connections, by affecting allocations in private markets, have a larger economic impact on the allocation of resources in the economy than the existing literature suggests.

9 Conclusion

This paper provides evidence that political connections are associated with allocative distortions. After his election as President of Korea, Lee Myung Bak appoints people from his networks to important positions in the administration (ministers, chief political advisors, chief prosecutors, state firm CEOs). This provides people from his networks with increased control over the allocation of government resources. Private firms connected to the president's networks experience a higher increase in public procurement contract volume relative to non-connected firms after the election. The increase in contract volume in driven by contracts allocated through state firms in which the new president appoints a CEO from the same network as the private firm's CEO. Contracts allocated to connected firms are executed worse, suggesting a misallocation of contracts to connected firms. The costs of this misallocation are significant. Back of the envelope calculations suggest that each dollar in contract value transferred from non-connected to connected firms leads to a cost of 17–26 cents to the economy. The total costs of contract misallocation amount to 0.21–0.32% of annual GDP.

In addition to the increase in control over government resources, people from the president's network also experience an increase in the control over the allocation of resources in the private sector. Seeking connections to the new administration, financial conglomerates appoint executives with connections to the new president. Following the appointment of connected CEOs in private financial firms, non-financial firms connected to the same network experience better access to credit and pay lower interest rates after the election. Interest rates charged to connected firms no longer reflect the riskiness of connected firms after the election, suggesting that connected firms benefit from favorable treatment.

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Table 1: **Descriptive Statistics**

Panel A: Balance Sheet Data (million Korean won)	Obs.	Mean	Std.
Total Assets			
Full Sample	1605	3197	11636
Connected Firms	156	3712	13279
Non-connected Firms	1449	3141	11449
Sales			
Full Sample	1597	1834	5379
Connected Firms	153	1702	3629
Non-connected Firms	1444	1848	5533
ROA			
Full Sample	1601	0.0300	0.0622
Connected Firms	156	0.0323	0.0507
Non-connected Firms	1445	0.0298	0.0634
Net Investment			
Full Sample	1444	0.0443	0.0658
Connected Firms	137	0.0585	0.0666
Non-connected Firms	1307	0.0428	0.0656
Loans/Assets			
Full Sample	1302	0.0380	0.0482
Connected Firms	122	0.0379	0.0379
Non-connected Firms	1180	0.0380	0.0492

Panel B: CEO Data (1924 CEOs)	
Seoul National University	465
Yonsei University	219
Korea University	214
Hanyang University	144
Sungkyunkwan University	97
Chung-Ang University	52
Connected CEOS (at event date):	100 (61)
Korea University	66 (41)
Hyundai Engineering & Construction	34 (20)

Panel C: Firm Connections				
Sample	Full	Contracts	State Firm Contracts	Construction Contracts
Firms	630	368	195	80
Non-connected	571	328	164	59
Connected	59	40	31	21
Korea University (KU)	40	25	19	11
Hyundai Engineering & Construction (HEC)	19	15	12	10

Panel D: Procurement Contracts (million Korean won)	Obs.	Mean	Std.
Total Contracts	43454	6316	61917
from state firms	3519	11354	34553
Construction Contracts	10781	10031	31601
from state firms	1729	22171	46746
Goods Contracts	19941	8001	88059
from state firms	1269	865	4023
Service Contracts	12476	509	6728
from state firms	510	1021	3349
Commodities Contracts	207	1903	2869
from state firms	0	-	-
Lease Contracts	49	311	523
from state firms	11	92	185

Panel A of this table provides descriptive statistics for important accounting variables for the pre-election period (2004-2006), separately for the full sample, the sample of firms connected to one of Lee Myung Bak's networks, and the sample of non-connected firms. Panel B provides information on the number of CEOs in the sample, on the number of graduates from universities that have at least 50 graduates among the CEOs in the sample, and on the number of CEOs connected to one of Lee Myung Bak's networks (Korea University Business Administration graduates, former Hyundai Engineering and Construction executives). Panel C gives an overview of the number of sample firms, and the number of firms connected to Lee Mung Bak's networks for the different subsamples – the sample of firms with procurement contract data, the sample of firms that sign contracts with state firms, and the sample of firms signing a construction-related contract. Panel D lists data on public procurement contracts allocated to KOSPI firms during the sample period.

Table 2: **Stock Returns Around the Dokokdong Land Scandal and the GNP Candidate Nomination**

Panel A:	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
	Full Sample		KU		HEC		Full Sample				Long Connected	
Dep.Var.: ret_i	(0)	(0,1)	(0)	(0,1)	(0)	(0,1)	(0)	(0,1)	(0)	(0,1)	(0)	(0,1)
$connected_i$	-0.0241***	-0.0293***	-0.0178**	-0.0234**	-0.0374***	-0.0417***	-0.0259***	-0.0287***	-0.0237***	-0.0311***	-0.0261***	-0.0316***
	(0.0065)	(0.0080)	(0.0078)	(0.0096)	(0.0111)	(0.0137)	(0.0064)	(0.0081)	(0.0084)	(0.0104)	(0.0083)	(0.0104)
Controls	no	no	no	no	no	no	yes	yes	no	no	yes	yes
Observations	626	626	607	607	586	586	626	626	601	601	601	601
R-squared	0.022	0.021	0.009	0.010	0.019	0.016	0.137	0.096	0.013	0.015	0.126	0.095
Panel B:	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
	Full Sample		KU		HEC		Full Sample				Long Connected	
Dep. Var.: ret_i	(0)	(0,4)	(0)	(0,4)	(0)	(0,4)	(0)	(0,4)	(0)	(0,4)	(0)	(0,4)
$connected_i$	0.0221***	0.0445***	0.0150**	0.0276**	0.0370***	0.0801***	0.0204***	0.0417***	0.0202**	0.0466***	0.0200***	0.0418***
	(0.0061)	(0.0106)	(0.0073)	(0.0124)	(0.0104)	(0.0181)	(0.0060)	(0.0107)	(0.0079)	(0.0136)	(0.0076)	(0.0137)
Controls	no	no	no	no	no	no	yes	yes	no	no	yes	yes
Observations	626	626	607	611	586	586	626	626	601	601	601	601
R-squared	0.021	0.028	0.007	0.008	0.021	0.033	0.158	0.104	0.011	0.019	0.154	0.096

This table reports cumulated log returns for KOSPI firms, excluding firms connected to Park Geun Hae. Panel A reports returns on the day after the prosecutor's office announcement related to Lee Myung Bak's potential involvement in the Dokokdong Land Scandal in columns marked (0), and the two days after the announcement in columns marked (0,1). Panel B reports returns on the day after the Grand National Party's election of its presidential candidate in columns marked (0), and the week after the election in columns marked (0,4). The dummy variable $connected_i$ indicates whether a firm's CEO is connected to one of the president's networks. Columns I, II, VII, and VIII show the results for the full sample. In columns III and IV the set of connected firms is reduced to the firms connected to the KU network, and in columns V and VI to firms connected to the HEC network. Columns IX to XII drop firms that appoint a CEO connected to either of the networks within the three years before the election. Columns VII, VIII, XI, and XII control for industry fixed effects and the log of firms' market capitalization. Standard errors are reported in parentheses. ***, and ** indicate statistical difference from zero at the 1%, and the 5% levels respectively.

Table 3: **Real Effects**

	I	II	III	IV
Dep. Var.:	$log(assets)_{it}$	$log(sales)_{it}$	$log(investment)_{it}$	$\left(\frac{loans}{assets}\right)_{it}$
$connected_i * event_t$	0.1411***	0.1682***	0.4211*	0.0243***
	(0.0530)	(0.0594)	(0.2384)	(0.0085)
Firm FE	yes	yes	yes	yes
Year FE	yes	yes	yes	yes
Clustered SE	firm	firm	firm	firm
Observations	3302	3286	2970	2685
R-squared	0.980	0.972	0.867	0.498

This table reports changes in firm characteristics around Lee Myung Bak's election. The dummy variable $connected_i$ takes the value of one for firms connected to one of the president's networks through their CEO, and zero for other firms. The variable $event_t$ is zero for the pre-election period (2005-2007), and one for the post-election period (2009-2011). All regressions include firm and year fixed effects. Standard errors are clustered at the firm level and reported in parentheses. ***, and * denote statistical significance at the 1%, and 10% confidence levels, respectively.

Table 4: **Procurement Contract Allocation**

	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIV
	All Firms		Firms with State Firm Contracts											
Dep. Var.:	$\left(\frac{\Delta \ contract \ volume}{assets}\right)_i$		$\left(\frac{\Delta \ contract \ volume}{assets}\right)_{ij}$								$\left(\frac{\Delta \ contract \ volume}{assets}\right)_{ijk}$			
	Full Sample	Long Connected	Full Sample				Long Connected				Full Sample		Long Connected	
$connected_i$	0.0303***	0.0347***	0.0012***				0.0015**							
	(0.0071)	(0.0098)	(0.0004)				(0.0007)							
$connected\ state_j$			0.0003**	0.0002			0.0003*	0.0002						
			(0.0002)	(0.0002)			(0.0002)	(0.0002)						
$connected\ relationship_{ij}$			0.0033**	0.0039**	0.0039**	0.0036**	0.0041*	0.0046*	0.0045*	0.0046**	0.0014*	0.0013*	0.0019	0.0018*
			(0.0015)	(0.0018)	(0.0018)	(0.0016)	(0.0021)	(0.0024)	(0.0024)	(0.0024)	(0.0008)	(0.0007)	(0.0012)	(0.0010)
Firm FE	-	-	no	yes	yes	yes	no	yes	yes	yes	yes	yes	yes	yes
State Firm FE	-	-	no	no	yes	-	no	no	yes	-	-	-	-	-
State Firm*Industry FE	-	-	no	no	no	yes	no	no	no	yes	no	no	no	no
State Firm*Contract Type FE	-	-	no	no	no	no	no	no	no	no	coarse	granular	coarse	granular
Clustered SE	-	-	firm	firm	firm	firm	firm	firm	firm	firm	firm	firm	firm	firm
Observations	630	605	3935	3935	3935	3935	3690	3690	3690	3690	5147	4670	4670	4199
R-squared	0.028	0.021	0.023	0.096	0.145	0.264	0.019	0.086	0.130	0.242	0.246	0.269	0.250	0.283

This table reports the results on the estimation of changes in procurement contract volume (equations (1) and (2)). In columns I and II the dependent variable is the difference between a firm's total procurement contract volume in the post-election period (2008 Q2-2011 Q4) and its total contract volume in the pre-election period (2004 Q3-2008 Q1), scaled by firm assets in the year of Lee Myung Bak's election. In columns III to X the dependent variable is the change in total contract value from state firm j to private firm i. In columns XI to XIV the dependent variable is the change in contract volume for contract type k from state firm j to private firm i. The variable $connected_i$ takes the value of one if firm i is connected to one of Lee Myung Bak's networks, and zero otherwise, $connected\ state_j$ takes the value of one if Lee Myung Bak appoints a CEO from one of his networks at state firm j after his election, and zero otherwise. The variable $connected\ relationship_{ij}$ is one if the CEO of firm i and the newly appointed CEO of state firm j are from the same one of Lee Myung Bak's networks. In columns III to XIV the sample is limited to firms that sign at least one contract with a state firm during the sample period. Columns labeled "Long Connected" drop firms that appoint a connected CEO during the three years before the election. Information on fixed effects and clustering of standard errors is provided at the bottom of the table. Standard errors are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% confidence levels, respectively.

Table 5: **Procurement Contract Allocation - Placebo Test**

	I	II	III
Dep. Var.:	$\left(\frac{\Delta \ contract \ volume}{assets}\right)_{ij}$		
$connected_i$	-0.0000		
	(0.0003)		
$pre\ connected\ state_j$	-0.0002	-0.0005**	
	(0.0001)	(0.0002)	
$pre\ connected\ relationship_{ij}$	-0.0002	-0.0002	-0.0003
	(0.0003)	(0.0004)	(0.0004)
Firm FE	no	yes	yes
State Firm FE	no	no	yes
Clustered SE	firm	firm	firm
Observations	2839	2839	2839
R-squared	0.000	0.070	0.115

This table reports the results on the estimation of changes in procurement contract volume for the subsample of contracts issued by state firms. The dependent variable is the difference between firm i's total procurement contract volume from state firm j in the post-election period (2008 Q2-2011 Q4) and the pre-election period (2004 Q3-2008 Q1), scaled by firm assets. The variable $connected_i$ takes the value of one if firm i is connected to the KU network, and zero otherwise. The variable $pre\ connected\ state_j$ takes the value of one if Lee Myung Bak appoints a CEO from the KU network at state firm j after his election and the state firm also had a CEO from the KU network before his election, and zero otherwise. The variable $pre\ connected\ relationship_{ij}$ is one if the CEO of firm i is from the KU network and state firm j has a CEO from the KU network before and after the election. Contracts from state firms where the president appoints a CEO from one of his networks and that had no CEO from the respective network before the election are dropped from the sample. Information on fixed effects and clustering of standard errors is provided at the bottom of the table. Standard errors are reported in parentheses. ** denotes statistical significance at the 5% confidence level.

Table 6: **Contract Performance - Execution**

	I	II	III	IV	V	VI
Dep. Var.: $outcome_c$	All Contracts		State Firm Contracts			
$event_t$	0.0992**	0.1178***	-0.0634	-0.0476	-0.3487*	
	(0.0457)	(0.0262)	(0.0626)	(0.0582)	(0.1783)	
$connected_i$	-0.0233		0.0196			
	(0.0520)		(0.1169)			
$event_t * connected_i$	0.1148**	0.0878**	0.2055*	0.1675	0.0625	
	(0.0547)	(0.0395)	(0.1085)	(0.1173)	(0.1122)	
$connected\ state_j$					-0.0250	
					(0.1864)	
$event_t * connected\ state_j$					0.4310**	
					(0.1837)	
$connected\ relationship_{ij}$					-0.2851	-0.2783
					(0.1819)	(0.1857)
$event_t * connected\ relationship_{ij}$					0.4050**	0.4374*
					(0.1676)	(0.2259)
Firm FE	no	yes	no	yes	yes	-
Firm*Event FE	no	no	no	no	no	yes
State Firm*Event FE	no	no	no	no	no	yes
Clustered SE	firm	firm	firm	firm	firm	firm
Observations	10754	10754	1728	1728	1728	1728
R-squared	0.024	0.137	0.041	0.176	0.297	0.482

This table reports the results concerning contract performance (equation (3)). The dependent variable $outcome_c$ takes the value of one if contract c exhibits bad performance, and zero otherwise. The variable $event_t$ takes the value of one for the post-election period (2008 Q2-2011 Q4), and zero for the pre-election period (2004 Q3-2008 Q1). The variable $connected_i$ takes the value of one for firms connected to one of Lee Myung Bak's networks, and zero otherwise. The variable $connected\ state_j$ takes on the value of one if Lee Myung Bak appoints a member of one of his networks as the CEO of state firm j, and zero otherwise. The variable $connected\ relationship_{ij}$ takes the value of one if the CEO of firm i, and the newly appointed CEO of state firm j are from the same one of Lee Myung Bak's networks, and zero otherwise. In columns III to VI the sample is reduced to contracts allocated by state firms. Information on fixed effects is provided at the bottom of the table. Standard errors are reported in parentheses and clustered at the firm level. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Table 7: **Contract Performance - Costs**

	I	II	III	IV	V	VI
Dep. Var.: $outcome_c$	All Contracts		State Firm Contracts			
$event_t$	-0.0009	0.0257**	-0.0847	-0.1187**	-0.2289**	
	(0.0111)	(0.0119)	(0.0538)	(0.0575)	(0.1042)	
$connected_i$	0.0027		-0.0668			
	(0.0162)		(0.0927)			
$event_t * connected_i$	0.0519***	0.0330*	0.1912**	0.1742*	0.1101	
	(0.0169)	(0.0176)	(0.0878)	(0.1043)	(0.1089)	
$connected\ state_j$					0.0495	
					(0.0994)	
$event_t * connected\ state_j$					0.1802*	
					(0.1042)	
$connected\ relationship_{ij}$					-0.1250	-0.1695*
					(0.1293)	(0.1006)
$event_t * connected\ relationship_{ij}$					0.2151*	0.2772**
					(0.1122)	(0.1118)
Firm FE	no	yes	no	yes	yes	-
Firm*Event FE	no	no	no	no	no	yes
State Firm*Event FE	no	no	no	no	no	yes
Clustered SE	firm	firm	firm	firm	firm	firm
Observations	10754	10754	1728	1728	1728	1728
R-squared	0.009	0.059	0.022	0.125	0.190	0.306

This table reports the results concerning changes in contract volume after contract allocation. The dependent variable $outcome_c$ takes the value of one if construction costs increase for contract c, and zero otherwise. The variable $event_t$ takes the value of one for the post-election period (2008 Q2-2011 Q4), and zero for the pre-election period (2004 Q3-2008 Q1). The variable $connected_i$ takes the value of one for firms connected to one of Lee Myung Bak's networks, and zero otherwise. The variable $connected\ state_j$ takes the value of one if Lee Myung Bak appoints a member of one of his networks as the CEO of state firm j, and zero otherwise. The variable $connected\ relationship_{ij}$ takes the value of one if the CEO of firm i, and the newly appointed CEO of state firm j are from the same of Lee Myung Bak's networks, and zero otherwise. In columns III to VII the sample is reduced to contracts allocated by state firms. Information on fixed effects is provided at the bottom of the table. Standard errors are reported in parentheses and clustered at the firm level. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Table 8: **Contract Complexity and Performance**

State Firm Contracts		Obs.	Bad Performance	Cost Increase
Panel A: *Construction Complexity*	Low	696	0.1739	0.0675
	Medium	566	0.4912	0.2191
	High	466	0.6245	0.3047
Panel B: *Construction Type*	Road	418	0.1148	0.0335
	Site Work	320	0.5844	0.2688
	Landscape Work	283	0.5780	0.2403
	Utilities	226	0.3717	0.2434
	Other Real Estate	156	0.4487	0.2756
	Harbor	76	0.6974	0.2632
	Electricity	63	0.3175	0.0794
	Other	40	0.3250	0.0000
	Railway	35	0.0571	0.0000
	IT & Communication	28	0.3929	0.2500
	Education	16	0.9375	0.5000
	Small Appliances	15	0.0000	0.0000
	Bridge	13	0.3846	0.1538
	Wall Construction	11	0.7273	0.4545
	Health Care	7	0.8571	0.0000
	Storage	7	0.4286	0.0000
	Airport	6	0.0000	0.0000
	Demolition & Disposal	6	0.3333	0.0000
	Transportation	2	0.0000	0.0000
Panel C: *Contract Size*	Bottom Quartile	433	0.2818	0.0277
	Second Quartile	431	0.3643	0.1647
	Third Quartile	433	0.4042	0.2032
	Top Quartile	431	0.5476	0.3295
Panel D: *Contract Allocation Method*	No Auction	454	0.2137	0.0154
	Regular Auction	392	0.2959	0.2015
	Limited Auction	852	0.5599	0.2664
	Pre-Selected Auction	30	0.0000	0.0000

This table provides information about the likelihood of negative contract outcomes and cost increases for all state firm contracts at different levels of complexity. In Panel A, contracts are split into three categories of contract complexity based on the description in the respective contract, in Panel B, contracts are separated according to the type of construction. In Panel C contracts are split into four quartiles of contract size. In Panel D contracts are split into categories according to the contract allocation method.

Table 9: **Contract Performance - Execution - Differences in Contracts**

	I	II	III	IV	V	VI	VII	VIII
Dep. Var.: $outcome_c$	All Contracts		State Firm Contracts					
$connected_i$	-0.0087		-0.0420				-0.0356	
	(0.0318)		(0.1049)				(0.1154)	
$event_t * connected_i$	0.0590**	0.0612**	0.1719*	0.1442	0.0559		0.2986**	0.7935***
	(0.0276)	(0.0300)	(0.1037)	(0.1192)	(0.1238)		(0.1467)	(0.2088)
$connected\ state_j$					-0.0665			
					(0.1718)			
$event_t * connected\ state_j$					0.2254			
					(0.1798)			
$connected\ relationship_{ij}$					-0.3524*	-0.3420*	-0.1371	-0.5138**
					(0.1943)	(0.1895)	(0.1742)	(0.2165)
$event_t * connected\ relationship_{ij}$					0.4531**	0.5057**	0.0036	0.0221
					(0.1829)	(0.2318)	(0.2549)	(0.2952)
Firm FE	no	yes	no	yes	yes	-	no	yes
State Firm FE	no	no	no	no	no	-	yes	yes
Firm*Event FE	no	no	no	no	no	yes	no	no
State Firm*Event FE	no	no	no	no	no	yes	no	no
Controls	yes	yes	yes	yes	yes	yes	yes	yes
Clustered SE	firm	firm	firm	firm	firm	firm	firm	firm
Observations	10754	10754	1728	1728	1728	1728	330	330
R-squared	0.164	0.231	0.350	0.432	0.445	0.523	0.424	0.642

This table reports results concerning contract performance (equation (3)). The dependent variable $outcome_c$ takes the value of one if contract c exhibits bad performance, and zero otherwise. The variable $event_t$ takes the value of one for the post-election period (2008 Q2-2011 Q4), and zero for the pre-election period (2004 Q3-2008 Q1). The variable $connected_i$ takes the value of one if firm i is connected to one of Lee Myung Bak's networks, and zero otherwise. The variable $connected\ state_j$ takes the value of one if Lee Myung Bak appoints a member of one of his networks as the CEO of state firm j, and zero otherwise, $connected\ relationship_{ij}$ takes the value of one if the CEO of firm i, and the newly appointed CEO of state firm j are from the same one of Lee Myung Bak's networks, and zero otherwise. Controls comprise the log of contract value, dummies for the contract allocation method, contract allocation month fixed effects, dummies for the type of construction, and three dummies for different categories of construction complexity based on text-based analysis. In columns III to VIII the sample is reduced to contracts issued by state firms. In columns VII and VIII the sample is reduced to contracts allocated before the CEO appointment from state firms in which Lee Myung Bak appoints a CEO from the KU and HEC network. The $event_t$ dummy takes the value of one for contracts allocated in the quarter before the appointment of the KU or HEC network CEO in the state firm, and zero for contracts allocated more than one quarter before the appointment. Information on fixed effects is provided at the bottom of the table. Standard errors are reported in parentheses and clustered at the firm level. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Table 10: **Contract Performance - Costs - Differences in Contracts**

	I	II	III	IV	V	VI
Dep. Var.: $outcome_c$	All Contracts		State Firm Contracts			
$connected_i$	-0.0004		-0.0996			
	(0.0127)		(0.0682)			
$event_t * connected_i$	0.0302*	0.0245	0.1778**	0.1431	0.0676	
	(0.0172)	(0.0200)	(0.0712)	(0.0887)	(0.0848)	
$connected\ state_j$					-0.0023	
					(0.0938)	
$event_t * connected\ state_j$					0.0929	
					(0.1043)	
$connected\ relationship_{ij}$					-0.1743	-0.1226
					(0.1150)	(0.0892)
$event_t * connected\ relationship_{ij}$					0.2972***	0.2461**
					(0.1125)	(0.0956)
Firm FE	no	yes	no	yes	yes	-
Firm*Event FE	no	no	no	no	no	yes
State Firm*Event FE	no	no	no	no	no	yes
Controls	yes	yes	yes	yes	yes	yes
Clustered SE	firm	firm	firm	firm	firm	firm
Observations	10754	10754	1728	1728	1728	1728
R-squared	0.084	0.111	0.185	0.242	0.265	0.342

This table reports results concerning contract performance (equation (3)). The dependent variable $outcome_c$ takes the value of one if construction costs increase for contract c, and zero otherwise. The variable $event_t$ takes the value of one for the post-election period (2008 Q2-2011 Q4), and zero for the pre-election period (2004 Q3-2008 Q1). The variable $connected_i$ takes the value of one if firm i is connected to one of Lee Myung Bak's networks, and zero otherwise. The variable $connected\ state_j$ takes the value of one if Lee Myung Bak appoints a member of one of his networks as the CEO of state firm j, and zero otherwise, $connected\ relationship_{ij}$ takes the value of one if the CEO of firm i, and the newly appointed CEO of state firm j are from the same one of Lee Myung Bak's networks, and zero otherwise. Controls comprise the log of contract value, dummies for the contract allocation method, contract allocation month fixed effects, dummies for the type of construction, and three dummies for different categories of construction complexity based on text-based analysis. In columns III to VII the sample is reduced to contracts issued by state firms. Information on fixed effects is provided at the bottom of the table. Standard errors are reported in parentheses and clustered at the firm level. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Table 11: **Contract Performance - Multiple Negative Events**

	I	II	III	IV	V	VI
Dep. Var.: *outcome intensity*$_c$	All Contracts		State Firm Contracts			
event$_t$	0.2037**	0.2793***	-0.0094	-0.0071	-0.4693	
	(0.0895)	(0.0610)	(0.1499)	(0.1220)	(0.3596)	
connected$_i$	-0.0111		0.1421			
	(0.0695)		(0.3703)			
event$_t$ $*$ *connected*$_i$	0.2659**	0.2111**	0.5337	0.2899	-0.0009	
	(0.1121)	(0.0918)	(0.3530)	(0.3903)	(0.4418)	
connected state$_j$					0.2579	
					(0.3801)	
event$_t$ $*$ *connected state*$_j$					0.7750**	
					(0.3852)	
connected relationship$_{ij}$					-0.6942	-0.6908**
					(0.4652)	(0.2922)
event$_t$ $*$ *connected relationship*$_{ij}$					0.9973*	0.8570**
					(0.5546)	(0.4378)
Firm FE	no	yes	no	yes	yes	-
Firm*Event FE	no	no	no	no	no	yes
State Firm*Event FE	no	no	no	no	no	yes
Clustered SE	firm	firm	firm	firm	firm	firm
Observations	10754	10754	1728	1728	1728	1728
R-squared	0.032	0.130	0.066	0.233	0.362	0.735

This table reports results concerning procurement contract performance (equation (3)). The dependent variable *outcome intensity*$_c$ takes on the number of adverse events that occur during the execution of contract c. The variable *event*$_t$ takes the value of one for the post-election period (2008 Q2-2011 Q4), and zero for the pre-election period (2004 Q3-2008 Q1), *connected*$_i$ takes the value of one if firm i is connected to one of Lee Myung Bak's networks, and zero otherwise. The variable *connected state*$_j$ takes the value of one if Lee Myung Bak appoints a member of one of his networks as the CEO of state firm j, and zero otherwise. The variable *connected relationship*$_{ij}$ takes the value of one if the CEO of firm i, and the newly appointed CEO of state firm j are from the same one of Lee Myung Bak's networks, and zero otherwise. In columns IV to VI the sample is reduced to contracts issued by state firms. Information on fixed effects is provided at the bottom of the table. Standard errors are reported in parentheses and clustered at the firm level. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Table 12: **Direct Connections to the President**

	I	II	III	IV
Dep. Var.:	Contract Allocation $\left(\frac{\Delta \ contract \ volume}{assets}\right)_{ij}$		Contract Performance $outcome_c$	
$connected\ state_j$	0.0004**		-0.1376	
	(0.0002)		(0.2155)	
$cross\ relationship_{ij}$	0.0011	0.0008	0.2106	
	(0.0017)	(0.0017)	(0.2295)	
$event_t$			-0.4603**	-0.5493
			(0.2068)	(0.3949)
$event_t * connected_i$			0.2758	0.4370
			(0.2016)	(0.2671)
$event_t * connected\ state_j$			0.5512**	0.5810
			(0.2186)	(0.3942)
$event_t * cross\ relationship_{ij}$			-0.1473	-0.3289
			(0.2270)	(0.2860)
Firm FE	yes	yes	yes	-
State Firm FE	no	yes	no	-
Firm*State Firm FE	no	no	no	yes
Clustered SE	firm	firm	firm	firm
Observations	3935	3935	1728	1728
R-squared	0.088	0.136	0.293	0.544

This table reports results concerning the allocation and the performance of procurement contracts. The dependent variable in columns I and II is the change in procurement contracts allocated from state firm j to firm i, scaled by firm i's assets, from the pre-election (2004 Q3-2008 Q1) to the post-election period (2008 Q2-2011 Q4). The dependent variable in columns III and IV takes the value of one if contract c exhibits bad performance, and zero otherwise. The variable $event_t$ takes the value of one for the post-election period, and zero for the pre-election period. The variable $connected_i$ takes the value of one if firm i is connected to one of Lee Myung Bak's networks, and zero otherwise. The variable $connected\ state_j$ takes the value of one if Lee Myung Bak appoints a member of one of his networks as the CEO of state firm j, and zero otherwise. The variable $cross\ relationship_{ij}$ takes on the value of one if the CEO of firm i, and the newly appointed CEO of state firm j are from *different* ones of Lee Myung Bak's networks, and zero otherwise. Information on fixed effects is provided at the bottom of the table. Standard errors are reported in parentheses and clustered at the firm level. ** indicates statistical significance at the 5% level.

Table 13: **Delays**

Construction Type	Matched Categories	I Contracts	II Delay/ Contract Length	III Δ Delay	IV Δ Delay	V $E\left(\text{Delay/ Contract Length}\right)$	VI $E\left(\text{Delay/ Contract Length}\right)$
Buildings	Other Real Estate Education Health Care	179	0.4353	0.1282	0.5124	0.0558	0.2230
Railways	Railway	35	0.3014	0.9394	0.5124	0.2831	0.1544
Infrastructure	Utilities Harbor Electricity IT & Communication Bridge Storage Airport Transportation	421	0.4897	0.3118	0.5124	0.1527	0.2509
Environment	Site Work Landscape Work	603	0.5242	0.1424	0.5124	0.0746	0.2686
Roads	Road	418	0.7399	0.5823	0.5124	0.4308	0.3791
Other	Other Small Appliances Wall Construction Demolition & Disposal	72	0.3832	0.1824	0.5124	0.0699	0.1964

This table reports data on contract delays. Column I lists the number of contracts in each construction category in the sample. Column II lists the average length of delays for each construction type, taken from D'Alpaos et al. (2013). Columns III and IV report the increase in the probability of delays for contracts allocated to connected compared with non-connected firms from descriptive data in column III and estimated from equation (3) in column IV. Columns V and VI list the expected delay relative to initial contract length for each construction type, which is the product of columns II and III in column V, and the product of columns II and IV in column VI.

Table 14: **Access to Finance**

	I	II	III	IV	V
Dep. Var.:	$\left(\frac{loans}{assets}\right)_{it}$			$log(assets)_{it}$	$log(sales)_{it}$
	KU	HEC	Full Sample	Full Sample	
$connected_i * event_t$	0.0356***	0.0056	0.0356***	0.0863	0.1025
	(0.0112)	(0.0106)	(0.0112)	(0.0639)	(0.0663)
$connected_i * event_t * HEC_i$			-0.0301**	0.1653*	0.2032*
			(0.0151)	(0.0951)	(0.1186)
Firm FE	yes	yes	yes	yes	yes
Year FE	yes	yes	yes	yes	yes
Clustered SE	firm	firm	firm	firm	firm
Observations	2593	2527	2685	3302	3286
R-squared	0.497	0.497	0.499	0.980	0.972

This table reports changes in firm characteristics after Lee Myung Bak's election. The dummy variable $connected_i$ takes the value of one for firms connected to the president's networks, and zero for other firms. The dummy variable HEC_i takes the value of one if the firm is connected to the HEC network, and zero otherwise. The variable $event_t$ is zero for the pre-election period and one for the post-election period. Columns labeled 'KU' drop firms connected to the HEC network, and columns labeled 'HEC' drop firms connected to the KU network. All regressions include firm and year fixed effects. Standard errors are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% confidence levels, respectively.

Table 15: **Cost of Capital**

	I	II	III	IV
Dep. Var: IR_{it}	KU		HEC	
$KU_i * event_t$	-0.0059*	-0.0065**		
	(0.0032)	(0.0033)		
$HEC_i * event_t$			-0.0001	-0.0011
			(0.0053)	(0.0046)
Firm FE	yes	yes	yes	yes
Year FE	yes	yes	yes	yes
Controls	no	yes	no	yes
Clustered SE	firm	firm	firm	firm
Observations	4068	3849	3923	3717
R-squared	0.580	0.608	0.577	0.605

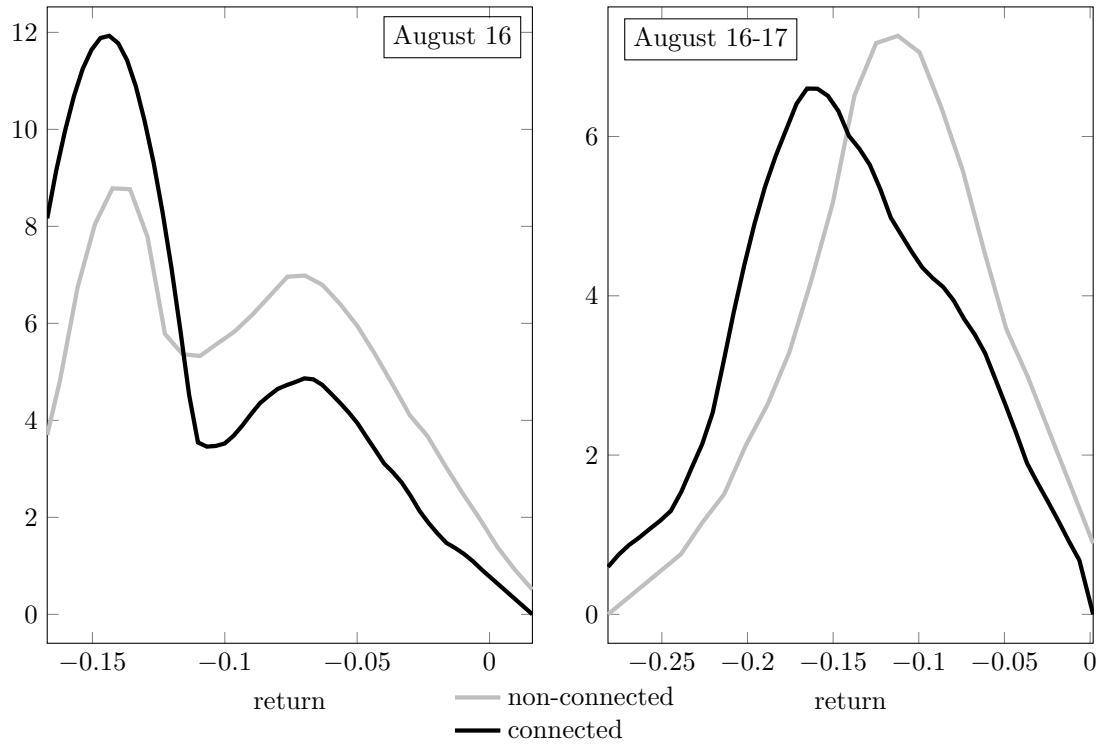
This table reports changes in interest rates after Lee Myung Bak's election. The dummy variable KU_i takes the value of one if the firm is connected to the KU network, and zero otherwise, the dummy variable HEC_i takes the value of one if the firm is connected to the HEC network, and zero otherwise. The variable $event_t$ is zero for the pre-election period and one for the post-election period. Columns labeled 'KU' drop firms connected to the HEC network, and columns labeled 'HEC' drop firms connected to the KU network. All regressions include firm and year fixed effects. Standard errors are reported in parentheses. **, and * denote statistical significance at the 5%, and 10% confidence levels, respectively.

Table 16: **Capital Allocation**

	I	II	III	IV	V	VI	VII	VIII
	Full Sample		Non-Connected		KU		HEC	
Dep. Var: IR_{it}	Pre	Post	Pre	Post	Pre	Post	Pre	Post
$log(PD)_{it-1}$	0.0050***	0.0049***	0.0051***	0.0052***	0.0063***	0.0015	0.0028**	0.0040**
	(0.0003)	(0.0003)	(0.0005)	(0.0005)	(0.0012)	(0.0015)	(0.0011)	(0.0020)
Year FE	yes	yes	yes	yes	yes	yes	yes	yes
Clustered SE	firm	firm	firm	firm	firm	firm	firm	firm
Observations	1866	2068	1697	1875	115	133	54	60
R-squared	0.120	0.123	0.115	0.130	0.255	0.038	0.135	0.087

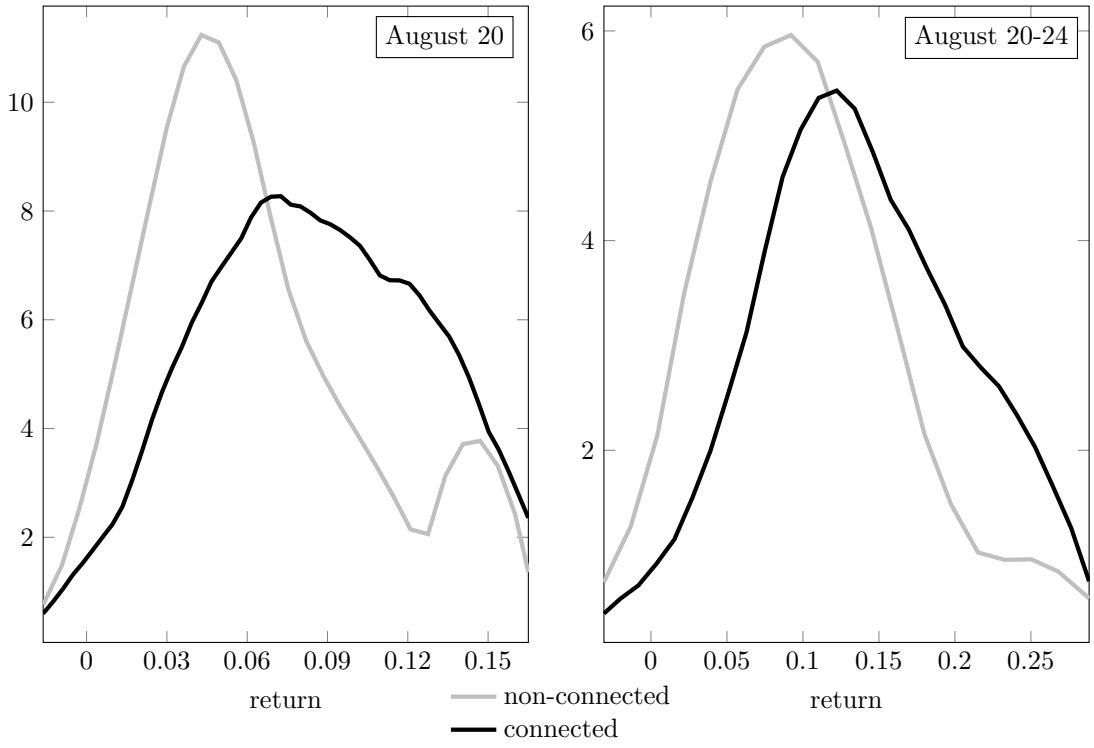
This table reports results from regressing firm level interest rates on a lagged default risk measure $log(PD)_{it-1}$, which is the log of firm i's probability of default over the next year. In columns labelled 'Non-Connected', the sample comprises the firms that are not connected to one of the president's networks, in columns labelled 'KU', the sample comprises the firms connected to the KU network, and in columns labelled 'HEC', the sample comprises the firms connected to the HEC network. In columns labelled 'Pre', the sample is limited to the pre-election period, in columns labelled 'Post', the sample is limited to the post-election period. All regressions include year fixed effects. Standard errors are reported in parentheses. *** and ** denote statistical significance at the 1% and 5% confidence levels, respectively.

Figure 1: **Return Distribution Around Dokokdong Land Scandal**



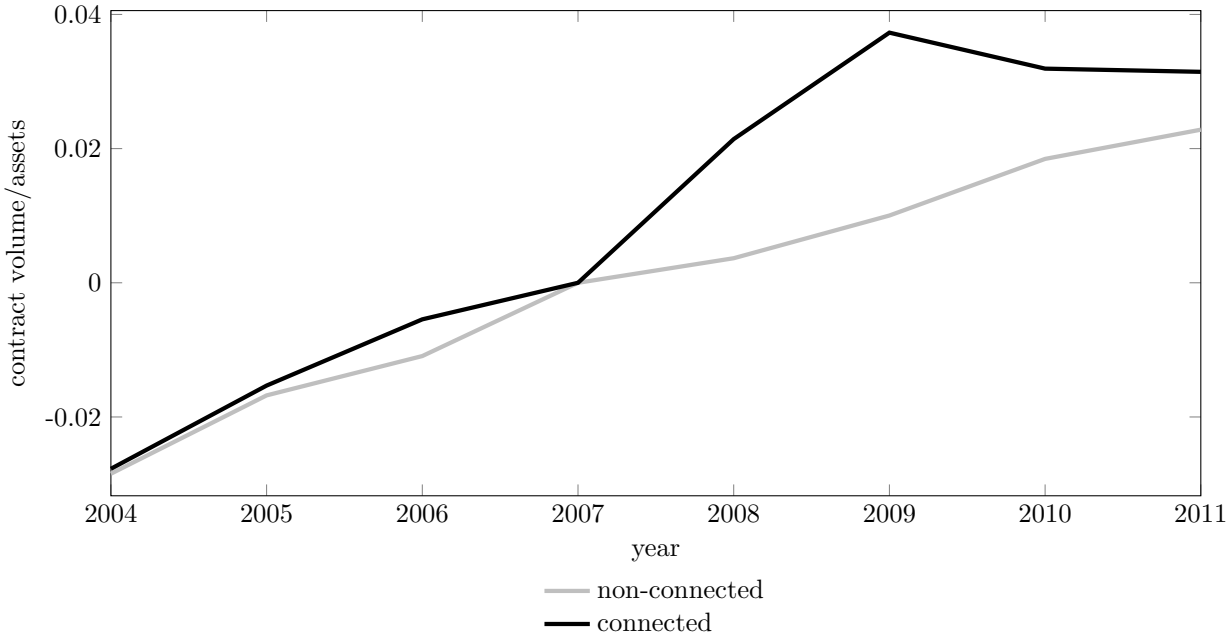
This figure shows kernel density plots of cumulated log stock returns around the Dokokdong Land scandal for firms connected to one of Lee Myung Bak's networks through their CEO (black line), and for non-connected firms (gray line). The left panel shows the density plots for the day after Lee Myung Bak's drop in polls was published (August 16, 2007), the right panel shows the density plot for the aggregated returns for the two days after the drop in polls was published (August 16 - August 17, 2007).

Figure 2: **Return Distribution Around Nomination Election**



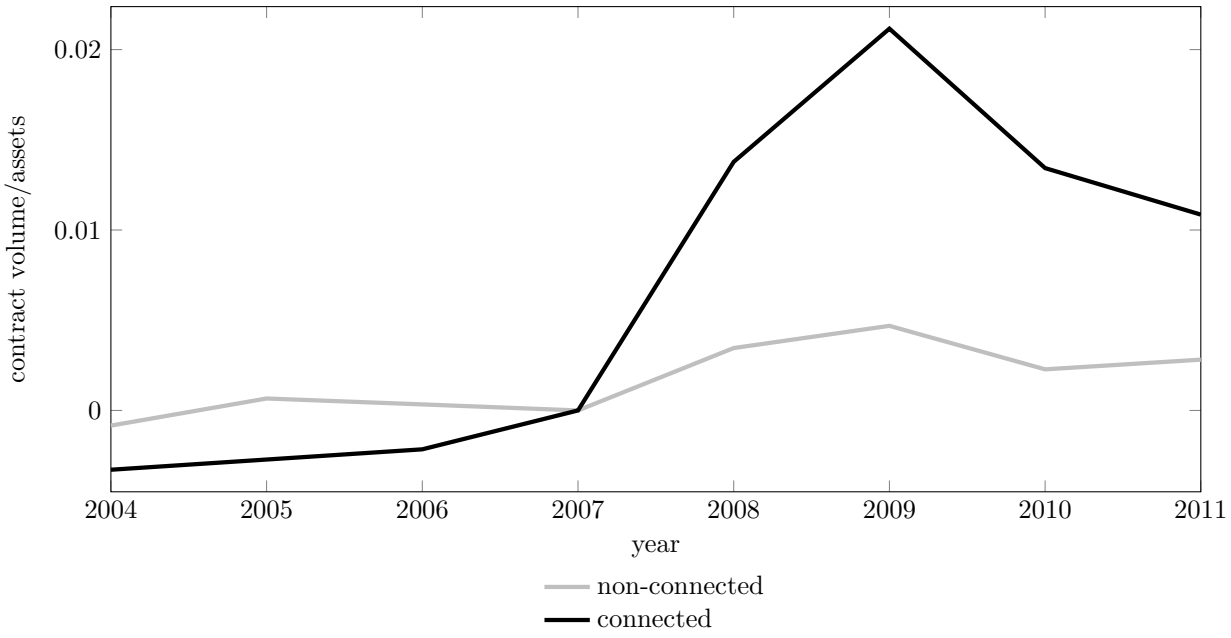
This figure shows kernel density plots of cumulated log stock returns around Lee Myung Bak's nomination as GNP candidate for firms connected to one of Lee Myung Bak's networks through their CEO (black line), and for non-connected firms (gray line). The left panel shows the density plots for the day after the nomination (August 20, 2007), the right panel shows the density plots for the week after the nomination (August 20 - August 24, 2007).

Figure 3: **Change in Procurement Contract Allocation**



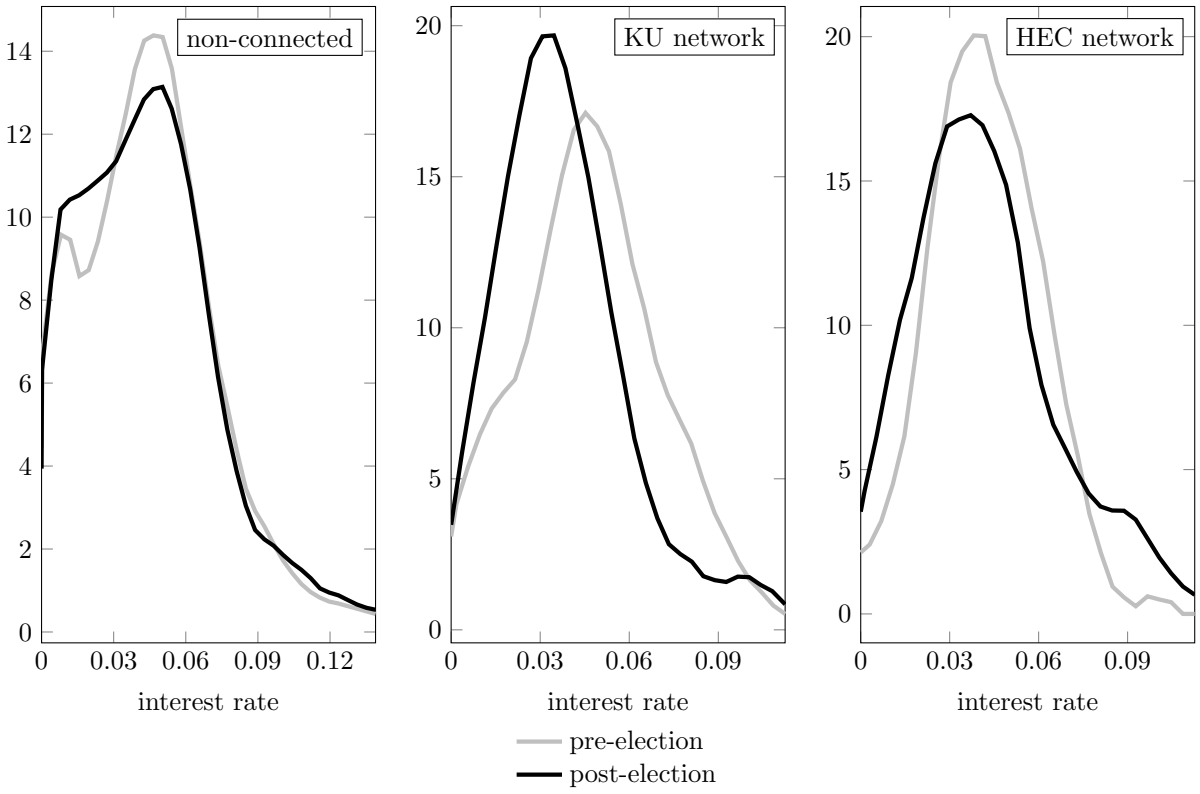
This figure depicts the average annual procurement contract volume as a fraction of firms' assets for connected (black line) and non-connected firms (gray line) on the y-axis. The values are normalized to be zero in 2007, the year of Lee Myung Bak's election.

Figure 4: **Change in Procurement Contract Allocation - Connected State Firms**



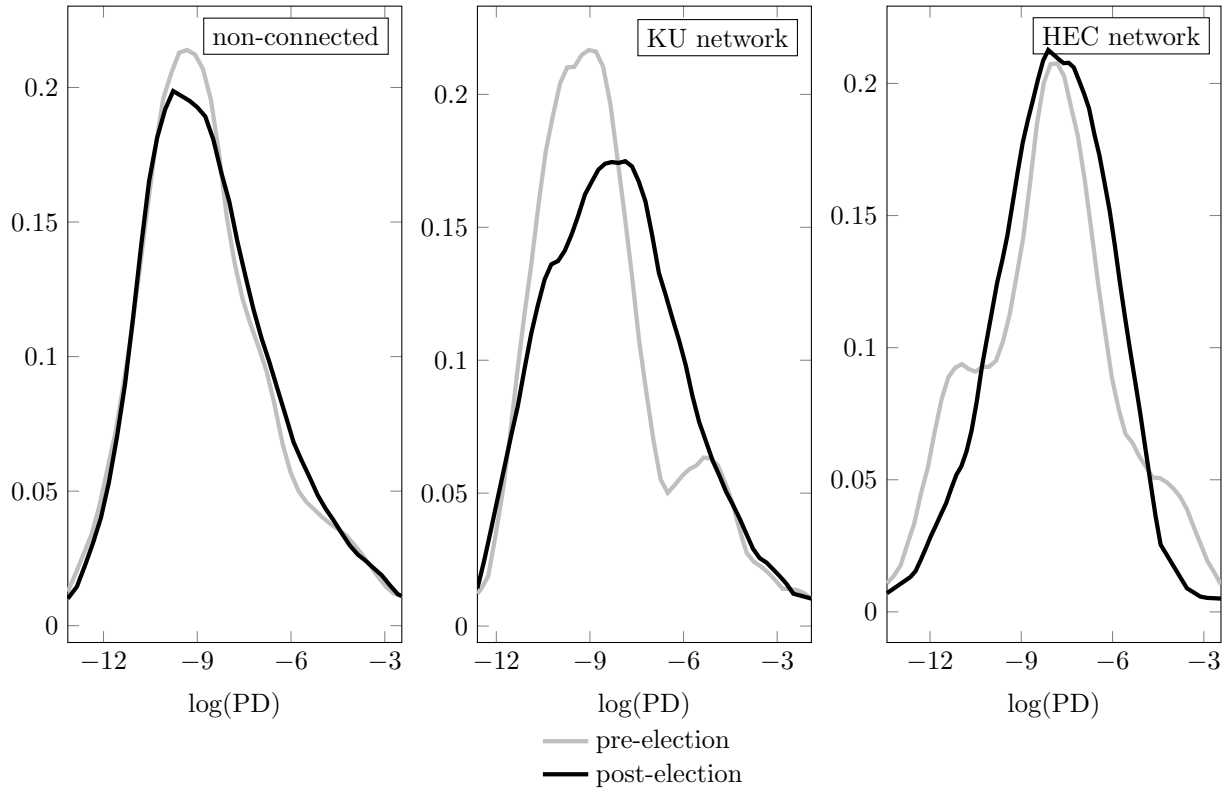
This figure depicts the average annual procurement contract volume allocated by state firms in which Lee Myung Bak appoints a CEO from one of his networks as a fraction of firms' assets for connected (black line) and non-connected firms (gray line). The values are normalized to be zero in 2007, the election year.

Figure 5: **Interest Rate Distribution**



This figure shows kernel density plots of firm-level interest rates for the period before Lee Myung Bak's election (gray lines), and the period after his election (black lines). The left panel shows density plots for non-connected firms, the middle panel shows density plots for firms connected to the KU networks, and the right panel shows density plots for firms connected to the HEC network.

Figure 6: **Default Risk Distribution**



This figure shows kernel density plots of the log of firms' probability of default over the next twelve months for the period before Lee Myung Bak's election (gray lines), and the period after his election (black lines). The left panel shows density plots for non-connected firms, the middle panel shows density plots for firms connected to the KU networks, and the right panel shows density plots for firms connected to the HEC network.

Appendix A. GNP Primary

The GNP elected its candidate for the 2007 presidential election on August 19, 2007. The votes for the candidates are composed of a committee that accounts for 80% of the total votes and public opinion polls that account for the remaining 20% of total votes. The committee has three components. One quarter of the committee consists of party members who hold an official post within the party and party members who are suggested by those party members with an official post. These members are selected taking into account the regional share of the population that the members represent. Three eighth of the committee comprise additional party members who are not yet elected for the first component, 50% of whom have to be members of the party for at least 18 months during which they paid their membership fees. In accordance with the regional share of the population, the members are randomly selected from the respective provinces. The third component, three eighth of the committee, is composed of citizens who are not members of the GNP, randomly selected from the telephone directory taking into account representativeness in terms of gender, age and location. Finally, opinion research centers randomly select citizens who account for the remaining 20% of total votes in the candidate election.

Appendix B. Estimator Correction

This section outlines the correction for potential biases in the estimation of the $\Delta\mu$ in equations (1) and (2). The estimate $\Delta\mu$ in equation (1) is the difference in the average change in contract volume, scaled by assets, between connected and non-connected firms:

$$\Delta\mu \quad = \quad \frac{1}{N^c} \cdot \sum_{i=1}^{N^c} \Delta y_i - \frac{1}{N^{nc}} \cdot \sum_{i=1}^{N^{nc}} \Delta y_i \tag{B1}$$

where c indexes connected and nc indexes non-connected firms. N^c and N^{nc} are the number of connected and unconnected firms, respectively. Δy_i is the change in firm i's contract volume to assets ratio.

There are two potential sources of estimation bias. First, the allocation of contracts is essentially a zero-sum game - an additional contract allocated to one firm leads to one less contract allocated to another firm. This gives rise to a double-counting effect as one contract

reallocated from a non-connected to a connected firm simultaneously leads to an increase in $\frac{1}{N^c} \cdot \sum_{i=1}^{N^c} \Delta y_i^c$ and a decrease in $\frac{1}{N^{nc}} \cdot \sum_{i=1}^{N^{nc}} \Delta y_i^{nc}$.[45] The true effect of connections on contract allocation to connected firms, however, is fully captured by the increase in $\frac{1}{N^c} \cdot \sum_{i=1}^{N^c} \Delta y_i^c$. The decrease in $\sum_{i=1}^{N^{nc}} \Delta y_i$ constitutes an estimation bias.

Suppose that firm size and the value of one contract are normalized to one for all firms.[46] Then, if a total of n contracts are reallocated from non-connected to connected firms after the reform the estimate of $\Delta\mu$ is:

$$\Delta\mu \quad = \quad \frac{n}{N^c} + \frac{n}{N^{nc}} = \Delta\mu^{true} \underbrace{+ \frac{n}{N^{nc}}}_{\text{bias}} \tag{B2}$$

The second source of potential estimation bias stems from the fact that before the reform some firms may have been connected to the previous president. Then, if political connections have the same effect under the previous president, contract volume of firms connected to the previous president is inflated and contract volume of firms not connected to the previous president is deflated. If the fraction of firms connected to the previous president is equal across the groups of firms connected and not connected to the new president, this would not have an effect on the estimate of $\Delta\mu$. In the extreme case that all the firms connected to the previous president are not connected to the new president the estimation bias for $\Delta\mu$ is the highest.

If under the previous president the same number of contracts (n) were being reallocated from non-connected to connected firms, contract volume is inflated for firms not connected to the current president by:

$$\frac{n - \frac{n \cdot (N^{nc} - N^c)}{N^{nc}}}{N^{nc}} \quad = \quad \frac{n \cdot (\frac{N^c}{N^{nc}})}{N^{nc}} \tag{B3}$$

where the second term in the numerator of the first expression is the fraction of contracts reallocated to firms connected to the previous president from firms neither connected to the previous nor the current president.

[45] If contracts allocated to connected firms constituted additional contracts generated by state firms rather than a redistribution of contracts from non-connected firms, the estimation bias would be lower.

[46] Since firm size is not identical in the data the relative effect of a contract reallocation from non-connected to connected firms on Δy_i is not symmetric. However, for the subset of firms that receive contracts during the sample period, the average value of total assets is *lower* for connected firms. Thus, the correction is rather conservative.

Accordingly, contract volume for firms connected to the current president is deflated before the reform by:

$$\frac{n \cdot \frac{N^c}{N^{nc}}}{N^c} = \frac{n}{N^{nc}} \tag{B4}$$

Then, the estimate of $\Delta\mu$ equals the sum of equations (B2) to (B4):

$$\Delta\mu = = \Delta\mu^{true} \underbrace{+\frac{n}{N^{nc}} + \frac{n(\frac{N^c}{N^{nc}})}{N^{nc}} + \frac{n}{N^{nc}}}_{\text{bias}} = \Delta\mu^{true} \underbrace{+\frac{2n + n(\frac{N^c}{N^{nc}})}{N^{nc}}}_{\text{bias}} \tag{B5}$$

The bias can be corrected by multiplying $\Delta\mu$ by $\frac{1}{1+(N^c/N^{nc})(2+N^c/N^{nc})}$. By the delta method, if $\rho = \Delta\mu \cdot \frac{1}{1+(N^c/N^{nc})(2+N^c/N^{nc})}$, then the standard errors of the adjusted estimate $SE_\rho = SE_{\Delta\mu} \cdot \frac{\partial\rho}{\partial\Delta\mu}(\Delta\mu \cdot \frac{1}{1+(N^c/N^{nc})(2+N^c/N^{nc})}) = SE_{\Delta\mu} \cdot \frac{1}{1+(N^c/N^{nc})(2+N^c/N^{nc})}$.

Appendix C. Stock Price Reactions

This section presents tests to mitigate the concern that higher stock returns of connected firms are driven by differences in firm characteristics that are standard in the literature.

Appendix C.1. Empirical Strategy

Let p_{it} be firm i's stock price at time t. Modelling stock prices as a linear combination of firm characteristics A_{it} and macro-economic shocks α_t, a firm's stock price can be represented as: $p_{it} = \alpha_t + \beta_t \cdot A_{it} + \delta_t \cdot D_i + \epsilon_{it}$. Here, D_i is a dummy variable taking the value of one if firms are connected to one of Lee Myung Bak's networks through their CEO and zero otherwise, ϵ_{it} denotes an error term. Suppose t to be the day before and $t + \lambda$ the day after Lee Myung Bak's election as GNP candidate. Assuming that $A_{it} = A_{it+\lambda}$, as firm characteristics do not change significantly during the one day event window and normalizing stock prices by p_{it}, the difference between stock prices before and after the election becomes:

$$r_{it+\lambda} = (\alpha_{t+\lambda} - \alpha_t) + (\beta_{t+\lambda} - \beta_t) \cdot A_{it} + (\delta_{t+\lambda} - \delta_t) \cdot D_i + (\epsilon_{it+\lambda} - \epsilon_{it}) \tag{C6}$$

where $r_{it+\lambda}$ is firm i's return on the day after the election.[47] From equation (C6) it is apparent that the identification builds on a *change* in the value of connectedness to one of Lee Myung Bak's networks: $(\delta_{t+\lambda} - \delta_t)$. It is important to note that, provided effects of political connections are no different between Lee Myung Bak and his rival Park Geun Hae, non-connected firms serve as a valid control group, since their stock price is not affected by the outcome of the election with respect to political connections. This is because for these firms, it is irrelevant whether firms connected to Lee Myung Bak or Park Geun Hae become politically connected.

Equation (C6) highlights the potential estimation bias in $\widehat{(\delta_{t+\lambda} - \delta_t)}$ from unobserved firm characteristics: $(\beta_{t+\lambda} - \beta_t) \cdot \frac{Cov(A_{it}, D_i)}{Var(D_i)}$. For firm characteristics for which $(\beta_{t+\lambda} - \beta_t) = 0$ the bias is zero. The main concern is that D_i may be positively correlated with unobserved firm characteristics A_{it} for which $(\beta_{t+\lambda} - \beta_t) > 0$ (or negatively correlated with firm characteristics for which $(\beta_{t+\lambda} - \beta_t) < 0$) generating an upward bias in $\widehat{(\delta_{t+\lambda} - \delta_t)}$. Intuitively, this means that Lee Myung Bak's election systematically benefits firms with characteristics that are disproportionally highly represented in the group of connected firms. While descriptive statistics suggest that observable firm characteristics are very similar for both groups (see Section 3.1), one cannot rule out systematic differences between the groups of connected and non-connected firms.

Appendix C.2. Correlation with Economic Shocks

As evident from the stock market reaction in Figure A.2, Lee Myung Bak was considered the "pro-economy candidate". An alternative explanation for the relatively higher returns of connected firms after the election could be that connected firms' are more sensitive to economic news.[48] I investigate stock returns around an exogenous event that constitutes an unexpected negative shock to the Korean economy - the surprise announcement and execution of North Korea's first nuclear weapon test. Additionally, I replicate the same test for all trading days for which the KOSPI changed by more than two percent (January 2004-December 2011) and find no evidence of connected firms reacting more strongly to news about the economy (not reported).

[47] The normalization by $p_i t$ on the right-hand side is suppressed for notational convenience.

[48] Typically, the application of a market model addresses this concern in event studies. However, since changes in the probability of Lee Myung Bak's election positively affect the market return, it is not possible to estimate the sensitivity of firms' stock price to the market independent of connections to Lee Myung Bak before the election.

Table A.1: **Stock Returns Around the North Korean Nuclear Test**

	I	II	III	IV	V
Dep. Var.: ret_i	Full Sample	HEC	KU	Full Sample	Long Connected
$connected_i$	-0.0004	-0.0183	0.0076	-0.0072	-0.0095
	(0.0073)	(0.0127)	(0.0086)	(0.0073)	(0.0093)
Controls	no	no	no	yes	no
Observations	611	571	593	611	587
R-squared	0.000	0.004	0.001	0.113	0.002

This table reports stock returns of the 611 (out of the 626 KOSPI firms from the full sample) that are listed between October 4 and October 9, 2006 the days of the announcement and execution of North Korea's first nuclear rocket tests. The dependent variable is the aggregate log return on October, 4 and October, 9 2006. The dummy variable $connected_i$ indicates whether a firm's CEO is connected to one of Lee Myung Bak's networks. Columns II and III show the results for firms connected to the HEC and KU network, respectively. Column IV includes industry fixed effects and the log of firms' market capitalization on the day of the nuclear test announcement, column V drops the firms that appoint a CEO who is connected to either of the networks in the three years before the election. Standard errors are reported in parentheses.

On October 3, 2006 North Korea announced the first nuclear weapon test in its history. Although the day of the announcement was a national holiday and the Korean stock market did not trade, the KOSPI dropped by 1.64% the following day. On the subsequent four days the stock exchange was closed (October 5/6 - Korean Thanksgiving, October 7/8 - weekend). On October 9, 2006 North Korea unexpectedly conducted the previously announced test of its nuclear weapon at 10.35 am local time. This led to an additional 2.47% drop in the KOSPI resulting in a combined drop of 4.11% for the two trading days. 615 out of the 630 sample firms are listed from October 4 to October 9, 2006 including 58 out of the 59 connected firms. The results in column I, Table A.1 reveal that the stock price reaction to North Korea's nuclear weapons test is no different for connected firms compared to non-connected firms (-0.04 percentage points). For the HEC network subsample, the effect is slightly stronger with -1.83 percentage points, but not statistically significant (column II). For the KU subsample the stock price effect is even weaker with 0.76 percentage points (column III). Controlling for industry fixed effects and firm size (column IV) the effect is still not statistically significant (-0.72 percentage points). For the sample of firms whose connected CEO is appointed more than three years before Lee Myung Bak's election, the difference is also insignificant (-0.95 percentage points, column V).

Appendix C.3. Differences in Firm Characterisitcs

Another concern could be that KU business school graduates and HEC executives might share ideologies or personality traits, or follow business strategies that cause their firms' stock price to react positively to Lee Myung Bak's election. In terms of observable firm characteristics, firms with CEOs from the KU or HEC network show no significant differences compared to other firms. An indirect way to test for similarities in characteristics of firms with a KU or HEC network CEO is to study the comovement of these firms' stock returns in the time-series.[49]

One way to indirectly control for unobservable firm characteristics that lead to comovements in stock prices is to match each connected firm with the combination of non-connected firms that most closely tracks the return path before the event (Abadie, Diamond, and Hainmueller 2010). The construction of the matching estimator follows the procedure in Acemoglu et al. (2014) and Acemoglu, Hassan, and Tahoun (2015). In the context of equation (C6), where stock returns are driven by firm characteristics, matching based on observed returns, implicitly generates the closest match based on (observable and unobservable) firm characteristics. The synthetic match for a connected firm is constructed by minimizing the squared difference of the connected firm's daily returns and the convex combination of non-connected firms in 2006:

$$w_j^* = \underset{w_j}{\operatorname{argmin}} \sum_t \left[R_{it} - \sum_j w_j R_{jt} \right]^2$$

subject to

$$\sum_j w_j = 1 \text{ and } w_j \geq 0 \ \forall j$$

where R_{it} is the return of firm i on day t, R_{jt} is the return of non-connected firm j on day t, and w_{jt} is the weight for non-connected firm j. The rationale for using 2006 returns is that returns closer to the election might comove due to changes in the probability of Lee Myung Bak's election.

[49] From 2004 to 2011, connected stocks never outperform non-connected stocks by a higher magnitude than the day after the election. Thus, differences in firm characteristics would have to be such that they do not: i) affect observable firm characteristics, ii) affect firms' sensitivity to economic shocks, iii) cause stock returns of connected firms to comove in general, but be more sensitive to news about Lee Myung Bak's election only.

The return for connected firm i's matched combination of non-connected firms during the event window is:

$$\hat{R}_{it} = \sum_j w_j R_{jt}$$

The effect of the event is computed as:

$$\hat{\psi} = \frac{\sum_i \frac{\sum_t R_{it} - \hat{R}_{it}}{\hat{\sigma}_i}}{\sum_i \hat{\sigma}_i^{-1}}$$

where $\hat{\sigma}_i^{-1}$ is a measure of the goodness of fit in the estimation period:

$$\hat{\sigma}_i^{-1} = \sqrt{\frac{\sum_t \left[R_{it} - \hat{R}_{it}\right]^2}{T}}$$

where T is the number of trading days during the estimation period. The computation of the event's effect on connected firms is essentially a weighted average giving greater weight to firms for which the synthetic match more closely replicates the daily returns during the estimation period. To statistically evaluate the effect, I draw 1000 random samples of connected firms from the set of non-connected firms, to construct confidence intervals, where each random sample is equal in size to the number of connected firms in the sample.

Table A.2 shows the results from the synthetic matching estimator for the 625 firms that are listed in 2006. The estimates are even slightly higher than the estimates in Table 2 and statistically significant at the 1% level throughout. This suggests that the results are not driven by commonalities in unobserved firm characteristics among connected firms that affect stock returns.

Table A.2: **Differences in Firm Characteristics - Synthetic Matching Estimator**

	I	II	III	IV
	Scandal		Election	
Dep.Var.: ret_i	(0)	(0,1)	(0)	(0,4)
$connected_i$	-0.0270***	-0.0327***	0.0240***	0.0607***
	[-0.0208,0.0158]	[-0.0288,0.0203]	[-0.0165,0.0182]	[-0.0282,0.0320]

This table uses a synthetic matching estimator calculated by comparing the return of the 59 connected firms to the 566 non-connected firms that are listed in KOSPI in 2006. Column I refers to the day of the prosecutor's office announcement on the Dokokdong Land Scandal. Column II refers to the two days after the announcement. Column III refers to August 20, 2007, the day after the GNP elected its presidential candidate. Column IV refers to the week after the election. The dummy variable $connected_i$ indicates whether a firm's CEO is connected to one of Lee Myung Bak's networks. 99% confidence intervals are reported in brackets. *** indicates statistical difference from zero at the 1% level.

Appendix D. Additional Tables and Figures

Table A.3: **CEO Appointments in State Firms**

Country	I Board	II Approval	III Government
Australia		1	
Austria	1		
Belgium			1
Canada		1	
Chile	1		
Czech Republic		1	
Denmark	1		
Estonia		1	
Finland	1		
France			1
Germany	1		
Greece			1
Hungary			1
Israel		1	
Italy		1	
Japan		1	
Korea			1
Mexico			1
Netherlands	1		
New Zealand	1		
Norway	1		
Poland	1		
Slovak Republic	1		
Slovenia*			1
Spain		1	
Sweden	1		
Switzerland	1		
Turkey			1
UK			1

This table provides an overview of CEO appointment rules in state firms in OECD countries. The countries are separated into three categories: countries where state firm boards appoint the CEO independently (column I), countries where boards appoint CEOs but require political approval (column II), and countries in which CEOs are appointed directly by the government (column III).
*In Slovenia the supervisory board may independently appoint CEOs in non-public state firms.
Source: OECD (2005, 2011): Corporate Governance of State-Owned Enterprises

Table A.4: **Procurement Contract Allocation - State Firm Subsample**

	I	II	III	IV	V	VI	VII	VIII
	All Firms				Firms with Procurement Contracts			
Dep. Var.: $\left(\frac{\Delta \ contract \ volume}{assets}\right)_i$	Full Sample		Long Connected		Full Sample		Long Connected	
$connected_i$	0.0164***	0.0093***	0.0166***	0.0089***	0.0239***	0.0186***	0.0277***	0.0176***
	(0.0024)	(0.0018)	(0.0029)	(0.0021)	(0.0050)	(0.0044)	(0.0063)	(0.0051)
Controls	no	yes	no	yes	no	yes	no	yes
Observations	630	630	605	605	195	195	180	180
R-squared	0.068	0.517	0.052	0.535	0.105	0.532	0.098	0.540

This table reports the results on firm-level changes in procurement contract volume for contracts allocated by state firms. The dependent variable is total contract volume in the post-election period (2008 Q2-2011 Q4) minus total contract volume in the pre-election period (2004 Q3-2008 Q1) divided by firm assets. The variable $connected_i$ takes the value of one for firms connected to one of Lee Myung Bak's networks, and zero for other firms. Columns I to IV show the results for all firm, columns V to VIII only show firms that sign at least one contract during the sample period. In columns labeled "Long Connected" firms that appoint a connected CEO during the three years before the election are dropped from the sample. Even columns control for industry fixed effects and the log of firms' market capitalization. Standard errors are reported in parentheses. ***, and ** denote statistical significance at the 1%, and 5% confidence levels, respectively.

Table A.5: **CEO Appointments in State Firms and Pre-Appointment Contract Allocation**

	I	II	III	IV
Dep. Var.:	$\left(\frac{contract \ volume}{assets}\right)_{ij}$		$contract \ dummy_{ij}$	
$connected_i$	-0.0000		0.0279**	
	(0.0001)		(0.0123)	
$connected \ state_j$	0.0005	0.0004	0.0862***	0.0821*
	(0.0003)	(0.0003)	(0.0091)	(0.0472)
$connected \ relationship_{ij}$	-0.0004	-0.0004	-0.0321	-0.0318
	(0.0003)	(0.0003)	(0.0303)	(0.0501)
Firm FE	no	yes	no	yes
Clustered SE	firm	firm	firm	firm
Observations	3935	3935	3935	3935
R-squared	0.002	0.042	0.035	0.115

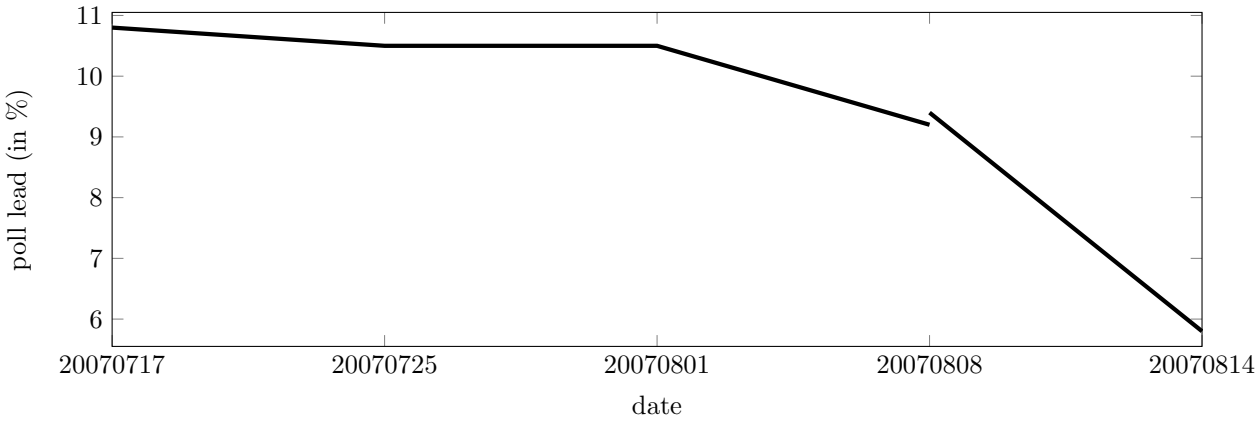
This table reports results on the relationship between CEO appointments in state firms and pre-appointment contract allocation. The dependent in columns I and II is the total volume of contracts signed between firm i and state firm j in the pre-election period (2004 Q3-2008 Q1) divided by firm assets. In columns III and IV the dependent variable is a dummy variable taking the value of one if firm i and state firm j signed at least one contract before Lee Myung Bak's election. The variable $connected_i$ takes the value of one if the firm is connected to one of Lee Myung Bak's networks, and zero otherwise. The variable $connected \ state_j$ takes the value of one if a CEO connected to one of Lee Myung Bak's networks is appointed in state firm j after Lee Myung Bak's election, and zero otherwise. The variable $connected \ relationship_{ij}$ is one if the CEO of firm i and the newly appointed CEO in state firm j are from the same one of Lee Myung Bak's networks, and zero otherwise. Standard errors are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% confidence levels, respectively.

Table A.6: **Procurement Contract Allocation - Active Relationships**

	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
Dep. Var:	$\left(\frac{\Delta \text{ contract volume}}{\text{assets}}\right)_{ij}$								$\left(\frac{\Delta \text{ contract volume}}{\text{assets}}\right)_{ijk}$			
	Full Sample				Long Connected							
$connected_i$	0.0059***				0.0079**							
	(0.0019)				(0.0032)							
$connected\ state_j$	-0.0006	-0.0014			-0.0004	-0.0012						
	(0.0009)	(0.0014)			(0.0010)	(0.0015)						
$connected\ relationship_{ij}$	0.0090*	0.0225*	0.0203**	0.0185	0.0118	0.0290*	0.0284**	0.0320*	0.0094*	0.0089*	0.0119**	0.0110*
	(0.0053)	(0.0126)	(0.0100)	(0.0135)	(0.0081)	(0.0154)	(0.0128)	(0.0194)	(0.0049)	(0.0054)	(0.0059)	(0.0065)
Firm FE	no	yes	yes	yes	no	yes	yes	yes	yes	yes	yes	yes
State Firm FE	no	no	yes	-	no	no	yes	-	-	-	-	-
State Firm*Industry FE	no	no	no	yes	no	no	no	yes	no	no	no	no
State Firm*Contract Type FE	no	no	no	no	no	no	no	no	coarse	granular	coarse	granular
Clustered SE	firm	firm	firm	firm	firm	firm	firm	firm	firm	firm	firm	firm
Observations	538	538	538	538	489	489	489	489	703	759	619	659
R-squared	0.071	0.451	0.564	0.672	0.048	0.468	0.560	0.659	0.680	0.730	0.711	0.754

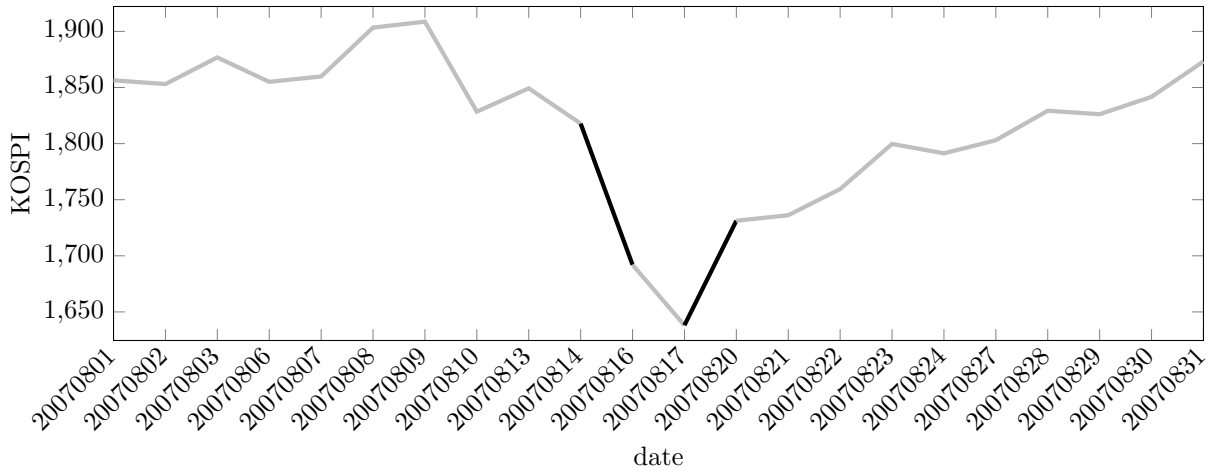
This table reports the results on the estimation of changes in procurement contract volume (equation (2)) only including state firm-private firm relationships with a least one contract signed between the respective state and private firms. In columns I to VIII, the dependent variable is the change in total contract value allocated from state firm j to private firm i from the pre-election period (2004 Q3-2008 Q1) to the post-election period (2008 Q2-2011 Q4), scaled by firm assets in the year of Lee Myung Bak's election. In columns IX to XII the dependent variable is the change in contract volume for contract type k from state firm j to private firm i. The variable $connected_i$ takes the value of one if firm i is connected to one of Lee Myung Bak's networks, and zero otherwise, $connected\ state_j$ takes the value of one if Lee Myung Bak appoints a CEO from one of his networks at state firm j after his election, and zero otherwise. The variable $connected\ relationship_{ij}$ is one if the CEO of firm i and the newly appointed CEO of state firm j are from the same one of Lee Myung Bak's networks. Columns labeled "Long Connected" drop firms that appoint a connected CEO during the three years before the election. Information on fixed effects and clustering of standard errors is provided at the bottom of the table. Standard errors are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% confidence levels, respectively.

Figure A.1: **GNP Candidate Election Poll Results**



This figure shows data from weekly polls conducted by the Christian Broadcasting Service. Until August 8, 2007 the graph represents the difference between the share of people that named Lee Myung Bak to be person they would vote for in a direct presidential election and those voting for Park Geun Hae. On August 8 and August 14, 2007 the survey asked people which candidate they would vote for in the GNP candidate election. The short line from August 8 to August 14 represents the gap between the fraction of votes for Lee Myung Bak and Park Geun Hae for this slightly different question.

Figure A.2: **KOSPI in August 2007**



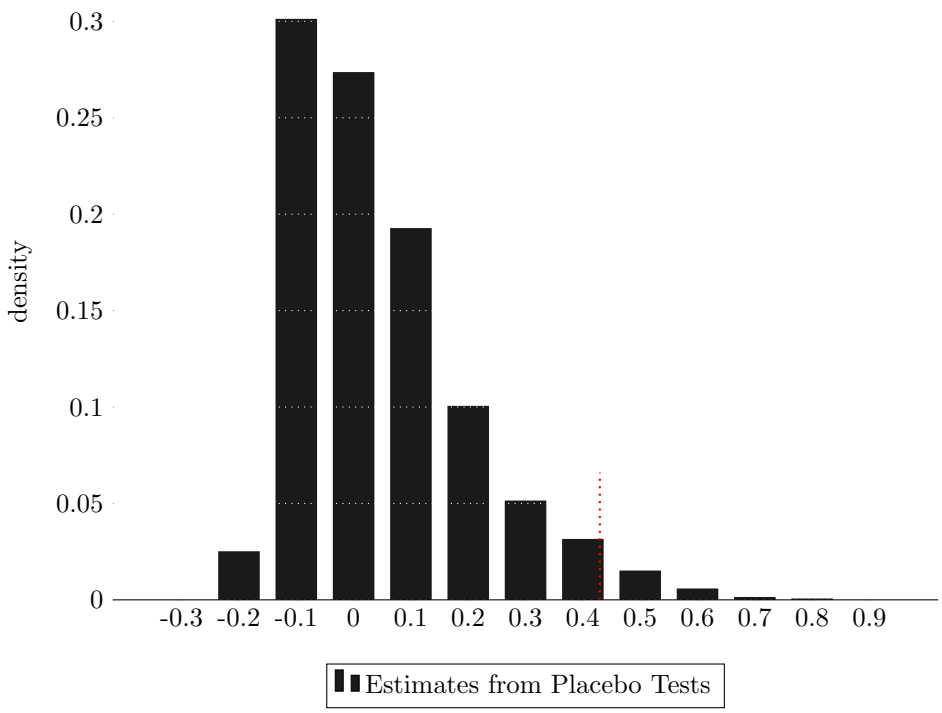
This figure shows the value of the KOSPI in August 2007 on the y-axis. The black downward-sloping line marks the change in KOSPI value the day after the publication of the drop in polls for Lee Myung Bak following the Dokokdong Land scandal (August 16, 2007). The black upward-sloping line marks the change in the KOSPI the day after the election of Lee Myung Bak as presidential candidate for the GNP (August 20, 2007).

Table A.7: **Procurement Contract Allocation - Types of Contracts**

	I	II	III	IV	V	VI	VII	VIII	IX	X
	All Firms				Firms with State Firm Contracts					
Dep. Var.:	$\left(\frac{\Delta \text{ contract volume}}{assets}\right)_i$				$\left(\frac{\Delta \text{ contract volume}}{assets}\right)_{ij}$					
	Full Sample		Long Connected		Full Sample			Long Connected		
$connected_i$	0.0126***	0.0062***	0.0169***	0.0096***	0.0007			0.0025		
	(0.0024)	(0.0021)	(0.0031)	(0.0026)	(0.0008)			(0.0020)		
$connected\ state_j$					-0.0009*	-0.0011**		-0.0012	-0.0014*	
					(0.0005)	(0.0005)		(0.0007)	(0.0008)	
$connected\ relationship_{ij}$					0.0020**	0.0027**	0.0024**	0.0043**	0.0058***	0.0054***
					(0.0008)	(0.0011)	(0.0010)	(0.0018)	(0.0019)	(0.0019)
Controls	no	yes	no	yes	-	-	-	-		
Firm FE	-	-	-	-	no	yes	yes	no	yes	yes
State Firm FE	-	-	-	-	no	no	yes	no	no	yes
Clustered SE	-	-	-	-	firm	firm	firm	firm	firm	firm
Observations	630	630	605	605	1013	1013	1013	874	874	874
R-squared	0.041	0.375	0.046	0.398	0.006	0.057	0.127	0.010	0.056	0.127

This table reports the results on the estimation of changes in procurement contract volume (equations (1) and (2)) for the type of contracts allocated by state firms that had a KU network CEO before and after Lee Myung Bak's election. In columns I to IV the dependent variable is the difference between a firm's total procurement contract volume in the post-election period (2008 Q2-2011 Q4) and its total contract volume in the pre-election period (2004 Q3-2008 Q1), scaled by firm assets in the year of Lee Myung Bak's election. In columns V to X the dependent variable is the change in total contract value from state firm j to private firm i. The variable $connected_i$ takes the value of one if firm i is connected to one of Lee Myung Bak's networks, and zero otherwise, $connected\ state_j$ takes the value of one if Lee Myung Bak appoints a CEO from one of his networks at state firm j after his election, and zero otherwise. The variable $connected\ relationship_{ij}$ is one if the CEO of firm i and the newly appointed CEO of state firm j are from the same one of Lee Myung Bak's networks. In columns V to X the sample is limited to firms that sign at least one contract with a state firm during the sample period. Columns labeled "Long Connected" drop firms that appoint a connected CEO during the three years before the election. Controls comprise industry fixed effects and the log of firms' market capitalization. Information on fixed effects and clustering of standard errors is provided at the bottom of the table. Standard errors are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% confidence levels, respectively.

Figure A.3: **Histogram of Estimates from Placebo Regressions for Equation (2)**



This figure shows the results from placebo tests in which six state firms are randomly assigned as connected to the KU network and three state firms are randomly assigned as connected to the HEC network after the president's election (10,000 random assignments). The figure depicts the estimates for $\Delta\mu$ in equation (2), the equivalent of Table 4, column V, multiplied by 100, based on the random assignment of state firms. In 244 out of 10,000 random assignments (2.44%) the estimate is larger than the estimate in Table 4, column V (red dotted line).