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BANK POLICY IN CHINA: THE ROLES OF
COMMERCIAL BANK OWNERSHIP AND
CEO FACTION MEMBERSHIP**

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Abstract

We examine the roles of bank ownership and CEO political faction membership in facilitating or hindering the implementation of central bank policy in China. Specifically, we examine the response of China's commercial banks to People's Bank of China (PBC) guidelines intended to decrease mortgage lending and to slow down the rise in residential property prices. We find that both bank ownership and faction membership matter. Central government-owned banks whose CEOs are members of the specialist finance faction within the Chinese Communist Party (CCP) respond most strongly to PBC guidance, whereas provincial or city government-owned banks whose CEOs are members of a generalist faction respond least strongly. The implementation of PBC policy has real effects: in those cities where central government-owned banks with specialist CEOs constitute a larger percentage of total bank branches, house prices grew more slowly, as did the number of residential real estate transactions and the number of new listings. Where in contrast provincial and city government-owned banks with generalist CEOs dominate, the number of transactions grew faster; the rate of house price appreciation and the number of listings were however unaffected. We conclude that China's different levels of government and the CCP's different factions enjoy some discretion in responding to PBC guidance and that they exploit the discretion they are afforded to vary the strength of their response.

JEL Classification: E58, G21, R30

Keywords: Bank ownership, Central bank policy, Mortgage loans

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The Implementation of Central Bank Policy in China: The Roles of Commercial Bank Ownership and CEO Faction Membership*

Michel Habib, Yushi Peng, Yanjie Wang, Zexi Wang

February 2023

Abstract

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Keywords: Bank ownership, CEO political factions, Central bank policy, Window guidance, Mortgage loans, Real estate market

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1 Introduction

China's real estate sector has attracted much attention in recent years, no doubt reinforced by the 2021 default of giant real estate developer Evergrande. A sharp decline in China's property prices is feared to carry serious consequences not only for China's financial sector and its overall economy, but for global growth too. It was to avoid precisely such an outcome that, in late 2016 and early 2017 already, the People's Bank of China (PBC) attempted to moderate China's rate of residential property appreciation by directing commercial banks to decrease mortgage lending. The PBC did so by means of window guidance, whereby the PBC communicates lending targets to commercial banks. These targets are somewhat informal, in that the banks have some—limited—discretion regarding the pace at and the extent to which they will meet the target.

In this paper, we examine the extent to which China's commercial banks responded to PBC guidance and the effect the banks' responses had on China's residential real estate markets. We distinguish between those commercial banks that are owned by the central government and those owned by provincial and city governments. These two levels of government have different objectives: in short, as we shall discuss below, when confronted with a trade-off between economic growth and inflation, provincial and city governments will favor growth, including the growth of the real estate sector, to a much greater extent than will the central government. Provincial and city government-owned banks are therefore expected to implement the new policy less thoroughly than central government-owned banks; a more thorough implementation is one that raises down-payment requirements and mortgage interest rates more.

CEOs of government-owned banks are generally members of the Communist Party of China (CCP). We distinguish between those CEOs who belong to what Shih (2008) calls the generalist factions within the CCP and those who belong to the specialist (finance) faction. Not all members of the CCP belong to a faction; we refer to those CEOs who belong to no faction as non-factional CEOs. To identify a CEO's faction, we exploit the fact that high-flying officials in China frequently are rotated between positions within the PBC, government ministries, and central and provincial and city administrations on the one hand and positions at government-owned commercial banks and other state-owned enterprises on the other. Members of the specialist finance faction among bank CEOs tend to be former PBC or Ministry of Finance officials, whereas members of a generalist faction previously held positions at other ministries or at provincial or city government administrations. Non-factional CEOs have no prior governmental or PBC experience.

As do the various levels of government, generalist, (finance) specialist, and non-factional CEOs have different, sometimes contrasting concerns and objectives: generalist CEOs' primary concern is growth, whereas specialist CEOs' paramount concerns are financial stability and inflation; non-factional CEOs' foremost

concern is bank profit maximization. By analogy to our discussion above, generalist CEOs would be expected to implement the new policy less thoroughly than non-factional CEOs, whereas specialist CEOs implement the new policy more thoroughly.

Using PBC window guidance as an exogenous shock, we conduct a difference-in-difference-in-differences (triple difference) analysis to estimate the extent to which bank ownership and CEO faction membership affect the implementation of PBC policy. We find that both bank ownership and faction membership matter. In particular, central government-owned banks with specialist CEOs implement the new policy most thoroughly, whereas provincial or city government-owned banks with generalist CEOs implement the new policy least. These findings are consistent with the predictions above.

Failure to adjust for both dimensions—bank ownership and faction membership—delivers weaker or insignificant results. An examination of ownership with no adjustment for membership reveals that central government-owned banks raise down-payment requirements more but not interest rates. Provincial and city ownership has no effect, either on down-payment requirements or on interest rates. An examination of faction membership with no adjustment for bank ownership fails to deliver any significant result.

Regarding the relative importance of bank ownership and CEO political faction membership, we find weak evidence that the former dominates the latter: central government-owned banks with generalist CEOs raise mortgage interest rates more and provincial and city government-owned banks with specialist CEOs raise down-payment requirements less.¹ The interests of the owners, be they central, provincial, or city government appears to carry more weight than the interests of the CEOs, be they generalist, specialist, or non-factional CEOs. We further examine the career progression of bank CEOs. Departures overwhelmingly originate from central government-owned banks; departed CEOs of central government-owned banks overwhelmingly remain active within the central government. This suggests that reliance on CEO career concerns for incentive purposes is the near exclusive doing of the central government.

If one views CEO faction membership as a form of CEO connection, then the principal message of our analysis is that neither ownership nor connections can be considered in isolation.^{2,3} The CEOs of government-owned commercial banks in China exploit the discretion they are afforded to implement PBC policy to a greater or lesser extent. They may in so doing serve the interests of bank owners or they may in fact do the opposite, depending on the identity of the owner and on the nature of the CEO's connections. This does not mean that owners are powerless to influence CEO behavior, but it does mean that owners can expect the

¹The result for interest rates holds under one set of controls but not another.

²Shih (2008), p. 4, defines a faction as “a personal network of reciprocity that seeks to preserve and expand the power of a patron.” The reference to networks makes clear the importance of connections; patrons are leading politicians.

³We are of course not the first ones to do so; see the Literature Review.

extent of policy implementation to depend on CEO connections, which had a socialization role in the past and will have a role determining further career advancement in the future. The implications of this result extend beyond government-owned banks in China.

Does heterogeneity in commercial banks' reaction to PBC window guidance have concrete effects on housing markets? Yes! We find that in those cities where central government-owned banks with specialist CEOs constitute a larger percentage of total bank branches, house prices grew more slowly, as did the number of residential real estate transactions and the number of new listings. Where in contrast provincial and city government-owned banks with generalist CEOs dominate, the number of transactions grew faster; the rate of house price appreciation and the number of listings were however unaffected.

The paper proceeds as follows. Section 2 reviews the literature. Section 3 provides the institutional background necessary to understand the derivation of the testable hypotheses. Section 4 derives these hypotheses. Section 5 provides a first look at the data. Section 6 presents the regression equations and Section 7 the results of the empirical analysis. Section 8 concludes.

2 Literature Review

In this section, we briefly review the strands of the literature to which our work is most closely related. Our work is in many ways closest to the monograph of Adolph (2013), who cautions against exclusive reliance on central bank independence to gauge a central bank's anti-inflationary stance. Adolph stresses the importance of both career socialization and career concerns, and provides evidence that central bank governors and other senior policymakers' career path and progression strongly influence the extent of their anti-inflationary stance. Adolph distinguishes between seven different career paths, through (1) private sector banking, (2) the bureaucracy other than the central bank and the finance ministry, (3) the finance ministry, (4) the central bank, (5) university economics departments, (6) the private sector other than banking, and (7) international organizations, labor unions, university departments other than economics, or the media. He finds that central bankers with prior experience and the prospect of future employment in private sector banking adopt a stronger anti-inflationary stance than do central bankers with finance ministry experience and the prospect of further advancement within the ministry; in contrast, career central bankers and non-finance ministry officials display a pro- rather than anti-inflationary stance. The remaining career paths do not seem to affect central bankers' anti-inflationary stance. Where Adolph's work provides a long view that spans many decades, ours considers a short period of a few months on either side of a policy change; it is therefore less likely to suffer from confounding effects.

We have noted that that faction membership can be viewed as a form of connection. There is a vast literature

on connections; their value to firm owners may be positive or negative.⁴ Our analysis extensively relies on Shih (2008)'s work on factionalism within China's different levels of government: Shih documents a near-constant tug-of-war between the PBC and Ministry of Finance proponents of sound money on the one side and other central ministries and provincial administration advocates of fast growth on the other side. Members of a faction at the helm of government-owned commercial banks tend to implement their faction's preferred policy.⁵

All but two of the commercial banks we consider are government-owned, by the central government or by provincial or city governments.⁶ There is a long line of research on the rationale for, and the pros and cons of government ownership.⁷ Our interest in the present paper is in government ownership of commercial banks. Two opposing views of such ownership are Stiglitz (1993)'s social view and Shleifer and Vishny (1994)'s political view: the former views government ownership of banks as providing governments with a tool to achieve desirable social goals, whereas the latter views government ownership as providing politicians with an opportunity to divert bank assets to serve the politicians' partisan interests.⁸ Writing about state-owned enterprises (SOE) in general, Aharoni (1986) notes that an important rationale for government ownership is to facilitate the implementation of government policy. He acknowledges the conflicts that may arise from the presence of multiple goals, associated with multiple constituencies. Aharoni further notes that SOE managers' discretion may in some cases impede the implementation of desired policy.

The policy we consider which the PBC wished to see implemented was macroprudential in nature. As befits its importance, macroprudential regulation has received much attention in the wake of the Great Financial Crisis (GFC).⁹ A recurring concern of macroprudential regulation is the threat the succession of a real estate boom and bust may pose to the soundness of a financial system.¹⁰

The reality of a boom, and the growing fear of a bust, have characterized China's real estate markets for quite some time now.¹¹ Opinions differ as to the extent of China's property markets overvaluation; it was to

⁴See, e.g., Fisman (2001), Dinç (2005), Faccio (2006), Fan, Wong and Zhang (2007), Goldman, Rocholl and So (2009), Berkman, Cole and Fu (2010), Duchin and Sosyura (2012), Amore and Bennedsen (2013), Carvalho (2014), Kostovetsky (2015), Acemoglu, Johnson, Kermani, Kwak and Mitton (2016), Bertrand, Kramarz, Schoar and Thesmar (2018) and Brown and Huang (2020).

⁵Recall from our discussion in the Introduction that high-flying officials often are rotated between positions in government and in state-owned enterprises.

⁶A few banks have both the central government and a provincial or a city government, or all three levels of government as shareholders. We present in Section 5 below our reasoning for determining these banks' controlling government shareholder.

⁷See, e.g., Shleifer (1998) and Besley and Ghatak (2001).

⁸La Porta, Lopez-de Silanes and Shleifer (2002) and Sapienza (2004) provide evidence in support of the political view.

⁹See, e.g., Borio (2011) and Hanson, Kashyap and Stein (2011).

¹⁰See, e.g., Aikman, Bridges, Kashyap and Siegart (2019).

¹¹See e.g., Fang, Gu, Xiong and Zhou (2016), Chen and Wen (2017), Glaeser, Huang, Ma and Shleifer (2017), and Liu and

avert what it deemed excessively rapid house price appreciation that the PBC between late 2016 and early 2017 directed China's commercial banks to decrease mortgage lending. As noted in the Introduction, it did so by means of window guidance.

Window guidance constitutes one amongst many channels for the transmission of monetary policy. Although its importance has been declining in recent years, window guidance nonetheless remains in relatively frequent use in China.¹² The PBC has used window guidance both to encourage and to discourage lending, in response to the GFC in the former case and, the focus of the present analysis, in late 2016 in the latter case as the PBC responded to the near-11% annual house price appreciation in 2015-2016.¹³ As noted in the Introduction, the PBC has done so by directing commercial banks to decrease mortgage lending.

Finally, our work is related to the extensive work on the impact of monetary and lending policies on real estate prices, specifically low interest rates and down-payment requirements.¹⁴ Where previous work has mainly considered the role of monetary and lending policies in favoring house price appreciation, we consider the opposite situation.

3 Institutional Background

It is challenging to do justice to the richness and complexity of China's banking system and of factionalism within its government in a few paragraphs.¹⁵ The discussion that follows provides the strictly necessary background to motivate the formulation of our testable hypotheses in Section 4.

We start with two observations: (1) China's banking system is overwhelmingly state-owned and (2) the CEOs of China's banks for the most part are members of the Chinese Communist Party. The former observation implies that the managers of China's banks are not exclusively, or even primarily concerned with bank profit- and value-maximization; instead, managers seek to implement government policy, which in some cases at least conflicts with bank value-maximization, as we show in the analysis that follows. The latter observation implies that managers are subject to party discipline.¹⁶ Many CEOs are appointed by the CCP's Central Organization Department, which monitors their performance and determines their career paths, not least by rotating them between positions in government and in state-owned enterprises.

There are, however, different levels of government in China and different factions within China's Communist

Xiong (2020).

¹²See, e.g., Angrick and Yoshino (2020) and Chen, Funke, Losev and Tsang (2020).

¹³See Chen and Wen (2017) and Fang et al. (2016).

¹⁴See, e.g., Mian and Sufi (2009), Igan and Kang (2011), and Favara and Imbs (2015).

¹⁵See, e.g., Allen, Gu et al. (2015) and Amstad, Sun and Xiong (2020) for extensive analyses of China's financial system.

¹⁶We qualify the extent of party discipline in what follows.

Party. Regarding the different levels of government, the two levels that are important to our analysis are the central government on the one hand and provincial and city governments on the other hand. All levels of government favor growth, and therefore exert pressure on the management of government-owned banks to fund investment, but the central government is far more concerned with inflation and the stability of the financial system than are provincial and city governments. There is a free-rider problem to the control of inflation and the maintenance of financial stability. The benefits of debt-driven growth accrue primarily to the province or the city experiencing such growth, but the costs of the resulting inflation and financial fragility are in no small part shared with the rest of China. This makes China's central government more cognizant of the trade-off between growth and inflation than provincial or city governments. While the central government ultimately has the last word, provincial and city governments can to some extent delay or dilute implementation of policies they deem detrimental to their interests.¹⁷

Regarding the different factions within the CCP, the distinction that is important to our analysis is that between the specialist finance faction and the generalist factions.¹⁸ The specialist faction's primary concerns are inflation and financial stability. In contrast, the various generalist factions share a strong preference for the headlong pursuit of growth over the strict control of inflation and the careful maintenance of financial stability. Factionalism therefore interacts with party discipline to strengthen discipline when party policy is in accordance with CEO factional preferences and to weaken it when it is not.

The preceding suggests that a policy that seeks to rein in lending and growth will be implemented more quickly and with greater intensity by central government-owned banks than by private banks, which in turn will implement the policy more than provincial or city government-owned banks. Similarly, the policy will be implemented more quickly and with greater intensity by banks whose CEOs are members of the specialist faction than by banks whose CEOs belong to no faction, who in turn will implement the policy more than banks whose CEOs are members of a generalist faction. Combining bank ownership and faction membership, central government-owned banks with specialist CEOs will implement the policy most quickly and with greatest intensity, and provincial and city government-owned banks with generalist CEOs will implement it least.

¹⁷A traditional Chinese saying captures the reality of (limited) local autonomy: "The mountains are high and the emperor is far away."

¹⁸There are other specialist factions such as the Internal Security/Law enforcement faction and the Ideology/Propaganda faction. As noted by Shih (2008), p. 55, these "are much less important for financial outcomes."

4 Hypothesis Development

Ghost towns are found not only in the American West: there are ghost towns in China too, a legacy of the often unbridled real estate development of the last quarter century, following housing market reforms in 1998 that saw the abandonment of housing as payment-in-kind and the privatization of much of urban housing.¹⁹ According to the National Bureau of Statistics of China (NBSC), house prices increased by 270% between 2000 and 2016, an average annual rate of 8.5%; construction as a fraction of GDP increased over the same period from 4.1% of GDP to 6.7%.²⁰ While rapid urbanization and rapidly rising incomes no doubt accounted for much of that increase, there were also political economy and public finance reasons. Local GDP growth looms large in the evaluation of local officials' performance, thereby incentivizing officials to favor real estate development that quickly feeds into economic growth figures; land conveyance fees account for a very significant component of local government income.²¹

The rate of house price appreciation was particularly marked during the two-year period 2015-2016.²² In December 2016, during China's foremost economic gathering, the Central Economic Work Conference, China's central government pointedly reminded Chinese households and banks that "houses are built to be lived in, not for speculation." What prompted that statement presumably was the concern that the bursting of what was feared to be a housing bubble might endanger household savings and bank solvency: housing in Q3 2016 accounted for about 46% of household assets,²³ and residential mortgage loans for 8% of bank assets.²⁴

A few months later, in March 2017, the Chairman of the PBC made a speech emphasizing the need to reduce the growth of mortgage loan origination. Soon afterwards, in a concerted effort, the PBC and the China Banking Regulatory Commission (CBRC) released revised, stricter guidelines to banks regarding the granting of mortgage credit,²⁵ while the central government relayed to provincial and city governments its desire to see a slowdown in the rate of house price appreciation.

¹⁹See, e.g., Liu and Xiong (2020) for a discussion of China's ghost towns.

²⁰The rate of house price appreciation was highest in China's largest cities: the price of an average house in Beijing increased more than six-fold, from 4,557 to 28,489 Chinese Yuan per square meter (CNY; the CNY/USD exchange rate was 8.28 in early 2000 and 6.73 in late 2016). By comparison, the nationwide average house price increased less than fourfold, from 1,948 CNY/m² in 2000 to 7,203 in 2016. Interestingly, the NBSC's numbers have been widely criticized for being underestimates (Wu, Deng and Liu (2014))

²¹Land is not sold in China, but leased for a period that generally extends to 70 years; it remains the property of local government.

²²The annual rate of house price appreciation in 2015 and 2016 was 11%.

²³By comparison, housing accounts for around 30% of household assets in Germany and France, 25% in the US, and 14% in the UK (Li and Zhang (2021)).

²⁴Total real estate exposure was markedly higher at 25% of bank assets (Liu and Xiong (2020)).

²⁵See PBC General Administration Department, Document No. 48, 2017.

Although the revised guidelines were not made public, it is understood they mandated a decrease in mortgage lending. The manner through which such decrease was to be achieved was not specified, but it naturally would involve increases in mortgage interest rates and in down-payment requirements, the pace and the extent of which were—up to a point—left to the appreciation of each bank. Window guidance was preferred to explicit regulatory requirements because it constituted a more flexible approach that permitted better adaptation to local housing market conditions. It also granted bank CEOs some level of discretion, to accommodate to some extent at least the CEO’s factional preferences, if any, as well as the preferences of the bank’s controlling shareholders. As argued above, these were not necessarily the same as those of the PBC and the central government.

The discussion in Section 3 suggests the following testable hypotheses.²⁶

H1. Central government-owned banks increase mortgage interest rates and down-payment requirements more than do private banks, which in turn increase interest rates and down-payment requirements more than do provincial and city government-owned banks.

H2. CEOs who are members of the specialist faction increase mortgage interest rates and down-payment requirements more than do non-factional CEOs, who in turn increase interest rates and down-payment requirements more than do CEOs who are members of the generalist faction.

H3. Specialist CEOs of central government-owned banks increase mortgage interest rates and down-payment requirements most and generalist CEOs of provincial and city government-owned banks increase them least.

As noted in the Introduction, we find little if any evidence in support of H1 and H2: neither bank ownership alone nor faction membership alone affects both mortgage interest rates and down-payment requirements; both ownership and membership must be accounted for, in accordance with H3. We reflect this finding in our formulation of hypothesis H4, which examines the effectiveness of PBC window guidance. If the increases in interest rates and in down-payment requirements are effective, then the three measures of real estate activity that are the rate of house price appreciation, the number of transactions, and the number of new listings should decrease. The decrease should be larger, the greater the local presence of banks whose CEOs and controlling shareholders are more inclined to follow the revised guidelines. In the interest of brevity, we state the hypothesis for the rate of house price appreciation only.

H4. The rate of house price appreciation increases less or decreases more in cities in which central government-owned banks with specialist CEOs constitute a larger percentage of total bank branches; it increases more

²⁶We treat ownership and control as synonymous in the formulation of the hypotheses.

or decreases less in cities in which provincial and city government-owned banks with generalist CEOs constitute a larger percentage of total bank branches.

5 A First Look at the Data

Our sample consists of all banks with (i) assets greater than Chinese yuan (CNY) 100bn (approximately \$14.4bn), for which (ii) we can obtain mortgage lending data, that (iii) operate in the 15 large cities in China for which we can obtain residential real estate transaction data.²⁷ There are 38 such banks, which together hold about 87% of total assets in the Chinese banking sector; these 87% amount to CNY152.7tr (\$22.6tr). The names and total assets of the banks are shown in Table 1.

We obtain information on bank ownership from China's National Enterprise Credit Information Publicity System. Table 1 shows shareholding by central, provincial, and city government; the balance belongs to the private sector. Banks in which combined government ownership is less than 10% are classified as private banks; there are two such banks. Banks in which central government ownership is no less than 10 percentage points smaller than combined provincial and city government ownership are classified as central government-owned and controlled banks. This is because the central government has markedly more power than do its provincial and city counterparts, albeit not to the extent of negating any influence of these governments on the banks they hold large stakes in. There are 15 central government-owned banks; these are generally the largest banks. The remaining 21 banks are provincial or city government-owned banks. For simplicity, and because provincial and city governments share the same preference for growth over price and financial stability, we refer to such banks as local government-owned banks.

Data for the 38 bank CEOs is obtained from the Fitch Connect Bank Annual Reports database. Whether a CEO is a member of the specialist finance faction, a generalist faction, or is not a member of any faction is shown in Table 1. Recall that specialist CEOs are former PBC or Ministry of Finance officials, that generalist CEOs previously held positions at other ministries (with the exception of the Foreign Ministry) or at provincial or city government administrations, and that non-factional CEOs have no prior governmental or PBC experience.

There is a total of 11 specialist CEOs, 5 generalist CEOs, and 22 non-factional CEOs. Thus, although

²⁷We exclude all foreign banks because these have little presence in the mortgage lending market. At the end of 2016, there were 342 commercial banks in China, of which 116 had total assets above CNY 100bn. Of these, 67 banks have mortgage lending data available from household financial services provider Rong360 (see below). We focus on the 38 banks that have branches in the 15 large cities for which we can obtain residential real estate transaction data from real estate brokerage Lianjia (see below); these 15 cities account for 30% of China's GDP.

most CEOs are members of the CCP, a majority has no prior government experience: the “revolving door” between government and commercial banks in China affects a strong minority but not the majority of the CEOs in our sample.

Table 2 shows the distribution of CEOs across banks and factions. There are nearly as many non-factional CEOs (6) as specialist CEOs (7) at the helm of central government-owned banks, but more than three times fewer generalist CEOs (2). Non-factional CEOs (15) head five times as many local government-owned banks as do either specialist or generalist CEOs (3 each). Finally, one specialist and one non-factional CEO head each of the two private banks. The revolving door in China appears to operate primarily but not exclusively at the level of central government-owned banks and to involve mainly specialist CEOs, in relative terms at least. We shall provide further evidence to that effect in Section 7.5.

Information on mortgage interest rates and down payment requirements is obtained from Rong360, a large Chinese Fintech providing household finance services. Table 3, Panel A shows the distribution of interest rates and down payment requirements. Observations are at the bank-city-month level; there are 1382 observations of 38 banks in 15 cities over the pre-event three-month period October-December 2016 and the corresponding post-event period March-May 2017.²⁸

Mortgage interest rates are based on a benchmark rate set by the PBC, constant at 4.9% over the period of interest. Banks can make adjustments to that rate, within some range set by the PBC; specifically, mortgage rates can be no lower than 70% of the benchmark rate. As shown in Table 3, the vast majority of mortgage rates are in fact lower than the benchmark: the 75th percentile is 4.66%. This is because high down-payment requirements make residential mortgage loans in China very safe: the mean down-payment requirement is 28.74%; 25th percentile, median, and 75th percentile all three equal 30%. That Chinese banks consider residential mortgages to be desirable assets is suggested by Figure 1, which shows the cumulative abnormal returns of quoted Chinese banks around the Central Economic Work Conference on December 14th-16th, 2016 (Panel A) and the issuance of the revised mortgage lending guidelines on March 13th, 2017 (Panel B).²⁹ The negative CARs indicate that Chinese private investors deemed the constraints on mortgage lending to be detrimental to bank profitability and value.³⁰

Bank branch location is obtained from the S&P Global Market Intelligence database. We focus on those

²⁸Not all 38 banks are present in all 15 cities. For example, the Chongqing Rural Commercial Bank is present only in the city (and surrounding region) of Chongqing. There are also a few missing observations. This explains why the number of observations neither equals $(38 \times 15 \times 6 =) 3420$ nor is a multiple of 6.

²⁹Abnormal returns are computed using a Fama-French three-factor model.

³⁰Note that even government-owned banks may be quoted; this is in fact the case of 14 of the 36 government-owned banks we consider.

residential zones within the 15 cities considered where there was at least one transaction per month during the sample period.³¹ There are 454 such zones; we thus have 2724 observations at the residential zone-month level. The 38 banks have a combined number of 6757 branches in the 454 residential zones. The mean (median) number of branches per residential zone is 14.88 (11); the 25th and 75th percentiles are 6 and 20, respectively.

Residential real estate transaction data is obtained from Lianjia, the largest real estate brokerage in China. The data is shown in Table 3; it naturally pertains to the 454 residential zones considered. The mean and median rates of monthly house price appreciation over the period of interest both equal 3%.³² The mean (median) log number of transactions is 2.82 (2.89), the mean (median) log number of new listings is 2.96 (3.04).

%CentralGeneralist denotes the percentage of branches that belong to central government-owned banks whose CEO are members of a generalist faction in a given residential zone. %CentralSpecialist, %LocalGeneralist, and %LocalSpecialist are similarly defined. They have means (medians) 2.7%, 24.6%, 0.8%, and 0.4% (0%, 25%, 0%, and 0%), respectively; central government-owned banks with specialist CEOs clearly tower over their government-owned competitors. The remaining branches belong either to private banks or, for the most part, to government-owned banks headed by non-factional CEOs.

Figure 2 shows bank branch density across residential zones in Shanghai. The darker is a residential zone's color, the denser is the branch network of the bank ownership-faction membership combination considered. Panel A shows the branch density of central government-owned banks with generalist CEOs, %CentralGeneralist; Panels B, C, and D do likewise for %CentralSpecialist, %LocalGeneralist, and %LocalSpecialist, respectively. That all residential zones are white in Panel D indicates that there are no branches of local government-owned banks with specialist CEOs in Shanghai.

6 Specifications of Regression Analysis

We test hypotheses H1 and H2 using a difference-in-differences (DD) methodology, and hypotheses H3 and H4 using a difference-in-difference-in-differences (DDD) methodology. The regression equation for H1 is

$$Y_{ijt} = \text{Central}_i \times \text{Post}_t + \text{Local}_i \times \text{Post}_t + \text{Bank-City FE} + \text{Month FE} + \varepsilon_{ijt}. \quad (1)$$

³¹Chinese residential zones are roughly equivalent to Western municipalities.

³²This very high rate, far above the 11% annual rate reported in Footnote 22 for the whole of China over the two-year period 2015-2016, suggests that the rate of house price appreciation was particularly pronounced in the 15 cities we consider over the three-month period preceding the Central Economic Work Conference. It also suggests that window guidance, which we show below to have been effective at decreasing the rate of house price appreciation, nonetheless left that rate at a high level.

Y_{ijt} denotes the mortgage interest rate or down-payment requirement set by bank i in city j at time t . Central_i and Local_i are dummy variables that take the value one when bank i is central government- or local government-owned, respectively. Finally, Post_t is a time dummy that takes the value one in the months after March 2017, inclusive of that month. The regression equation for H2 is similar, but replaces the bank ownership dummy variables Central_i and Local_i by the faction membership variables Specialist_i and Generalist_i , which take the value one when the CEO of bank i belongs to the specialist faction or to a generalist faction, respectively. The regression equation is

$$Y_{ijt} = \text{Generalist}_i \times \text{Post}_t + \text{Specialist}_i \times \text{Post}_t + \text{Bank-City FE} + \text{Month FE} + \varepsilon_{ijt}. \quad (2)$$

The triple difference equation used to test H3 is³³

$$\begin{aligned} Y_{ijt} = & \text{Central}_i \times \text{Generalist}_i \times \text{Post}_t + \text{Central}_i \times \text{Specialist}_i \times \text{Post}_t \\ & + \text{Central}_i \times \text{Post}_t + \text{Specialist}_i \times \text{Post}_t + \text{Local}_i \times \text{Post}_t \\ & + \text{Bank-City FE} + \text{Month FE} \\ & + \varepsilon_{ijt}. \end{aligned} \quad (3)$$

Finally, that used to test H4 is

$$\begin{aligned} Y_{kt} = & \% \text{CentralGeneralist}_k \times \text{Post}_t + \% \text{CentralSpecialist}_k \times \text{Post}_t \\ & + \% \text{LocalGeneralist}_k \times \text{Post}_t + \% \text{LocalSpecialist}_k \times \text{Post}_t \\ & + \% \text{CentralGeneralist}_k + \% \text{CentralSpecialist}_k \\ & + \% \text{LocalGeneralist}_k + \% \text{LocalSpecialist}_k \\ & + \text{City FE} + \text{Month FE} \\ & + \varepsilon_{kt}. \end{aligned} \quad (4)$$

Y_{kt} denotes, in turn, the rate of house price appreciation, the number of transactions, and the number of new listings (the latter two in logs) in residential zone k in month t .³⁴ $\% \text{CentralGeneralist}_k$ denotes the percentage of branches in residential zone k that belong to a central government-owned bank whose CEO is a member of a generalist faction; $\% \text{CentralSpecialist}_k$, $\% \text{LocalGeneralist}_k$, and $\% \text{LocalSpecialist}_k$ are similarly defined.

³³There is no $\text{Generalist}_i \times \text{Post}_t$ entry because there is no generalist at the helm of a private bank.

³⁴Formally,

$$\% \text{CentralGeneralist}_k = \frac{\# \text{branches of central government owned banks with generalist CEOs in zone } k}{\# \text{branches in zone } k}.$$

7 Empirical Results

We now present the results to estimating regression equations (1) to (4), which test hypotheses H1 to H4 presented in Section 4. We do so in turn.

7.1 H1: Bank ownership

Recall that H1 states that central government-owned banks increase mortgage interest rates and down-payment requirements more than do private banks, which in turn increase interest rates and down-payment requirements more than do local government-owned banks.

Figure 3 shows the coefficients of the interaction terms $\text{Central}_i \times \text{Post}_t$ (Panels A and B) and $\text{Local}_i \times \text{Post}_t$ (Panels C and D) in Equation (1), estimated in a dynamic DD setting.³⁵ In all four panels, the three coefficients corresponding to the pre-event period (October-December 2016) are insignificant, suggesting that the parallel trend assumption holds. Contrary to the predictions of H1, however, so are the three coefficients corresponding to the post-event period (March-May 2017).³⁶ The nature of bank ownership—central or local government or private—appears to have no (differential) effect on the strength of bank response to PBC issuance of the stricter mortgage lending guidelines, neither as regards down-payment requirements (Panels A and C) nor as regards mortgage interest rates (Panels B and D).³⁷

This interpretation is by and large confirmed by the results in Table 4, which show the estimation of Regression Equation (1). The coefficient of $\text{Local}_i \times \text{Post}_t$ always is insignificant, indicating that local government-owned banks react no differently to the issuance of the stricter guidelines than do private banks, neither as regards down-payment requirements (Columns 1 and 2) nor as regards mortgage interest rates (Columns 3 and 4). The coefficient of $\text{Central}_i \times \text{Post}_t$ also is insignificant for mortgage interest rates (Columns 3 and 4), but it is significantly positive for down-payment requirements (Columns 1 and 2). The result in Column 1 indicates that central government-owned banks raise down-payment requirements by 0.96 percentage

³⁵More precisely, dynamic DD replaces the Post dummy in the interaction terms by month indicators. The coefficients shown in the figure are those of the resulting interaction terms; they are estimated using bank-city and month-year fixed effects. December 2016 is the benchmark month; the vertical bars indicate the 95% confidence intervals.

³⁶We drop the months of January and February 2017, which are neither pre-event nor post-event: they are not pre-event because they follow the Central Economic Work Conference of December 2016; they are not post-event because they precede the issuance of the revised guidelines in March 2017.

³⁷Figure A.1 in the Appendix plots the monthly average of mortgage loan characteristics for all three types of banks. The pre-event period confirms the parallel trends assumptions. The post-event period shows that all three types of banks increase down-payment requirements and mortgage interest rates following the issuance of the stricter lending guidelines. Some banks respond more strongly than others, however: central government-owned banks increase down-payment requirements markedly more than do private banks (Panel A); this finding is confirmed by the regression results shown in Table 4, discussed in the next paragraph in the main text.

points more than do local government-owned banks and private banks; this amounts to 3.34% of the mean down-payment requirement.³⁸ The result in Column 2, which differs from Column 1 in the nature of the fixed effects, is similar. A recurring result throughout our empirical analysis will be the greater responsiveness of central government-owned banks to PBC window guidance. Such responsiveness is not unqualified, however: we show in Section 7.3 that it is affected by CEO faction membership.

7.2 H2: Faction membership

The present section repeats for H2 the analysis of Section 7.1 for H1. Recall that H2 states that CEOs who are members of the specialist finance faction increase mortgage interest rates and down-payment requirements more than do non-factional CEOs, who in turn increase interest rates and down-payment requirements more than do CEOs who are members of a generalist faction.

Figure 4 shows the coefficients of the interaction terms $\text{Generalist}_i \times \text{Post}_t$ (Panels A and B) and $\text{Specialist}_i \times \text{Post}_t$ (Panels C and D) in Equation (2), estimated in a dynamic DD setting. In all four panels, the three coefficients corresponding to the pre-event period (October-December 2016) are insignificant, suggesting that the parallel trend assumption holds. Contrary to the predictions of H2, however, so are the three coefficients corresponding to the post-event period (March-May 2017). The nature of faction membership—generalist or specialist—or the lack thereof appears to have no (differential) effect on the intensity of bank response to the issuance of the stricter mortgage lending guidelines, neither as regards down-payment requirements (Panels A and C) nor as regards mortgage interest rates (Panels B and D).³⁹

This interpretation is confirmed by the results in Table 5, which show the estimation of Regression Equation (2). The coefficients of $\text{Generalist}_i \times \text{Post}_t$ and $\text{Specialist}_i \times \text{Post}_t$ always are insignificant. As was the case for bank membership, indeed more so because of the significant coefficients of $\text{Central}_i \times \text{Post}_t$ in Columns 1 and 2 of Table 4, faction membership appears to have no (differential) effect on bank response to PBC window guidance. We show in the next two sections that this lack of significance is due to our failure to account for the interaction between bank ownership and faction membership. Bank CEOs may or may not have factional interests, which may or may not coincide with those of bank owners; this naturally affects the strength of bank response to PBC guidance.

³⁸3.34% = $0.96 \div 28.74$

³⁹Figure A.2 in the Appendix plots the monthly average of mortgage loan characteristics for banks with all three types of CEOs. The pre-event period confirms the parallel trends assumptions. The post-event period shows that banks with all three types of CEOs increase down-payment requirements and mortgage interest rates following the issuance of the stricter lending guidelines. The strength of bank response differs little across CEO types, with the possible exception of down payment requirements in May 2017, which increase more for banks with generalist CEOs as compared to those with non-factional CEOs (Panel A).

7.3 H3: Bank ownership and faction membership combined

Recall that H3 combines H1 and H2 to state that specialist CEOs of central government-owned banks increase mortgage interest rates and down-payment requirements most and that generalist CEOs of local government-owned banks increase them least.

Figures 5 and 6 show the coefficients of the interaction terms $\text{Central}_i \times \text{Generalist}_i \times \text{Post}_t$ (Panels A), $\text{Central}_i \times \text{Specialist}_i \times \text{Post}_t$ (Panels B), $\text{Local}_i \times \text{Generalist}_i \times \text{Post}_t$ (Panels C), and $\text{Local}_i \times \text{Specialist}_i \times \text{Post}_t$ (Panels D) in Equation (3) for down-payment requirements and mortgage interest rates, estimated in a dynamic DDD setting. In all eight panels, the three coefficients corresponding to the pre-event period (October-December 2016) are insignificant, suggesting that the parallel trend assumption holds; this is as for H1 and H2. Unlike for H1 and H2, the three coefficients corresponding to the post-event period (March-May 2017) are generally significant when the interests of bank owners and bank CEOs coincide, that is, when central government-owned banks are headed by specialist CEOs (Panels B) and when local government-owned banks are headed by generalist CEOs (Panels C). All three coefficients are significant in Panel B of Figure 5, two coefficients are significant in each of Panels C, and, somewhat more problematically, only one coefficient is significant in Panel B of 6. All post-event period coefficients, significant and insignificant alike, have the correct sign, positive for $\text{Central}_i \times \text{Specialist}_i \times \text{Post}_t$ (Panels B) and negative for $\text{Local}_i \times \text{Generalist}_i \times \text{Post}_t$ (Panels C). This is in accordance with H3.

When in contrast the interests of the parties conflict, that is, when central government-owned banks are headed by generalist CEOs (Panels A) and when local government-owned banks are headed by specialist CEOs (Panels D), fewer post-event period coefficients are significant. There is in fact no significant coefficient in Panel A of Figure 5 and Panel D of Figure 6; there are two significant coefficients in each of Panel D of Figure 5 and Panel A of Figure 6. This last finding does not necessarily pose a problem for H3: H3 does not imply that there is no (differential) effect of PBC window guidance when there are conflicting interests; it implies only this effect is weaker than when interests coincide. The signs of the coefficients, significant and insignificant alike, suggest the dominance of ownership over membership, particularly for central government-owned banks. The coefficients of $\text{Central}_i \times \text{Generalist}_i \times \text{Post}_t$ are positive (Panels A), indicating that the central government's desire for a strong response to PBC guidance dominates a generalist CEOs' preference for a weak response. Such dominance is less apparent in the case of local government-owned banks, as the coefficients of $\text{Local}_i \times \text{Specialist}_i \times \text{Post}_t$ are negative in Panel D of Figure 5, but positive in Panel D of Figure 6. The first result is consistent with the dominance of bank ownership over faction membership, the second result is not.

The results in Table 6 show the estimation of Regression Equation (3). In full accordance with H3, all

four coefficients of $\text{Central}_i \times \text{Specialist}_i \times \text{Post}_t$ are significantly positive, and all four coefficients of $\text{Local}_i \times \text{Generalist}_i \times \text{Post}_t$ are significantly negative. When the interests of the parties conflict rather than coincide, the two significantly positive coefficients of $\text{Central}_i \times \text{Generalist}_i \times \text{Post}_t$ (Columns 3 and 4) and the one significantly negative coefficient of $\text{Local}_i \times \text{Specialist}_i \times \text{Post}_t$ (Column 2) are consistent with the (limited) dominance of ownership over membership. The central government’s desire for a strong response to PBC guidance dominates a generalist CEOs’ preference for a weak response; likewise, a local government’s desire for a weak response to PBC guidance dominates a specialist CEOs’ preference for a strong response. The adjectives ‘weak’ and ‘strong’ describe the strength of the response relative to that of private banks for bank owners and to that of non-factional CEOs for bank CEOs.

The findings that (i) the effects of ownership and membership are stronger when the interests of the parties coincide than when they conflict and that (ii) there is (limited) dominance of ownership over membership suggest the following ranking among the triple interaction coefficients in Equation (3)

$$\begin{aligned}
 \text{Central}_i \times \text{Specialist}_i \times \text{Post}_t &> \text{Central}_i \times \text{Generalist}_i \times \text{Post}_t \\
 &> \text{Local}_i \times \text{Specialist}_i \times \text{Post}_t \\
 &> \text{Local}_i \times \text{Generalist}_i \times \text{Post}_t
 \end{aligned} \tag{5}$$

The first and last coefficients are those of coinciding incentives; the first is positive, the last negative. The second and third coefficients are those of conflicting incentives. The first and last inequalities express the stronger effect of coinciding as compared to conflicting incentives; the second inequality expresses the dominance of ownership over membership: the effect of Central as compared to Local dominates the effect of Generalist as compared to Specialist.

The preceding inequalities imply six testable inequalities: the three adjacent inequalities, two inequalities comparing coefficients that are one coefficient apart, and one inequality comparing the first and last coefficients. The inequalities are tested by computing the difference between the LHS and the RHS of each inequality and testing the null hypothesis that these differences are less than or equal to zero against the alternative hypothesis that the differences are strictly greater than zero. Rejection of the null in favor of the alternative constitutes evidence in favor of the inequality.

Table 7 shows the results. The statistically insignificant differences in Row 1 indicate rejection of the first adjacent inequality. There is a single statistically significantly positive difference in Row 2, that for down-payment requirements with bank-city fixed effects (Column 2); the other three differences (Columns 1, 3, and 4) are statistically insignificant, indicating rejection of the second adjacent inequality. In contrast, the statistically significantly positive differences for down-payment requirements in Columns 1 and 2 but not 3 and 4 of Row 3 provide evidence in favor of the third adjacent inequality for down-payment requirements

but not for interest rates. There is evidence in favor of one of the two one-coefficient-apart inequalities for both down-payment requirements and interest rates (Row 4) and in favor of the other inequality for down-payment requirements but not for interest rates (Row 5). Finally, there is strong evidence in favor of the sixth inequality (Row 6).

The results are easy to interpret for coinciding incentives, less so for conflicting incentives. The highly significantly positive difference between the first and last coefficients (Row 6), both pertaining to coinciding incentives, is consistent with a stronger response to PBC window guidance on the part of specialist CEOs of central government-owned banks than on that of generalist CEOs of local government-owned banks. The uneven significance of the remaining inequalities suggests that any dominance of bank ownership over faction membership is likely to be limited in nature. This is consistent with the results in Table 6, which show the uneven significance of the coefficients of $\text{Central}_i \times \text{Generalist}_i \times \text{Post}_t$ and $\text{Local}_i \times \text{Specialist}_i \times \text{Post}_t$, both pertaining to conflicting incentives.

In sum, and as already noted in the Introduction, the findings in the present section suggest that neither bank ownership nor faction membership can be considered in isolation. Owners have the power to influence the behavior of CEOs, but that power is constrained by CEO discretion, which CEOs exploit in accordance with their factional preferences, if any. Bank and CEO response to PBC window guidance therefore cannot be predicted solely on the basis of bank ownership or on that of faction membership. Instead, both ownership and membership must be considered, with predictable results when ownership and membership incentives coincide and somewhat less predictable results when incentives conflict.

7.4 H4: Real effects on housing market

H4 states that the rate of house price appreciation increases less or decreases more in cities in which central government-owned banks with specialist CEOs constitute a larger percentage of total bank branches; it increases more or decreases less in cities in which provincial and city government-owned banks with generalist CEOs constitute a larger percentage of total bank branches. The same applies to the two other measures of real estate activity that are the number of transactions and the number of new listings.

The results in Table 8 show the estimation of Regression equation (4). In accordance with H4, all three coefficients of $\% \text{CentralSpecialist}_k \times \text{Post}_t$ are significantly negative. The -0.041 coefficient in Column 1 indicates that in a residential zone with average branch density of central government-owned banks with specialist CEOs (0.25), PBC window guidance (differentially) decreases the monthly rate of house price appreciation by 1.025 percentage points; this amounts to 34% of the mean rate of monthly house price

appreciation.⁴⁰ Column 2 similarly indicates a 16.7% decrease in the number of transactions and Column 3 a 11.5% decrease in the number of new listings.⁴¹ The denser is the presence of central government-owned banks with specialist CEOs in a given residential zone, the stronger is the effect of PBC window guidance at moderating real estate activity, as measured by the rate of house price appreciation, the number of transactions, and the number of new listings.

Results are weaker for the density of local government-owned banks with generalist CEOs, despite this case too being one in which the incentives of owners and CEOs coincide, as confirmed by the three significantly negative coefficients of $\text{Local}_i \times \text{Generalist}_i \times \text{Post}_t$ in Table 6. The single significant coefficient of $\% \text{LocalGeneralist}_k \times \text{Post}_t$ in Table 8 is that in Column 2: only with regards to the number of transactions does the branch density of local government-owned banks with generalist CEOs have a differential effect relative to private banks with non-factional CEOs.

Turning to the two cases of conflicting incentives, we again note the (weak) dominance of bank ownership over faction membership. The three coefficients of $\% \text{CentralGeneralist}_k \times \text{Post}_t$ are negative, although only that in Column 2 is significantly so. Similarly, the three coefficients of $\% \text{LocalSpecialist}_k \times \text{Post}_t$ are positive; none is significant, however.

That only the branch density of central government-owned banks with specialist CEOs matters for all three measures of real activity (the three significantly negative coefficients of $\% \text{CentralSpecialist}_k \times \text{Post}_t$) may simply reflect the higher mean density of such owner-faction combination, 0.25. As shown in Table 3, the mean densities of central government-owned banks with generalist CEOs, local government-owned banks with generalist CEOs, and local government-owned banks with specialist CEOs are far lower, at 0.03, 0.01, and 0.004, respectively. As noted in Section 5, the remaining branches belong either to private banks or, for the most part, to government-owned banks headed by non-factional CEOs.

Regardless, it is clear that the combination of central government ownership and specialist faction membership stands out. Our next result shows that the preeminent role of central government ownership extends to CEO career progression.

7.5 CEO career progression

Table 9 shows the career progression of the 38 bank CEOs we consider. Panel A reproduces Table 5 for completeness. Panel B shows CEO departures from the banks they had been heading. Departures overwhelmingly originate from central government-owned banks: more than half the CEOs of central government-

⁴⁰ $1.025\% = 0.041 \times 0.25$ and $34\% = 1.025 \div 3$.

⁴¹ $16.7\% = 0.669 \times 0.25$ and $11.5\% = 0.459 \times 0.25$.

owned banks leave their positions in the 5 years that follow the March 2017 issuance of PBC guidelines.⁴² This is true of specialist (4 out of 7), generalist (1 out of 2), and non-factional (3 out of 6) CEOs. In contrast, none of the 3 specialist and 3 generalist CEOs of local government-owned banks leaves their banks, and only 2 of the 15 non-factional CEOs leave theirs.

Panel C of Table 9 shows that specialist and non-factional ex-CEOs of central-government owned banks overwhelmingly remain active within the central government (3 out of 4 specialist ex-CEOs, 3 out of 3 non-factional ex-CEOs), generally within central government-controlled financial institutions. For example, one ex-CEO becomes Chairman of sovereign wealth fund China Investment Corporation, another of development bank China Development Bank, and a third of the Postal Savings Bank of China. In contrast, the single generalist ex-CEO becomes president of Shanghai International Group, a financial conglomerate whose largest shareholder is the City of Shanghai.

The preceding findings can be interpreted as suggesting that reliance on CEO career concerns for incentive purposes is the near exclusive doing of the central government. This interpretation is further supported by the finding in Panel D that political promotions are limited to present and past CEOs of central government-owned banks; there is not one single instance of political promotion among the CEOs of local government-owned banks.

8 Conclusion

In his *Magnum Opus* on state-owned enterprises (SOE), Aharoni (1986), Chapter 8, asks whether “the [SOE] manager’s mind [can] be nationalized?” His answer is mainly in the negative. Although Aharoni’s work does not examine China, our work shows that his answer applies to China as well, or at least to China’s government-owned banks in the three month-period starting in March 2017. The pace and extent of bank CEOs’ response to People’s Bank of China (PBC) window guidance were far from uniform. Local government-owned banks responded differently than did central government-owned banks. Similarly, bank CEOs who are members of a generalist faction within the Chinese Communist Party (CCP) responded differently than did CEOs who are members of the specialist finance faction. In short, our work documents that central government-owned banks with specialist CEOs responded most strongly to PBC guidance; in contrast, local government-owned banks with generalist CEOs responded most weakly. Both findings reflect the strength of coinciding incentives: in a trade-off between (i) economic growth, very much including construction- and real estate development-driven growth, and (ii) price and financial stability, China’s central government and members of the specialist finance faction within the CCP tend to favor the latter, whereas

⁴²All departures are for other positions; no CEO in our sample retires over the 5 year period.

local governments and members of generalist factions within the CCP favor the former. Where in contrast incentives conflict, as for central government-owned banks with generalist CEOs or local government-owned banks with specialist CEOs, the results are less clear-cut. There is nonetheless evidence consistent with the limited dominance of ownership over membership, in the sense that the preferences of owners somewhat unevenly dominate those of CEOs. These differing incentives had real effects: the rate of house price appreciation increased less or decreased more in those residential zones where the density of central government-owned banks with specialist CEOs was highest; the same was true of the number of real estate transactions and the number of new listings. The results were somewhat weaker regarding the density of local government-owned banks with generalist CEOs, which affects only the number of transactions; there were nonetheless real effects.

Extending our results to countries other than China, we conclude that central governments and central banks should be mindful of both commercial bank ownership and bank CEO connections, of which faction membership is one form, in attempting to gauge commercial bank response to central government or central bank policy guidance. Neither ownership nor connections can be considered in isolation.

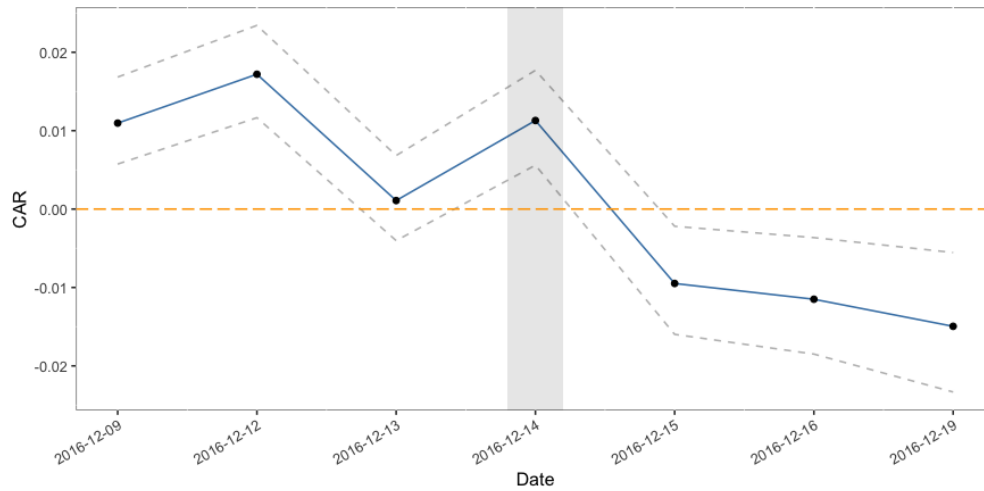
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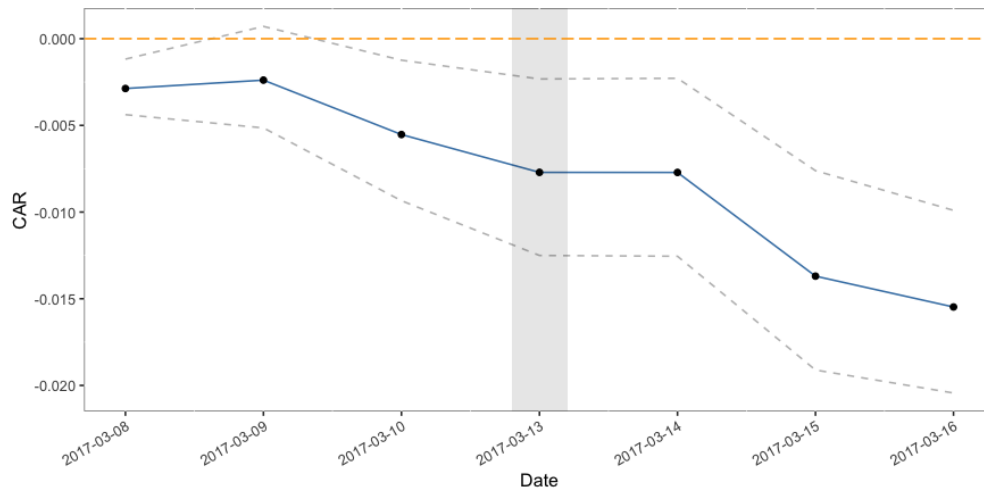
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Tables and Figures



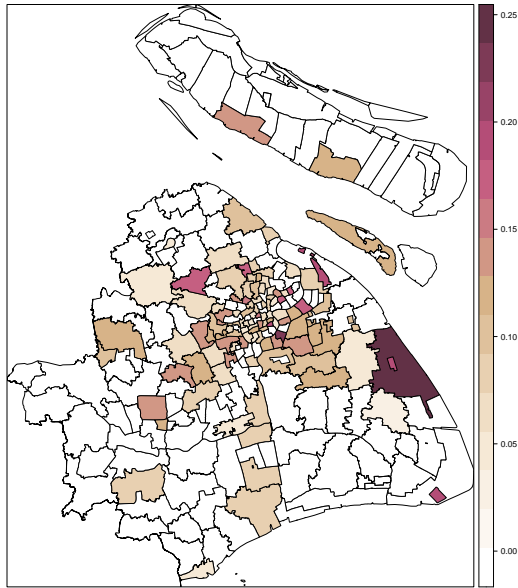
(A) CAR—Central Economic Work Conference



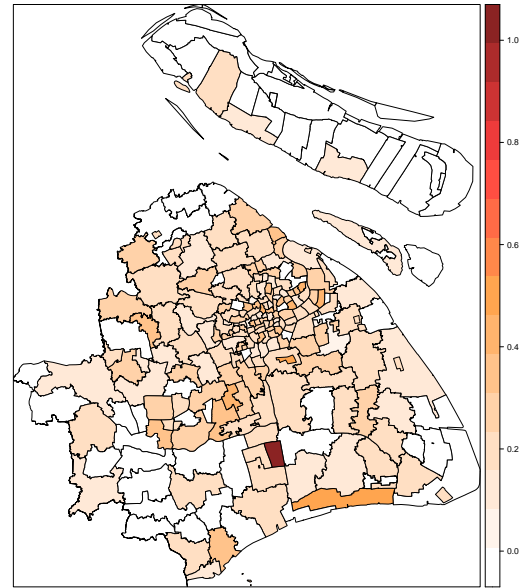
(B) CAR—Window Guidance

Figure 1: Cumulative Abnormal Returns of Quoted Chinese Banks

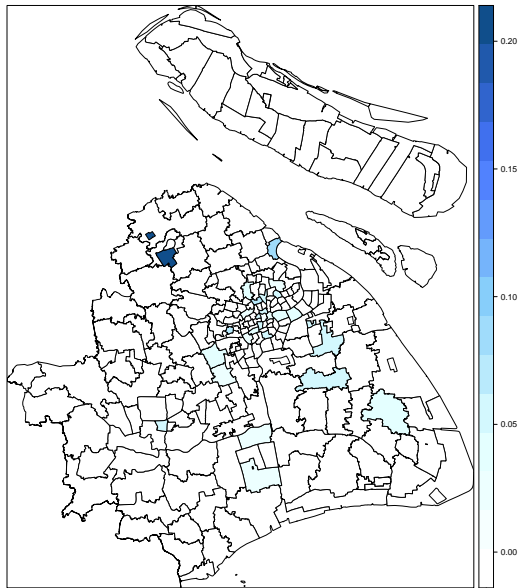
This figure shows the cumulative abnormal returns (CAR) of quoted Chinese banks around the Central Economic Work Conference (December 14, 2016 to December 16, 2016, Panel A) and the issuance of the revised lending guidelines (March 13, 2017, Panel B). Abnormal returns are computed using the Fama-French three factor model. We use the China Stock Market and Accounting Research (CSMAR) database to obtain bank ownership information and stock performance and the RESSET database to obtain the market factors. Our sample consists of daily data over the period January 1, 2012 to May 31, 2016. The event window is [-3, +3].



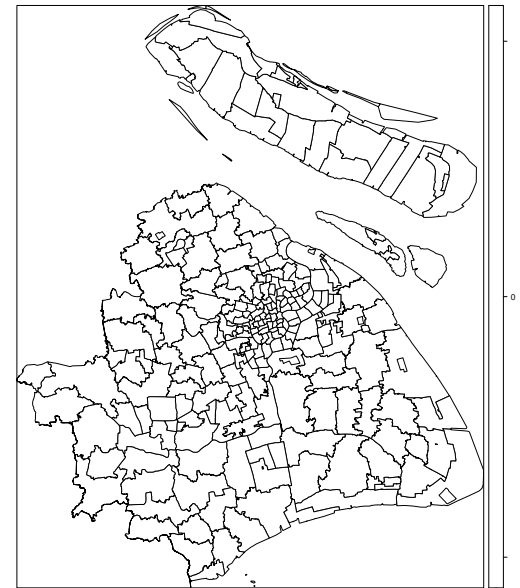
(A) %CentralGeneralist



(B) %CentralSpecialist



(C) %LocalGeneralist



(D) %LocalSpecialist

Figure 2: Bank Branch Density across Residential Zones in Shanghai

This figure illustrates the fractions of residential zone branches that belong to central government-owned banks with generalist CEOs (Panel A), to central government-owned banks with specialist CEOs (Panel B), to local government-owned banks with generalist CEOs (Panel C), and to local government-owned banks with specialist CEOs (Panel D).

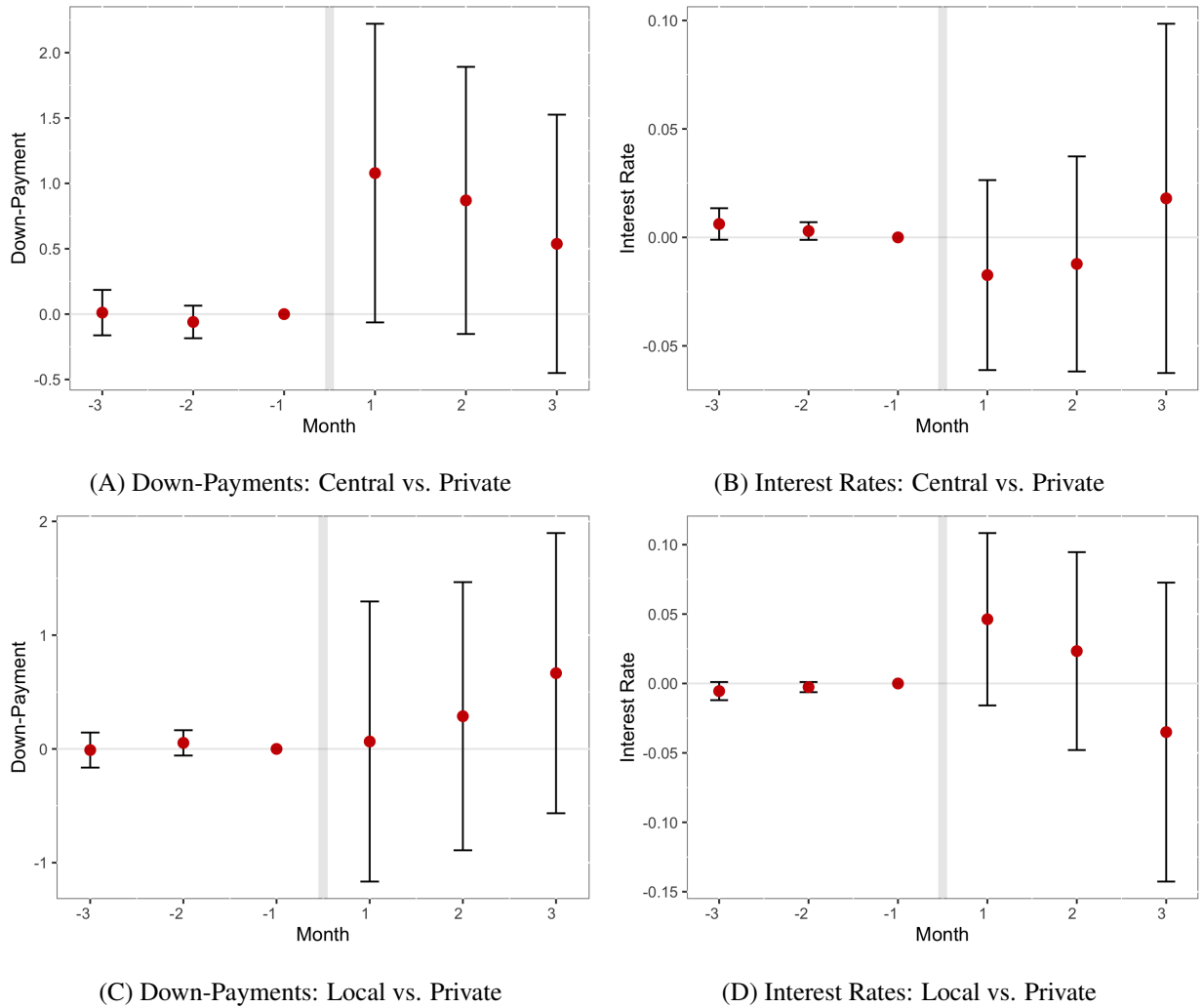


Figure 3: Parallel Trends—Bank Ownership

This figure shows the differential effects of window guidance on down-payment requirements and mortgage interest rates across the different forms of bank ownership. Specifically, the figure shows the coefficients of the interaction terms in a dynamic DD setting, whereby the Post dummy in the interaction terms in Equation (1) is replaced by month indicators; bank-city and month-year fixed effects are included. Panel A (B) shows the differential effects on down-payments (interest rates) across central government-owned banks and private banks. Panel C (D) shows the corresponding differential effects across local government-owned banks and private banks. The pre-event period is October-December, 2016; the post-event period is March-May, 2017. December 2016 is the benchmark month; the vertical bars indicate the 95% confidence intervals.

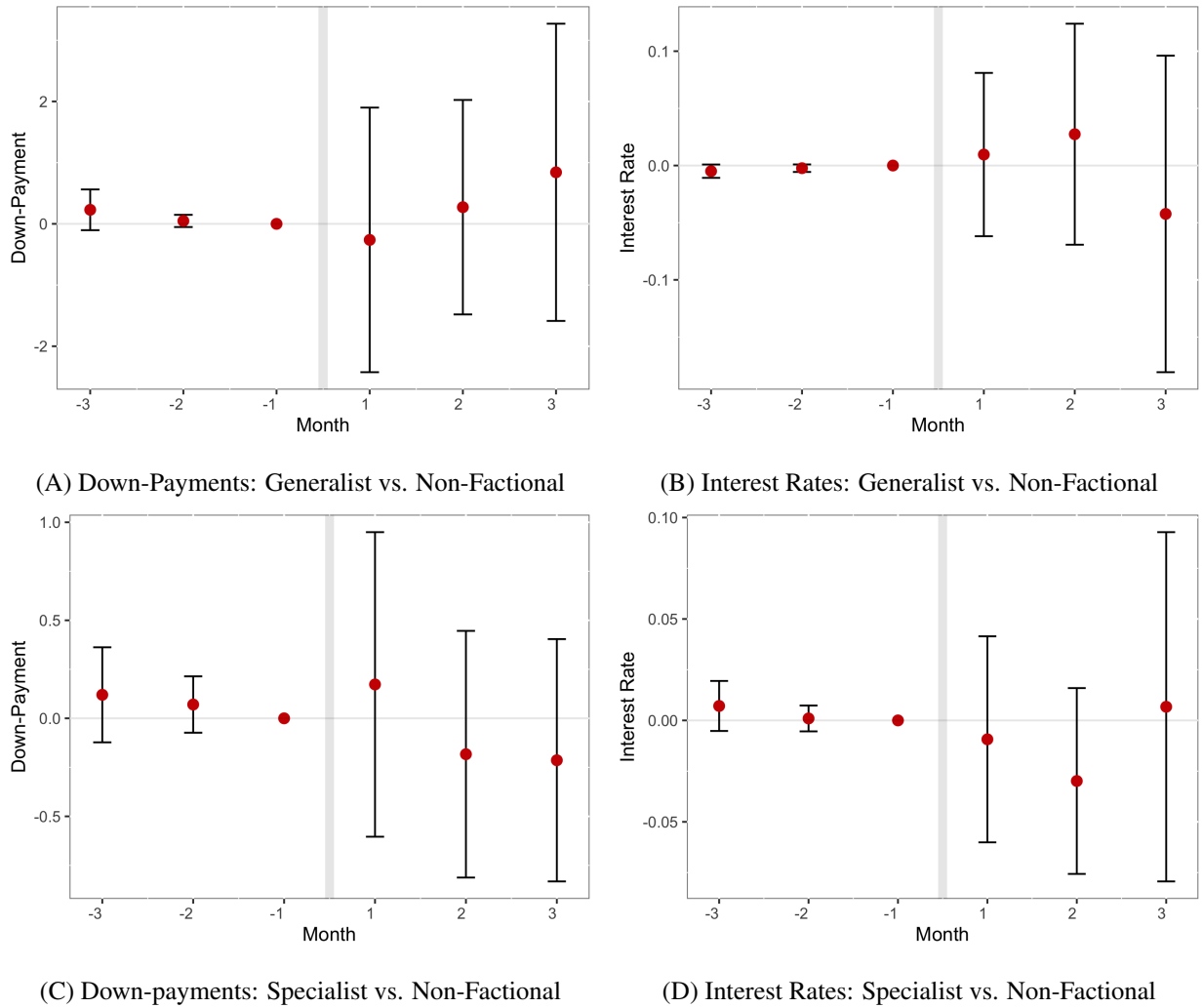


Figure 4: Parallel Trends—Faction Membership

This figure shows the differential effects of window guidance on down-payment requirements and mortgage interest rates across the different forms of faction membership. Specifically, the figure shows the coefficients of the interaction terms in a dynamic DD setting, whereby the Post dummy in the interaction terms in Equation (2) is replaced by month indicators; bank-city and month-year fixed effects are included. Panel A (B) shows the differential effects on down-payments (interest rates) across generalist CEOs and non-factional CEOs. Panel C (D) shows the corresponding differential effects across specialist CEOs and non-factional CEOs. The pre-event period is October-December, 2016; the post-event period is March-May, 2017. December 2016 is the benchmark month; the vertical bars indicate the 95% confidence intervals.

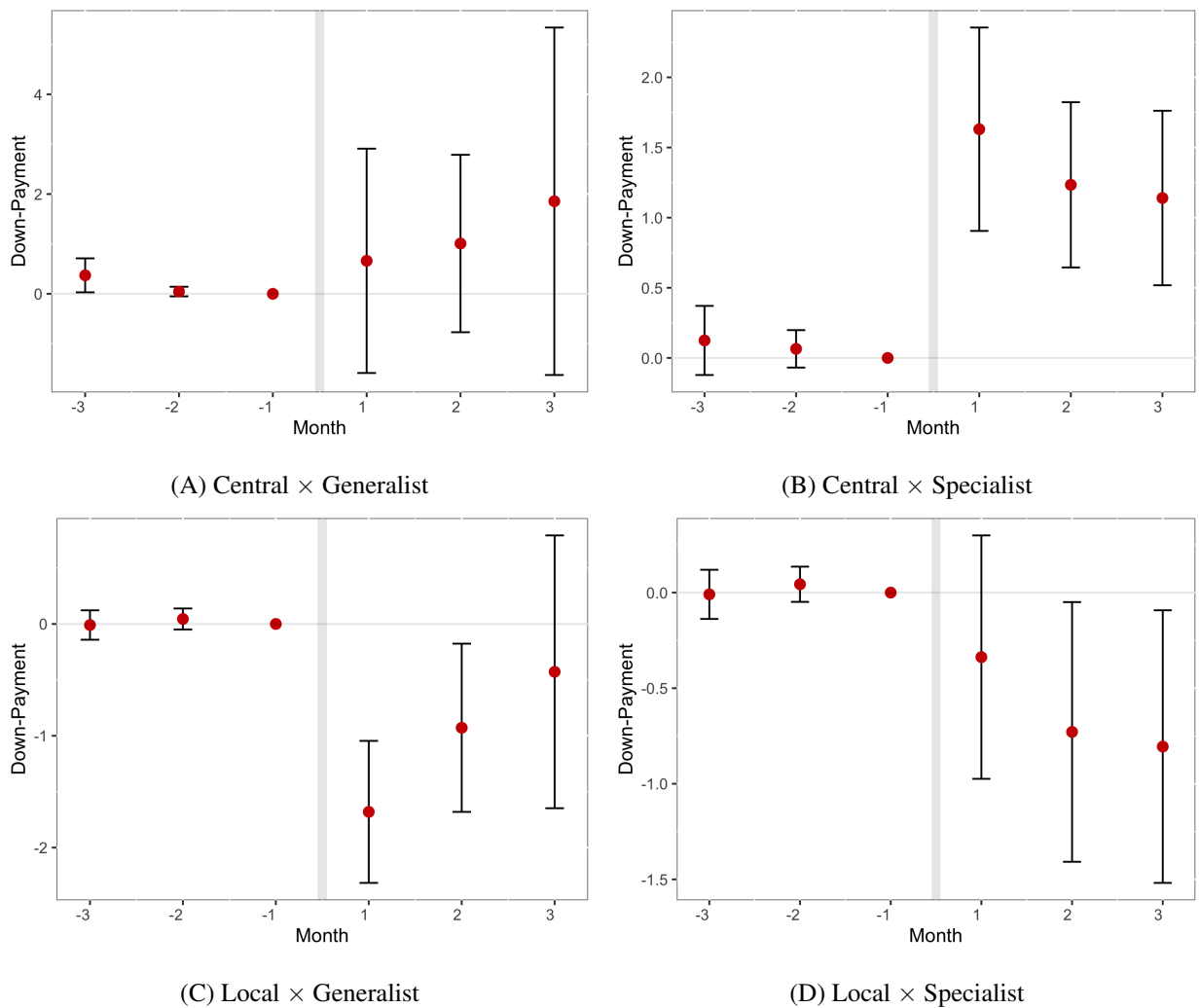


Figure 5: Parallel Trends—Bank Ownership and Faction Membership, Down-Payments

This figure shows the differential effects of window guidance on down-payment requirements across the different forms of bank ownership and faction membership. Specifically, the figure shows the coefficients of the triple interaction terms in a dynamic DDD setting, whereby the Post dummy in the triple interaction terms in Equation (3) is replaced by month indicators; bank-city and month-year fixed effects are included. Panel A shows the differential effects across central government-owned banks headed by generalist CEOs and private banks headed by non-factional CEOs; Panels B, C, and D show the corresponding differential effects for central government-owned banks headed by specialist CEOs, local government-owned banks headed by generalist CEOs, and local government-owned banks headed by specialist CEOs, respectively. The pre-event period is October-December, 2016; the post-event period is March-May, 2017. December 2016 is the benchmark month; the vertical bars indicate the 95% confidence intervals.

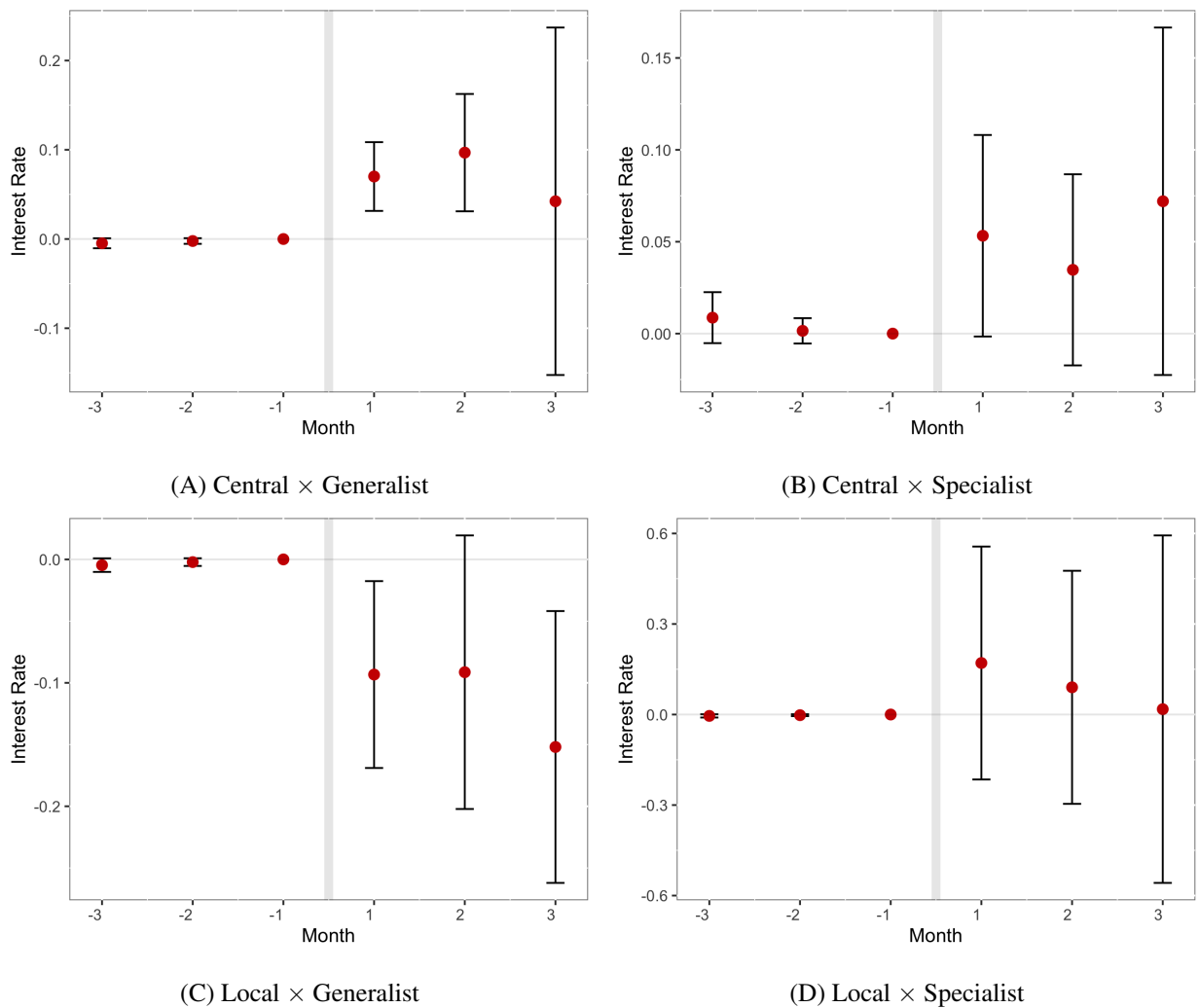


Figure 6: Parallel Trends—Bank Ownership and Faction Membership, Interest Rates

This figure shows the differential effects of window guidance on mortgage interest rates across the different forms of bank ownership and faction membership. Specifically, the figure shows the coefficients of the triple interaction terms in a dynamic DDD setting, whereby the Post dummy in the triple interaction terms in Equation (3) is replaced by month indicators; bank-city and month-year fixed effects are included. Panel A shows the differential effects across central government-owned banks headed by generalist CEOs and private banks headed by non-factional CEOs; Panels B, C, and D show the corresponding differential effects for central government-owned banks headed by specialist CEOs, local government-owned banks headed by generalist CEOs, and local government-owned banks headed by specialist CEOs, respectively. The pre-event period is October-December, 2016; the post-event period is March-May, 2017. December 2016 is the benchmark month; the vertical bars indicate the 95% confidence intervals.

Table 1: Bank Characteristics

This table reports the relevant characteristics of the 38 banks in our sample.

Bank Name	Total Assets (10 Billion CNY)	Central Govt. Ownership	Provincial Govt. Ownership	City Govt. Ownership	Ownership Type	Faction Membership
Agricultural Bank of China	1957.01	83.82	0	0	Central	non-factional
China Resources Bank of Zhuhai	13.77	75.33	0	20.17	Central	specialist
China CITIC Bank	593.11	72.64	0	0	Central	specialist
Postal Savings Bank of China	826.56	70.24	0	0	Central	specialist
Industrial and Commercial Bank of China	2413.73	70.14	0	0	Central	non-factional
Bank of China	1814.89	67.33	0	0	Central	non-factional
China Everbright Bank	402.00	61.19	0	1.42	Central	non-factional
China Construction Bank	2096.37	58.95	0	0	Central	specialist
Bank of Dalian	30.56	53.36	2.77	11.57	Central	non-factional
China Guangfa Bank	204.76	45.86	10.35	3.97	Central	specialist
Bank of Communications	840.32	37.15	0	0	Central	specialist
China Merchants Bank	594.23	35.32	0	0	Central	non-factional
Hua Xia Bank	235.62	33.98	0	30.23	Central	specialist
China Bohai Bank	85.61	23.70	0	20.54	Central	generalist
Shanghai Pudong Development Bank	585.73	23.23	29.54	0	Central	generalist
Bank of Guangzhou	44.45	22.51	15.74	54.54	Local	specialist
Shanghai Rural Commercial Bank	71.09	15.02	0	25.91	Local	non-factional
Bank of Shanghai	175.54	10.16	0	22.25	Local	non-factional
Industrial Bank	608.59	9.91	21.09	0	Local	non-factional
Bank of Beijing	211.63	4.53	0	17.22	Local	non-factional
Bank of Hangzhou	72.04	2.89	1.97	33.12	Local	non-factional
Bank of Nanjing	106.39	2.02	11.64	16.40	Local	generalist
Bank of Jiangsu	159.83	1.01	24.96	2.38	Local	generalist
China Zheshang Bank	135.49	0	16.71	2.01	Local	non-factional
Jiangsu Zijin Rural Commercial Bank	13.38	0	13.23	12.47	Local	generalist
Bank of Chengdu	36.09	0	4.69	30.22	Local	non-factional
Bank of Changsha	38.35	0	3.28	26.88	Local	specialist
Guangzhou Rural Commercial Bank	66.10	0	1.64	48.70	Local	non-factional
Beijing Rural Commercial Bank	72.42	0	0	51.35	Local	specialist
Bank of Dongguan	23.21	0	0	31.24	Local	non-factional
Bank of Tianjin	65.73	0	0	28.55	Local	non-factional
Shengjing Bank	90.55	0	0	25.52	Local	non-factional
Xiamen Bank	18.90	0	0	22.72	Local	non-factional
Chongqing Rural Commercial Bank	80.32	0	0	22.44	Local	non-factional
Bank of Suzhou	26.04	0	0	19.42	Local	non-factional
Bank of Qingdao	27.80	0	0	13.37	Local	non-factional
Ping An Bank	295.34	1.80	0	0	Private	specialist
China Minsheng Banking	589.59	0	0	0	Private	non-factional

Table 2: CEO Distribution Across Banks and Factions

This table shows the number of CEOs heading each of the three types of banks and belonging to each of the three types of factions. The three types of banks are central government-owned (Central), local government-owned (Local), and private (Private). The three types of factions are Specialist, Generalist, and Non-factional.

	Specialist	Generalist	Non-factional
Central	7	2	6
Local	3	3	15
Private	1	0	1

Table 3: Summary Statistics

This table reports the summary statistics (number of observations, mean, standard deviation, 25th percentile, median, and 75th percentile) for the variables of interest. The variables in Panel A pertain to the 38 banks considered, those in Panel B to the 454 residential zones. Variable definitions can be found in the Appendix.

Statistic	N	Mean	St. Dev.	Pctl(25)	Median	Pctl(75)
<i>Panel A: Bank</i>						
Interest Rate	1,382	4.45	0.23	4.41	4.41	4.66
Down-Payment	1,382	28.74	4.52	30	30	30
Generalist	1,382	0.10	0.30	0	0	0
Specialist	1,382	0.39	0.49	0	0	1
Central	1,382	0.72	0.45	0	1	1
Local	1,382	0.19	0.39	0	0	0
<i>Panel B: Residential zones</i>						
Number of Branches	2,724	14.88	13.28	6	11.5	20
House Price Growth	2,714	0.03	0.10	-0.02	0.03	0.07
log(Number of Transactions)	2,724	2.82	1.06	2.08	2.89	3.58
log(Number of New Listings)	2,724	2.97	0.95	2.40	3.04	3.64
%CentralGeneralist	2,724	0.03	0.05	0.00	0.00	0.04
%CentralSpecialist	2,724	0.25	0.18	0.12	0.25	0.33
%LocalGeneralist	2,724	0.01	0.03	0.00	0.00	0.00
%LocalSpecialist	2,724	0.004	0.02	0.00	0.00	0.00

Table 4: Bank Ownership, Down-payments, and Interest Rates

This table reports the effects of bank ownership on down-payment requirements and mortgage interest rates at the bank-city level. Central (Local) is the indicator variable for central (local) government-owned banks. Post is a dummy variable equal to one in the post-event period. The pre-event period is October-December, 2016; the post-event period is March-May, 2017. Columns (1) and (3) include bank fixed effects to control for bank-specific lending strategies; Columns (2) and (4) include bank-city fixed effects to control for bank-city specific lending strategies. Month-year fixed effects are included in all columns to control for macroeconomic conditions. Standard errors are clustered at the bank level and reported in brackets; ***, **, and * stand for statistical significance at the 1%, 5%, and 10% level, respectively. Variable definitions are in the Appendix.

	<i>Dependent variable:</i>			
	Down-Payment		Interest Rate	
	(1)	(2)	(3)	(4)
Central \times Post	0.960* (0.550)	0.859* (0.467)	-0.004 (0.023)	-0.008 (0.021)
Local \times Post	0.389 (0.587)	0.319 (0.512)	0.018 (0.035)	0.015 (0.034)
Bank FE	Y	N	Y	N
City FE	Y	N	Y	N
Bank-City FE	N	Y	N	Y
Month-Year FE	Y	Y	Y	Y
Observations	1,382	1,382	1,382	1,382
Adjusted R ²	0.744	0.756	0.537	0.575

Table 5: Faction Membership, Down-Payments, and Interest Rates

This table reports the effects of faction membership on down-payment requirements and mortgage interest rates at the bank-city level. Generalist (Specialist) is the indicator variable for generalist (specialist) CEOs. Post is a dummy variable equal to one in the post-event period. The pre-event period is October-December, 2016; the post-event period is March-May, 2017. Columns (1) and (3) include bank fixed effects to control for bank-specific lending strategies; Columns (2) and (4) include bank-city fixed effects to control for bank-city specific lending strategies. Month-year fixed effects are included in all columns to control for macroeconomic conditions. Standard errors are clustered at the bank level and reported in brackets; ***, **, and * stand for statistical significance at the 1%, 5%, and 10% level, respectively. Variable definitions are in the Appendix.

	<i>Dependent variable:</i>			
	Down-Payment		Interest Rate	
	(1)	(2)	(3)	(4)
Generalist \times Post	0.167 (0.882)	0.145 (0.880)	0.008 (0.047)	0.004 (0.045)
Specialist \times Post	-0.154 (0.304)	-0.136 (0.288)	-0.013 (0.025)	-0.014 (0.025)
Bank FE	Y	N	Y	N
City FE	Y	N	Y	N
Bank-City FE	N	Y	N	Y
Month-Year FE	Y	Y	Y	Y
Observations	1,382	1,382	1,382	1,382
Adjusted R ²	0.743	0.755	0.537	0.575

Table 6: Bank Ownership, Faction Membership, Down-Payments, and Interest Rates

This table reports the interacting effects of bank ownership and faction membership on down-payment requirements and mortgage interest rates at the bank-city level. Central (Local) is the indicator variable for central (local) government-owned banks; Generalist (Specialist) is the indicator variable for generalist (specialist) CEOs. Post is a dummy variable equal to one in the post-event period. The pre-event period is October-December, 2016; the post-event period is March-May, 2017. Columns (1) and (3) include bank fixed effects to control for bank-specific lending strategies; Columns (2) and (4) include bank-city fixed effects to control for bank-city specific lending strategies. Month-year fixed effects are included in all columns to control for macroeconomic conditions. Standard errors are clustered at the bank level and reported in brackets; ***, **, and * stand for statistical significance at the 1%, 5%, and 10% level, respectively. Variable definitions are in the Appendix.

	<i>Dependent variable:</i>			
	Down-Payment (1)	Down-Payment (2)	Interest Rate (3)	Interest Rate (4)
Central × Generalist × Post	0.947 (0.991)	0.936 (0.995)	0.082** (0.041)	0.076* (0.038)
Central × Specialist × Post	1.555*** (0.280)	1.284*** (0.274)	0.058** (0.028)	0.049* (0.027)
Local × Generalist × Post	−0.979*** (0.360)	−1.024*** (0.354)	−0.110*** (0.037)	−0.110*** (0.037)
Local × Specialist × Post	−0.312 (0.311)	−0.635** (0.304)	0.103 (0.207)	0.095 (0.207)
Specialist × Post	−1.593*** (0.024)	−1.315*** (0.011)	−0.054*** (0.002)	−0.046*** (0.002)
Central × Post	0.322** (0.139)	0.322** (0.139)	−0.032* (0.017)	−0.032* (0.017)
Local × Post	0.110 (0.309)	0.156 (0.302)	0.019 (0.029)	0.020 (0.029)
Bank FE	Y	N	Y	N
City FE	Y	N	Y	N
Bank-City FE	N	Y	N	Y
Month-Year FE	Y	Y	Y	Y
Observations	1,382	1,382	1,382	1,382
Adjusted R ²	0.745	0.757	0.539	0.577

Table 7: Inequality Testing

This table reports the inequality testing of the coefficients in Table 6. Columns (1) and (2) are for down-payment requirements, Columns (3) and (4) for mortgage interest rates. The table reports the differences of the coefficients; the corresponding p-values are below in parentheses; ***, **, and * stand for statistical significance at the 1%, 5%, and 10% level, respectively. Variable definitions are in the Appendix.

Difference	<i>Dependent variable:</i>			
	Down-Payment (1)	Down-Payment (2)	Interest Rate (3)	Interest Rate (4)
Central × Specialist × Post – Central × Generalist × Post	0.608 (0.275)	0.348 (0.366)	–0.025 (0.718)	–0.027 (0.75)
Central × Generalist × Post – Local × Specialist × Post	1.259 (0.113)	1.571* (0.066)	–0.020 (0.539)	–0.01918 (0.536)
Local × Specialist × Post – Local × Generalist × Post	0.667*** (0.000)	0.3893** (0.019)	0.213 (0.151)	0.205 (0.16)
Central × Generalist × Post – Local × Generalist × Post	1.926** (0.034)	1.961** (0.032)	0.192*** (0.000)	0.186*** (0.000)
Central × Specialist × Post – Local × Specialist × Post	1.867*** (0.000)	1.9192*** (0.000)	–0.045 (0.586)	–0.0464 (0.588)
Central × Specialist × Post – Local × Generalist × Post	2.534*** (0.000)	2.309*** (0.000)	0.167*** (0.000)	0.158*** (0.000)

Table 8: Real Effects on Housing Market

This table reports the effects of bank branch density on the rate of growth in house prices, the (natural logarithm of the) number of transactions, and the (natural logarithm of the) number of new listings, all monthly and at the residential zone level. %Central(Local)Generalist is the percentage of residential zone branches that belong to central (local) government-owned banks whose CEOs are members of a generalist faction. %Central(Local)Specialist is the percentage of residential zone branches that belong to central (local) government-owned banks whose CEOs are members of the specialist faction. Post is a dummy variable equal to one in the post-event period. The pre-event period is October-December, 2016; the post-event period is March-May, 2017. City and month-year fixed effects are included. Standard errors are clustered at the residential zone level and reported in brackets; ***, **, and * stand for statistical significance at the 1%, 5%, and 10% level, respectively. Variable definitions are in the Appendix. The number of observations in the first column is smaller than in the other two columns because the absence of September 2016 transactions in some residential zones precluded the computation of the growth rate.

	House Price Growth	Log(Number of Transactions)	Log(Number of New Listings)
%CentralGeneralist × Post	−0.065 (0.041)	−0.787* (0.473)	−0.491 (0.321)
%CentralSpecialist × Post	−0.041*** (0.013)	−0.669*** (0.157)	−0.459*** (0.113)
%LocalGeneralist × Post	0.064 (0.124)	1.661** (0.813)	0.494 (0.624)
%LocalSpecialist × Post	0.089 (0.130)	1.197 (0.981)	0.951 (1.134)
%CentralGeneralist	0.008 (0.024)	1.336 (0.973)	0.993 (1.015)
%CentralSpecialist	0.032*** (0.009)	0.207 (0.269)	0.155 (0.252)
%LocalGeneralist	0.078* (0.043)	−0.324 (1.120)	0.390 (1.141)
%LocalSpecialist	−0.115 (0.105)	1.456 (1.860)	1.426 (1.825)
City FE	Y	Y	Y
Month-Year FE	Y	Y	Y
Observations	2,714	2,724	2,724
Adjusted R ²	0.016	0.298	0.278

Table 9: CEO Career Progression

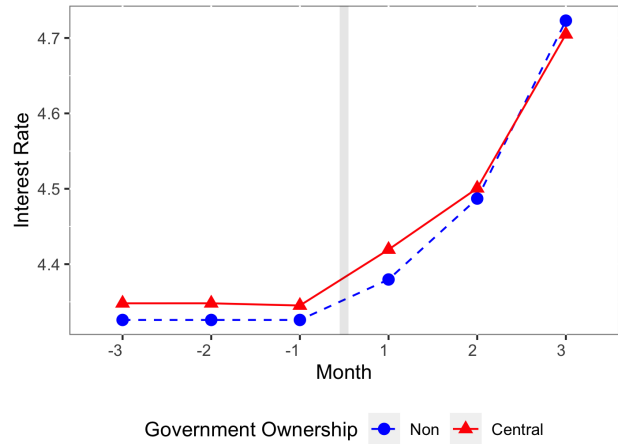
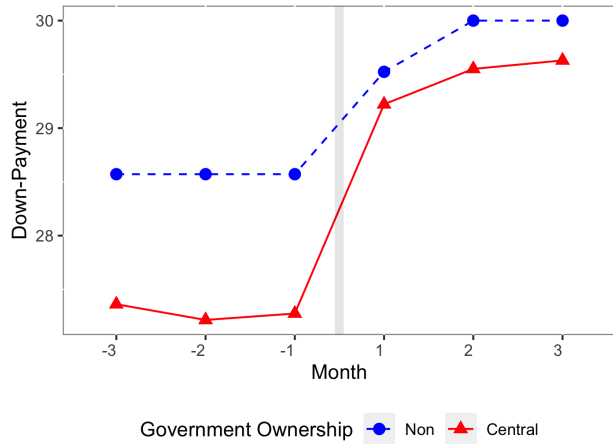
This table shows the progression of CEO careers. Panel A shows the initial distribution of bank CEOs across the three types of banks and factions. Panel B shows the number of CEOs who left their bank in the five year period after March 2017. Panel C shows the number of departed CEOs who joined central government-controlled organizations. Panel D shows the number of CEOs who were politically promoted during the five year period.

	Specialist	Generalist	Non-factional
<i>Panel A: CEO distribution across banks and factions</i>			
Central	7	2	6
Local	3	3	15
Private	1	0	1
<i>Panel B: Departures within 5 years</i>			
Central	4	1	3
Local	0	0	2
Private	0	.	0
<i>Panel C: New Position in central government-controlled organization</i>			
Central	3	0	3
Local	0	0	0
Private	0	.	0
<i>Panel D: Political promotion within 5 years</i>			
Central	3	1	2
Local	0	0	0
Private	0	.	0

A Appendix

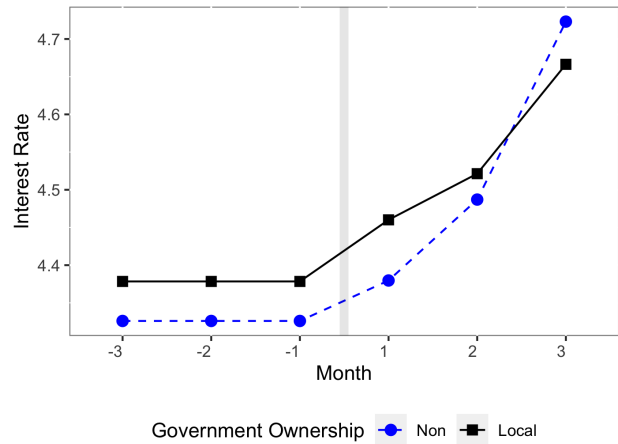
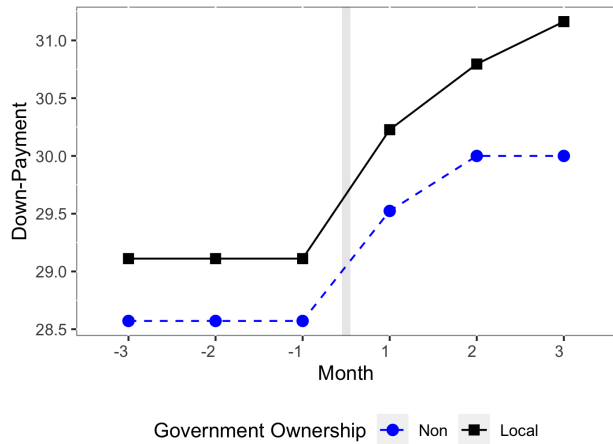
Table A.1: Variable Definitions

Down-Payment	minimum down-payment required to obtain a mortgage loan, as a percentage of house price, at bank-city-month level
Interest Rate	mortgage interest rate, in percent, at the bank-city-month level
Generalist	dummy variable equal to one if the CEO of the bank belongs to a generalist faction, in that the CEO has prior experience as administrator at central, provincial, or city government level; the dummy variable equals zero otherwise.
Specialist	dummy variable equal to one if the CEO of the bank belongs to a specialist faction, in that the CEO has prior experience as technocrat at the PBC, the ministry of finance, or a financial regulatory agency; the dummy variable equals zero otherwise.
Central	dummy variable equal to one if the bank is owned by the central government, in that total government ownership is above 10% and central government ownership no more than 10 percentage points lower than any local (provincial/city) government ownership; the dummy variable equals zero otherwise.
Local	dummy variable equal to one if the bank is owned by a local (provincial/city) government, in that total government ownership is above 10% and local government ownership is at least 10 percentage points higher than central-government ownership; the dummy variable equals zero otherwise.
Number of Branches	total number of bank branches in a residential zone.
House Price Growth	monthly growth rate of average house transaction price per square meter in a residential zone.
Log(Number of Transactions)	log of monthly number of transactions in a residential zone.
Log(Number of New Listings)	log of monthly number of new listings in a residential zone.
%CentralGeneralist	percentage of branches in a residential zone that belong to central government-owned banks with generalist CEOs.
%CentralSpecialist	percentage of branches in a residential zone that belong to central government-owned banks with specialist CEOs.
%LocalGeneralist	percentage of branches in a residential zone that belong to local government-owned banks with generalist CEOs.
%LocalSpecialist	percentage of branches in a residential zone that belong to local government-owned banks with specialist CEOs.



(A) Down-Payments: Central vs. Private

(B) Interest Rates: Central vs. Private

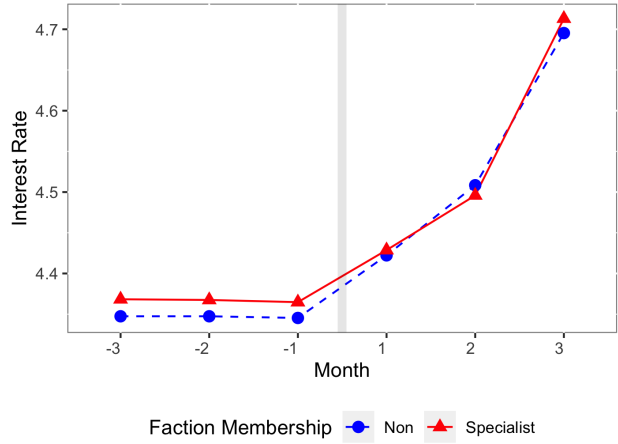
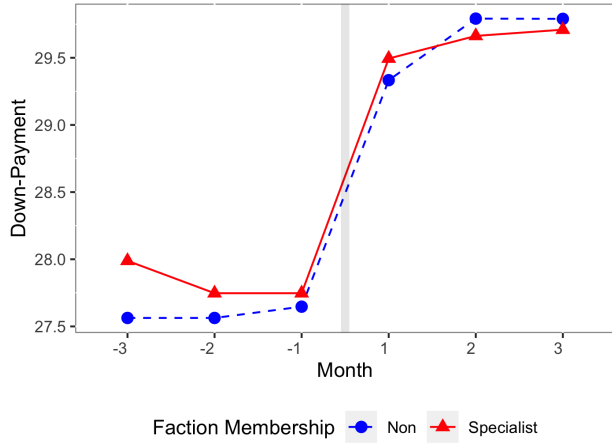


(C) Down-Payments: Local vs. Private

(D) Interest Rates: Local vs. Private

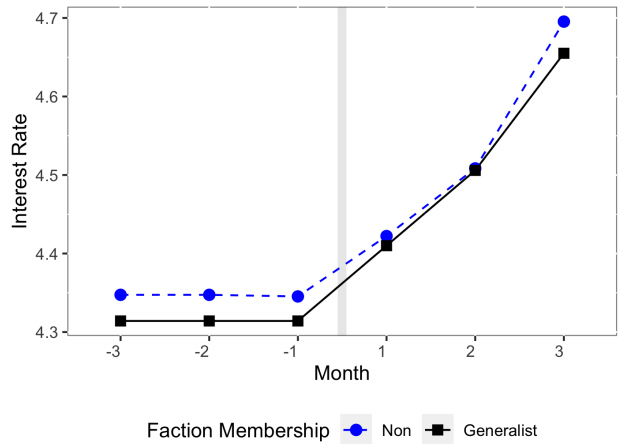
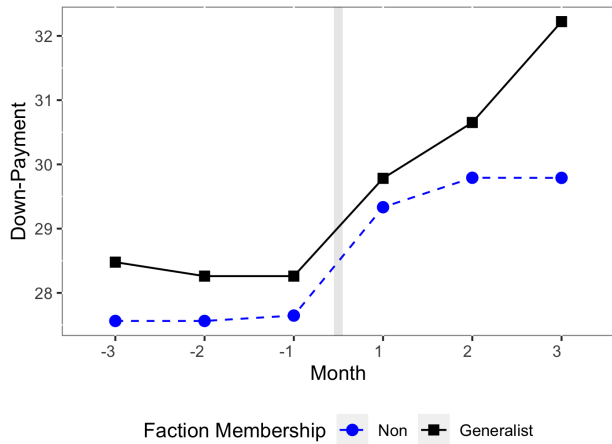
Figure A.1: Parallel Trends—Bank Ownership, Down-Payments, and Interest Rates

Note: This figure plots the monthly average down payment requirements and mortgage interest rates for central government-owned, local government-owned, and private banks. Panel A (B) shows the monthly down-payment requirements (mortgage interest rates) for central government-owned banks and private banks. Panel C (D) shows the monthly down-payment requirements (mortgage interest rates) for local government-owned banks and private banks. The pre-event period is October-December, 2016. The post-event period is March-May, 2017.



(A) Down-Payments: Specialist vs. Non-factional

(B) Interest Rates: Specialist vs. Non-factional



(C) Down-Payments: Generalist vs. Non-factional

(D) Interest Rates: Generalist vs. Non-factional

Figure A.2: Parallel Trends—Faction membership, Down-Payments, and Interest Rates

Note: This figure plots the monthly average down-payment requirements and mortgage interest rates for banks with generalist CEOs, specialist CEOs, and non-factional CEOs. Panel A (B) shows the monthly down payment requirements (mortgage interest rates) for banks with specialist CEOs and non-factional CEOs. The pre-event period is October-December 2016. The post-event period is March-May 2017. Panel C (D) shows the monthly down-payment requirements (mortgage interest rates) for banks with generalist CEOs and non-factional CEOs.