*Internet Appendix for*

# "Subnational Debt of China: The Politics-Finance Nexus"

(posted online, not for publication)

This Online Appendix consists of three sections. In Section A, we provide more details on the institutional background of the political system and subnational debt in China. Section B contains three additional figures on local government debt in China. Section C presents seven tables to provide additional stylized facts for local government debt and regression results for robustness checks.

## A. Institutional background on China's financial and political system

### *A.1 Chinese local government debt, 1994-2014*

Two major events shaping local government debt in China occurred in 1994. The first event concerns how local and central governments share tax revenues. The arguably most important reform for China's public finance is the 1994 Tax Sharing Scheme, under which a large share of Chinese fiscal revenues has been shifted from local governments to the central government. Consequently, local governments receive only about 30% of tax revenues. Thus, most tax revenues go to the central government. The second major change in 1994 occurred as a result of the Budget Law, which requires local governments to keep a balanced budget and prohibits direct borrowing by local governments. Local governments receive their share of tax revenues from the central government (they are also allocated fiscal transfer payments). If a local government needs to borrow money, it needs to ask the Ministry of Finance to borrow the money and repay the debt on its behalf. Such debt also needs to be approved by the Central Planning Commission (renamed as Development and Reform Commission). Under these two changes in 1994, local governments have very limited fiscal and financing sources.

To solve the financing constraints, with the CDB's help, local governments started to set up corporations (some are in the form of shell companies) to raise debt for them after the 1994 reforms. These corporations are usually wholly owned by the local governments and are commonly known as local government financing vehicles. The first example is the local government in Wuhu City of Anhui Province, which established its Urban Construction Finance Company in 1998. It borrowed money from the China Development Bank, and the Wuhu Urban Construction Finance Company received land injections from the Wuhu government, which is the primary source of debt repayment. Moreover, the local government guaranteed the loan by using the fiscal revenues of the entire city, as approved by the local People's Council. Since then, many other cities have followed the Wuhu model and established their local government financing vehicles (LGFVs) to borrow from the CDB.

Although the debt of LGFVs is ultimately backed by local governments, it is not reported in the local governments' balance sheet. In other words, local governments borrow via LGFVs, and these loans are off balance sheet. Figure A1 illustrates such financing methods of local governments after the 1998 Wuhu model. Without funding from LGFVs, local governments can fund only their local expenditures by using allocations from upper-level governments or their assets, such as local state-owned enterprises. With LGFVs, local governments can finance new projects, especially large projects that require billions of RMBs to complete in multiple stages. These loans are usually backed by land that can be sold at a higher price after the completion of the projects.

There have been growing concerns about the default risks of these off-balance-sheet borrowings. For example, the *Concerning Strengthening the Management of Local Government Financing Vehicle Companies* (No. 19, State Council 2010) was promulgated by the State Council on June 10, 2010 (see http://www.gov.cn/zwgk/2010-06/13/content_1627195.htm). As a response, to monitor and manage the risks associated with banks' lending to LGFVs, the CBRC required banks to review and examine every loan to the LGFVs, including Notice on Conducting Research on Ledger of the Lending to LGFVs (Yin Jian Ban Fa No.338, 2010), issued on November 9, 2010, and Notice on Further Promoting the Inspection to Loans to LGFVs (Yin Jian Ban Fa No.309, 2010), issued on October 11, 2010.

In January 2015, the new Budget Law became effective and allowed local governments to issue municipal bonds directly. Along with this new law, the debt swap program was also initiated. In particular, the central government asked local governments to swap their bank loans for longer-term, lower-interest bonds, in order to reduce the burden and leverage of servicing local government debt. Moreover, local government debt has also been more strictly administrated by the central government with a specific cap and debt quota.

### *A.2 The CDB vs. commercial banks*

At the same time that tax reforms and Budget Law were enacted in 1994, the China Development Bank (CDB) was established for policy lending and helping centralize monetary authority and harden budget constraints. The CDB is directly under the jurisdiction of the State Council, and it is ranked at the ministerial level. The CDB is the largest policy bank globally, with total assets of USD2.38 trillion in 2017. The CDB is 100% state-owned and was initially perceived as a "mini-Treasury Department" to implement fiscal policies. It has the mandate to provide subsidized credit for infrastructure and strategic industries in China.

Similar to the CDB, the five major commercial banks are also primarily state-owned and largely controlled by the central government. In particular, the CDB and the five major commercial banks have the same top-five shareholders that are all central government entities, i.e., the Ministry of Finance, the China Investment Corporation, the Wutongshu Investment Platform Corporation (wholly owned by the State Administration of Foreign Exchange), the China Securities Finance Corporation, and the National Social Security Fund. By the end of 2012, these five investors owned 100% of the CDB and 97.7% of the A-share for the Industrial and Commercial Bank of China (the largest commercial bank).

The state ownership of the twelve joint equity banks is relatively lower than that of the CDB and the five major commercial banks. For example, 71.0% of the A-share for China Everbright Bank (one of the twelve joint equity banks) is owned by the same five central government entities as the CDB and the five major commercial banks. Like the CDB and the five major commercial banks, the executives of the twelve joint equity banks are also considered bureaucrats. Overall, the eighteen banks in our sample (i.e., the CDB, five major commercial banks, and twelve joint equity banks) are highly subject to the state power.

***A.3 Political system in China***

Figure 2 in the paper illustrates the structure and hierarchy of the political system in China. The highest leading body of the Communist Party of China (CPC) is the National Congress (also known as the Party Congress). The National Congress elects the members of the Central Committee. These members carry out the resolutions of the National Congress and hold party or government positions such as the provincial party secretaries and governors, the ministers and minister-level commissioners of the State Council, and the heads of the military-region level organizations of the People's Liberation Army.

Plenary sessions of the Central Committee are convened by the Politburo of the CPC Central Committee at least once annually. The Politburo consists of approximately 25 members (7 of the 25 are standing members) who have national ranks. The Standing Committee of the Politburo is at the very top of the political hierarchy as national leaders. The Politburo and its standing committee represent the highest power in the CPC and the government, including currently President Xi Jinping and Premier Li Keqiang.

Critically, the Politburo members have substantial influences on the promotions of department-level politicians (e.g., mayors and secretaries in prefecture-level cities). In particular, when those city politicians with department-level rank are promoted to the deputy minister-level positions, they are under the direct management of the Organization Department of the Communist Party of China (CPC) Central Committee, and the Politburo members with national rank are the core of the CPC Central Committee. *The Party and Government Leading Cadres Selection and Appointment Rules in 2002* clearly state that, for the promotions of prefecture-level politicians, the candidates are first nominated by provincial leaders (e.g., provincial governors and secretaries) and then approved by the Organization Department of the Central Committee of the CPC (see http://www.people.com.cn/GB/shizheng/16/20020723/782504.html). Moreover, once the department-level ranked politicians are promoted to deputy minister-level positions, they are under the direct management of the Organization Department of the Central Committee. The Politburo members are the core of the Central Committee, as discussed above.

## B. Additional figures

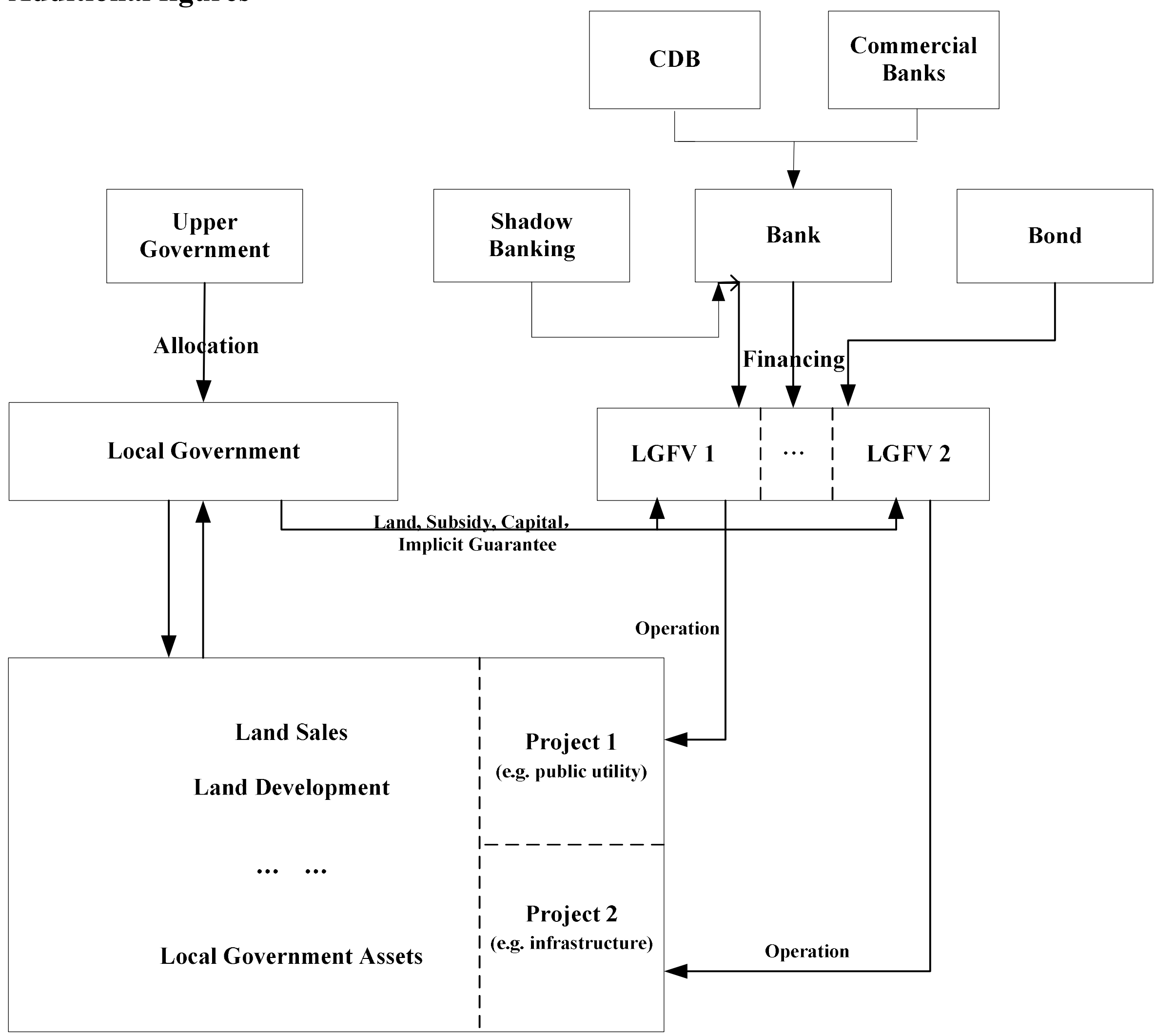


**Fig. A1. Chinese local government financing and management.** This figure illustrates the typical flows of revenues and expenditures of local governments in China. Local governments receive funding from upper-level governments (e.g., the central government), including their share of tax revenues and fiscal transfers. Local governments also generate other incomes from selling land and local assets, such as local state-owned enterprises. Local government financing vehicles (LGFVs) are fully state-owned and operated by local governments. LGFVs raise off-balance-sheet funds for specific projects, through bank loans (e.g., from the China Development Bank and commercial banks), bond issuances, and the shadow banking systems.

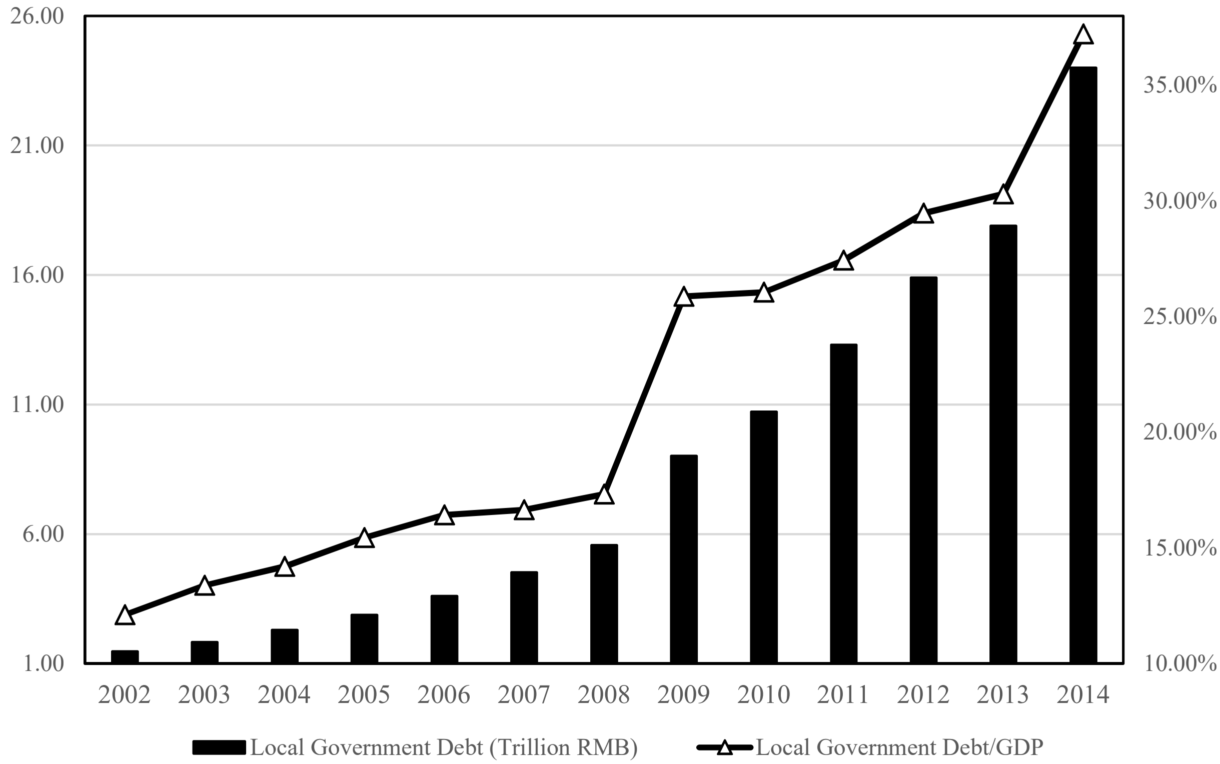


**Fig. A2. Total local government debt in China over time.** This figure shows the time trend of the amount of local government debt outstanding in China between 2002 and 2014. The solid line with triangles (with right *y*-axis) represents the ratio of local government debt outstanding to GDP, shown on the right vertical axis. The solid black bars (with left *y*-axis) exhibit the total amount of local government debt outstanding (in trillion RMB).

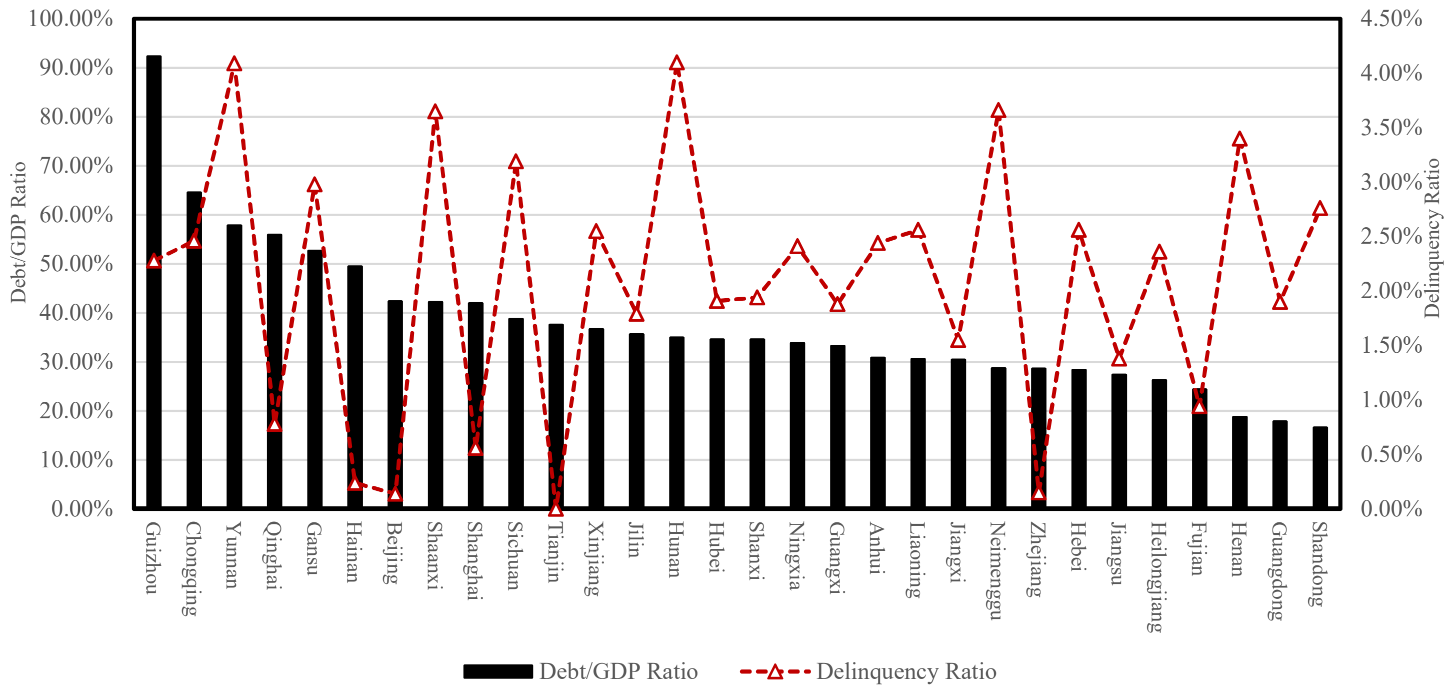


**Fig. A3. Local government debt in China across provinces.** The solid black bars (with left *y*-axis) illustrate the ratios of the amount of debt outstanding in June 2013 to GDP in 2012 for 30 provinces in mainland China. The dashed line with triangles (with right *y*-axis) illustrates the loan delinquency ratios for those provinces in June 2013. The horizontal axis shows the names of the provinces. The delinquency ratio is defined as the amount of debt overdue divided by the total amount of liable debt for each province. Both debt amounts and delinquency ratios are collected from province-level auditing reports. The data were released by the National Audit Office in June 2013, see the online announcement at http://www.audit.gov.cn/n1992130/n1992150/n1992500/3291665.html.

## C. Additional tables

**Table A1: Local government bonds in China**

This table shows the summary statistics of China's LGFV bonds, also called municipal corporate bonds or *Chengtou* bonds, from 2007 to 2012. Columns (1) and (2) report the total number and amount of outstanding *Chengtou* bonds issued by the LGFVs that also have outstanding bank loans from 2007 to 2012, respectively. Columns (3) and (4) are restricted to the sample of bonds issued by the LGFVs with outstanding delinquent loans and report the total number and amount of outstanding *Chengtou* bonds, respectively. Column (5) reports the number of *Chengtou* bonds that have ever been under default or delinquency.

| | #Bonds | Total amount of outstanding bonds (RMB 100 million) | #Bonds issued by delinquent LGFVs | Total amount of outstanding bonds issued by delinquent LGFVs (RMB 100 million) | #Default Bonds |
|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) |
| 2007 | 36 | 427 | 10 | 147 | 0 |
| 2008 | 67 | 844 | 16 | 261 | 0 |
| 2009 | 146 | 2059.5 | 9 | 132 | 0 |
| 2010 | 255 | 3625.5 | 10 | 142 | 0 |
| 2011 | 399 | 5437.5 | 18 | 221.5 | 0 |
| 2012 | 781 | 10090.7 | 22 | 264 | 0 |

**Table A2: Local government borrowings from commercial banks**

This table reports the number of LGFVs and loans for 17 commercial banks covered by the loan data set from China's banking regulatory authority. The five major state-owned commercial banks are Industrial and Commercial Bank of China (ICBC), China Construction Bank (CCB), Agricultural Bank of China (ABC), Bank of China (BOC), and Bank of Communications (BoCom). The other twelve commercial banks are joint equity banks. #LGFVs is the total number of local government financing vehicles that have borrowed from the bank. #Loans is the total number of loans issued to LGFVs by the bank.

| | All Loans | | Loans Matured before March 2013 | |
|---|---|---|---|---|
| | #LGFVs | #Loans | #LGFVs | #Loans |
| Industrial and Commercial Bank of China (ICBC) | 2,074 | 37,111 | 1,697 | 17,856 |
| China Construction Bank (CCB) | 2,645 | 20,727 | 1,994 | 12,496 |
| Agricultural Bank of China (ABC) | 1,812 | 28,899 | 1,279 | 11,639 |
| Bank of China (BOC) | 1,569 | 15,186 | 938 | 4,759 |
| Bank of Communications (BoCom) | 1,427 | 10,965 | 1,087 | 5,994 |
| Shanghai Pudong Development Bank | 1,300 | 7,634 | 1,119 | 4,949 |
| China Citic Bank | 1,190 | 9,398 | 1,074 | 6,806 |
| Industrial Bank | 956 | 3,933 | 711 | 2,867 |
| China Minsheng Bank | 895 | 5,689 | 784 | 4,131 |
| China Everbright Bank | 838 | 4,714 | 674 | 3,341 |
| China Merchants Bank | 728 | 4,610 | 624 | 3,348 |
| Huaxia Bank | 632 | 2,633 | 541 | 1,789 |
| Ping'An Bank | 505 | 2,581 | 418 | 1,792 |
| China Guangfa Bank | 375 | 2,047 | 263 | 1,177 |
| China Zheshang Bank | 255 | 932 | 204 | 513 |
| Evergrowing Bank | 225 | 670 | 191 | 502 |
| China Bohai Bank | 107 | 312 | 78 | 191 |

**Table A3: Loan default across banks – robustness tests**

This table reports two robustness tests for Table 3 in the text. Column (1) shows the results of OLS regression results of loan default on the identity of the lending bank and other explanatory variables for the subsample of LGFV loans with due dates before October 2008. The dependent variable is an indicator variable which equals one if the maturing loan remains delinquent for 90 days or longer, and zero otherwise. Column (2) shows the estimation results of OLS regressions of loan default on the identity of the lending bank and other explanatory variables, and the dependent variable is an indicator variable which equals one if the loan is in default (i.e., over 180 days being delinquent), and zero otherwise. *CDB* is an indicator variable which equals one if the loan is from the China Development Bank, and zero if the loan is from other banks (i.e., commercial banks). See Appendix Table for variable definitions. Reported in the parentheses are *t*-statistics based on robust standard errors clustered by bank. ***, **, * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

| | Dependent Variable: Default | |
|---|---|---|
| | (1) | (2) |
| | [Before October 2008] | [180 days Delinquent] |
| CDB | -0.049*** | -0.013*** |
| | (-5.01) | (-5.08) |
| Bank Loan Rating | 0.059*** | 0.029*** |
| | (4.64) | (5.95) |
| Log(Loan Size) | -0.002 | -0.000 |
| | (-0.88) | (-0.41) |
| Log(Maturity) | -0.045*** | -0.007*** |
| | (-5.18) | (-5.21) |
| Guaranteed | 0.006** | -0.000 |
| | (2.01) | (-0.19) |
| Firm-year FE | Yes | Yes |
| Observations | 26,466 | 109,776 |
| Adjusted $R^2$ | 0.468 | 0.521 |

**Table A4: LGFV selective default across banks**

This table shows the estimation results of the OLS regressions of selective default at the LGFV level. The sample includes loans from a given LGFV in a given year that has at least one defaulted loan in any bank in that year. The dependent variable in all specifications is an indicator variable which equals one if the maturing loan remains delinquent for 90 days or longer, and zero otherwise. *CDB* is an indicator variable which equals one if the loan is from the China Development Bank, and zero if the loan is from other banks (i.e., commercial banks). Column (1) reports the regression results for the full sample. Columns (2) and (3) report the regression results for subsamples of cities with fiscal deficit ratio above the median or 75$^{th}$ percentile, respectively. See Appendix Table for variable definitions. Reported in the parentheses are *t*-statistics based on robust standard errors clustered by bank. ***, **, * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

| | Dependent Variable: Default | | |
|---|---|---|---|
| | Full Sample | Deficit above Median | Deficit above 75$^{th}$ Percentile |
| | (1) | (2) | (3) |
| CDB | -0.141$^{***}$ | -0.130$^{***}$ | -0.219$^{***}$ |
| | (-4.18) | (-3.69) | (-3.19) |
| Bank Loan Rating | 0.254$^{***}$ | 0.285$^{***}$ | 0.292$^{***}$ |
| | (14.64) | (14.95) | (14.54) |
| Log(Loan Size) | -0.005 | -0.013 | 0.021 |
| | (-0.47) | (-0.69) | (1.28) |
| Log(Maturity) | -0.152$^{***}$ | -0.096$^{*}$ | -0.104 |
| | (-5.41) | (-1.92) | (-1.61) |
| Guaranteed | 0.014 | 0.011 | -0.006 |
| | (0.68) | (0.51) | (-0.12) |
| Firm-year FE | Yes | Yes | Yes |
| Observations | 4,766 | 2,471 | 1,315 |
| Adjusted $R^2$ | 0.457 | 0.521 | 0.530 |

**Table A5: Provincial secretary promotion and local government default**

This table shows the estimation results of the cross-sectional OLS regressions at the politician-term level for provincial secretaries' promotions. The dependent variable in all specifications, *Promotion,* is an indicator variable which equals one if the provincial secretary is promoted to a higher ranked position (e.g., sub-national level) after the term, and zero otherwise (e.g., the same rank as of ministerial level, demotion, retirement). For each term, *Log(Default CDB)* and *Log(Default CM)* are the logarithms of one plus the total amount of defaulted CDB loans and commercial bank loans at the provincial secretary term level, respectively. See Appendix Table for variable definitions. Reported in the parentheses are *t*-statistics based on robust standard errors clustered by politician. ***, **, * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

| | Dependent Variable: Promotion | |
|---|---|---|
| | (1) | (2) |
| Log(Default CDB) | -0.031 | -0.428 |
| | (-1.06) | (-0.83) |
| Log(Default CM) | 0.030 | 0.227 |
| | (1.55) | (0.96) |
| GDP Growth During Tenure | 0.019 | -0.004 |
| | (1.56) | (-0.03) |
| Unemployment Rate Change During Tenure | -1.100 | 59.371 |
| | (-0.18) | (0.61) |
| Fiscal Deficit Ratio During Tenure | 0.154 | -2.871 |
| | (0.57) | (-0.46) |
| Population Growth During Tenure | -0.336* | -0.834 |
| | (-1.90) | (-0.46) |
| GDP per Capita During Tenure | -0.059* | 0.330 |
| | (-1.77) | (0.41) |
| Fiscal Revenue During Tenure | 0.131 | -0.264 |
| | (0.88) | (-0.14) |
| Politician FE | No | Yes |
| Observations | 83 | 83 |
| Adjusted $R^2$ | 0.145 | 0.881 |

**Table A6: Selective default and CDB market power**

This table shows the estimation results of the OLS regression of government selective defaults for subsamples. Columns (1) and (2) are restricted to the subsample of cities in which the CDB's market share in a given month is lower than its median value of that month across all cities. Columns (3) and (4) are restricted to the subsample of cities in which the dominant bank is not the CDB in terms of lending shares. The dependent variable in all specifications is an indicator variable which equals one if the maturing loan remains delinquent for 90 days or longer, and zero otherwise. *CDB* is an indicator variable which equals one if the loan is from the China Development Bank, and zero if the loan is from other banks (i.e., commercial banks). See Appendix Table for variable definitions. The sample includes loans from a given city in a given year that has at least one defaulted loan in any bank in that year. Reported in the parentheses are *t*-statistics based on robust standard errors clustered by bank. ***, **, * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

| | Dependent Variable: Default | | | |
|---|---|---|---|---|
| | CDB Share Below Median | | CDB Not Dominant | |
| | (1) | (2) | (3) | (4) |
| CDB | -0.031*** | -0.034*** | -0.044*** | -0.037*** |
| | (-5.46) | (-5.46) | (-5.49) | (-4.00) |
| Bank Loan Rating | 0.032*** | 0.037*** | 0.058*** | 0.054*** |
| | (2.62) | (2.95) | (4.52) | (4.01) |
| Log(Loan Size) | 0.001 | -0.000 | 0.001 | -0.000 |
| | (0.54) | (-0.01) | (0.80) | (-0.38) |
| Log(Maturity) | -0.034*** | -0.020*** | -0.027*** | -0.012*** |
| | (-5.60) | (-6.38) | (-3.48) | (-2.79) |
| Guaranteed | 0.006 | 0.006 | 0.005 | 0.006 |
| | (1.44) | (1.14) | (1.27) | (1.06) |
| Year FE | Yes | No | Yes | No |
| Firm FE | Yes | No | Yes | No |
| Firm-year FE | No | Yes | No | Yes |
| Observations | 14,442 | 14,433 | 13,598 | 13,504 |
| Adjusted $R^2$ | 0.464 | 0.446 | 0.524 | 0.562 |

**Table A7: Selective default and bank state ownership**

This table shows the estimation results of the OLS regression of government selective defaults, controlling for banks' state ownership. The dependent variable in all specifications is an indicator variable which equals one if the maturing loan remains delinquent for 90 days or longer, and zero otherwise. *CDB* is an indicator variable which equals one if the loan is from the China Development Bank, and zero if the loan is from other banks (i.e., commercial banks). *Bank State Ownership* is the fraction of shares held by the top five shareholders that are all central government entities, i.e., the Ministry of Finance, the China Investment Corporation, the Wutongshu Investment Platform Corporation (wholly owned by the State Administration of Foreign Exchange), the China Securities Finance Corporation, and the National Social Security Fund. See Appendix Table for variable definitions. The sample includes loans from a given city in a given year that has at least one defaulted loan in any bank in that year. Reported in the parentheses are *t*-statistics based on robust standard errors clustered by bank. ***, **, * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

| | Dependent Variable: Default | |
|---|---|---|
| | (1) | (2) |
| CDB | -0.038*** | -0.039*** |
| | (-4.21) | (-3.74) |
| Bank Loan Rating | 0.082*** | 0.094*** |
| | (7.49) | (8.48) |
| Log(Loan Size) | -0.002 | -0.001 |
| | (-0.85) | (-0.86) |
| Log(Maturity) | -0.035*** | -0.022*** |
| | (-4.34) | (-4.05) |
| Guaranteed | 0.000 | 0.002 |
| | (0.04) | (0.55) |
| Bank State Ownership | -0.006 | -0.012 |
| | (-0.73) | (-1.53) |
| Year FE | Yes | No |
| Firm FE | Yes | No |
| Firm-year FE | No | Yes |
| Observations | 29,924 | 29,851 |
| Adjusted $R^2$ | 0.449 | 0.453 |