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RESEARCH ARTICLE



Government involvement in banking systems and economic growth: a comparison across countries

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ABSTRACT

This study investigates 92 countries of different legal origins, including 25 English origin, 44 French origin, 11 Scandinavian and German origin, and 12 socialist origin countries. Compared to other countries, China has the highest government ownership of banks, and lies in the middle in terms of official supervisory power over banks, and government efficiency in governance. As regards economic development measured by per capita GDP growth, in the period from 1995 to 2015, China performed significantly better than all the other countries in the sample – countries varying in legal origin, government ownership of banks, level of economic and financial development, supervisory power over banks, and government efficiency. The findings are robust when we examine the country-years with similar per capita GDP as that of China. The regression results show that in some circumstances, higher government ownership of banks is associated with higher economic growth and the positive association is more significant in socialist origin countries. Further discussions suggest that the high government involvement in commercial banks fits in well with the unique characteristics of China – such as a large population, underdeveloped economy, imbalance in resources and development in different areas, as well as the utmost trust placed on the Chinese government and government owned banks – thus may benefit economic growth.

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Introduction

Regarding government involvement in banking industry and its effects on economic development, there exist mainly two contradictory theories in the literature (La Porta, Lopez-de-Silanes, and Shleifer 2002). The development view argues that in economies with underdeveloped banking systems, economic development and strategic projects demand large amount of capital but this demand cannot be fulfilled by private banks due to the lack of competency or/and motivation to attract sufficient capital. Therefore, it is necessary for the government to directly own or involve in banks in the early phase of financial systems and economy growth (Gerschenkron 1962;

Shleifer 1998). To the contrary, however, the political view emphasises the negative impacts of government ownership and involvement in banks. This view argues that government ownership or control of banks are politically motivated and may not be favourable to economic development as a whole. For example, governments may acquire control of banks in order to provide employment, subsidies, and other benefits to their supporters who return the favour in the form of votes, political contributions, and bribes (Kornai 1979; Shleifer and Vishny 1994).

Evidences from social practices and empirical studies are mixed regarding the impact of government ownership of or involvement in banks on economic development. Some findings are supportive to government ownership of banks. For example, the government ownership of banks helped the successful industrialisation in the Soviet Union (Garvy 1977); many countries nationalised commercial banks in Asia, Africa, and Latin America in the 1960s and 1970s (La Porta, Lopez-de-Silanes, and Shleifer 2002); and the UK government decided to nationalise the Northern Rock Bank in 2008 (BBC News 2008; Shin 2009). However, there are also evidences against government ownership. For example, many former socialist countries privatised banks in the 1980s and 1990s; La Porta, Lopez-de-Silanes, and Shleifer (2002) find that higher government ownership of banks is associated with lower economic growth.

Government ownership of or involvement in banks remains common in the world although it shows a decreasing trend in recent years (La Porta, Lopez-de-Silanes, and Shleifer 2002), especially in many transitional and developing economies. It is worthwhile to re-examine the relationship between government involvement and economic development. China is chosen as the focus of comparison in this study because of the profound government involvement in banking systems and its significant economic size.

This study investigates 92 countries of different legal origins, including 25 English legal origin countries, 44 French origin countries, 11 Scandinavian and German origin countries, and 12 socialist origin countries. We follow La Porta, Lopez-de-Silanes, and Shleifer (2002) and use their proxy – the percentage share of the assets of the top 10 banks owned or controlled by the government in 1970 and 1995 – to measure government ownership of banks. To measure government efficiency, we use the six indicators introduced by Kaufmann, Aart, and Mastruzzi (2009): voice and accountability (VA), political stability and absence of violence (PV), government effectiveness (GE), regulatory quality (RQ), rule of law (RL), and control of corruption (CC). For the measurement of bank supervision, we adopt and calculate the index of official supervisory power based on the selected questions from bank supervision surveys conducted by Barth, Gerard, and Levine (2001). Following previous literature (Beck, Levine, and Loayza, 2000; La Porta, Lopez-de-Silanes, and Shleifer 2002), we use the growth of per capita GDP to measure economic growth, and use the ratio of private credit to GDP (private credit/GDP), the ratio of stock market capitalisation to GDP (stock market capitalisation/GDP), the ratio of liquid liabilities to GDP (liquid liabilities/GDP), and the ratio of bank overhead to total assets (bank overhead costs/total assets) as proxies to measure financial development. This study extends the previous study (La Porta, Lopez-de-Silanes, and Shleifer 2002) with the sample period spanning from 1995 to 2016 to examine per capita GDP growth and financial development. For some further tests, the period goes back to 1960.

This study finds that compared to other countries, China has the highest government ownership of banks, and lies in the middle in terms of official supervisory power over banks, and government efficiency. For economic development measured by per capita GDP growth, it finds that in the period from 1995 to 2015, China performed significantly better than all the other countries in the sample – countries varying in legal origin, government ownership of banks, level of economic and financial development, supervisory power over banks and government efficiency. The findings are robust when we examine the country-years with similar per capita GDP as that of China. For financial development measured by the four ratios of private credit/GDP, stock market capitalisation/GDP, liquid liability/GDP and bank overhead costs/total assets, China improves in the ranking compared to other countries during the period 1994–2015.

The regression analysis finds that the economic growth is negatively associated with government ownership in English origin, French origin, and Scandinavian and German origin countries, which is consistent with the finding of La Porta, Lopez-de-Silanes, and Shleifer (2002). The regression results also suggest that in some circumstances, higher government ownership of banks is associated with higher economic growth and the positive association is more significant in socialist origin countries. As for financial development, although government ownership is negatively associated with the ratio of private credit to GDP, the ratio of stock market capitalisation to GDP and the ratio of liquid liabilities to GDP, the sign of the correlation varies when we control for legal origin. In socialist origin countries, higher government ownership of banks is associated with higher financial development. These findings update and complement the literature in the field with empirical evidences.

Applying the arguments and assumptions of the political and development views, we further propose three possible reasons for the results related to China. Firstly, the political institutional environment in China mitigates the motivation of politicians to make decisions that benefit their voters at the expense of economic development. Secondly, due to historical convention, the Chinese people trust the government and government controlled banks. Therefore, government controlled banks can attract a great amount of savings. Thirdly, the government's profound involvement in commercial banks is able to provide financing to strategic projects with long-term benefits for economic growth.

The remainder of the paper is organised as follows. We first review the literature regarding government involvement in banks and bank supervision and list the views on the relationship between government involvement in banks and economic growth. Then, we describe the data and present the analysis results. In the following section, we close the paper with some discussions.

Literature review

Legal system, investor protection, ownership structure and economic growth

Literature documents a close association between legal origins, investor protection, ownership structure, substitute legal requirements and economic growth. Firstly, countries with different legal origins give investors different bundles of rights.

Specifically, investor protection is considerably higher in countries with the common law tradition than in countries with the French-civil-law tradition. The German civil law and the Scandinavian countries take an intermediate stance toward investor protection (La Porta et al. 1998). Secondly, there is a large difference in the quality of law enforcement in countries with different legal traditions. Law enforcement is stronger in German-civil-law, Scandinavian and common law countries, whereas it is weak in the French-civil-law countries (La Porta et al. 1998). Thirdly, countries whose legal system provides poor investor protection might develop substitute mechanisms, such as mandatory dividends or legal reserve requirements. The incidence of such adaptive legal mechanisms is found to be higher in civil-law countries. Ownership concentration is another substitute mechanism for laws of investor protection. The evidence that ownership concentration is extremely high around the world is consistent with the evidence that laws alone are not sufficient to protect shareholders. Furthermore, La Porta et al. (1998) find shareholder protection measures are associated with a lower concentration of ownership, indicating that concentration is indeed a response to poor investor protection. La Porta, Lopez-de-Silanes, and Shleifer (1999) also show that common law countries have a significantly higher fraction of widely held firms than civil law countries do. Lastly, La Porta et al. (1997) find significantly smaller debt and equity markets in countries with poor investor protections. Levine (1998) shows that countries with better investor protection and enforcement of laws have higher economic growth.

Government ownership and bank supervision

With higher government ownership within a commercial bank, government influences bank decisions by appointing executives and by introducing regulations regarding state-owned assets. The decision made by the controlling shareholders (governments) might benefit governments at the expense of the interests of commercial banks. La Porta, Lopez-de-Silanes, and Shleifer (2002) document that in major commercial banks, on average, socialist origin countries have the highest government ownership and are followed by, in a descending order, French legal origin countries, Scandinavian origin countries, German origin countries and English legal origin countries. They also find that the higher government ownership of banks appears in countries with lower level economic of development and poor protection of property rights.

Literature reveals that non-profit decisions are also made in non-government controlled banks. For example, both transaction-oriented banks and relationship-oriented banks are pervasive in private banking sector in the world (Wan et al. 2008). Transaction banks keep arm's length with the client firms while relationship banks try to build a long-term relationship with their clients.

Barth, Gerard, and Levine (2001) summarise two broad and competing theories on government regulation and supervision. The helping-hand view of government regulation suggests an important and powerful role for official regulators and supervisors to ameliorate market failure, which private agents may not have the ability or incentive to take (Pigou 1938). Government's intervention can serve a socially efficient role

in the situation of socially costly bank runs; and strong official supervision helps prevent banks from engaging in excessive risk-taking behaviour and thus improve bank performance and financial stability. On the contrary, the grabbing-hand view highlights the potential negative implications of powerful government regulators and supervisors that governments with powerful supervisory agencies may use this power to benefit favoured constituents, attract campaign donations and extract bribes (Djankov et al. 2003). Therefore, powerful regulators/supervisors might not overcome market failures but create government failures.

In practice, policymakers and financial institutions debate and make recommendations on a wide variety of bank regulatory and supervisory practices. Countries assign very different priorities to bank supervision in terms of supervisory resources and powers (Barth, Caprio, and Levine 2008). In a recent survey, Barth, Gerard, and Levine (2012) find that many countries granted greater discretionary power to official supervisory agencies than 12 years ago, and most countries have not enhanced the ability and incentives of private investors to monitor banks rigorously.

In addition, literature documents that bank supervision environments may affect industry development and firm performance. For example, related lending might have positive or negative effect on banking development in institutional environment with different official supervisory powers (Cull, Haber, and Imai 2011); financial market and financial intermediary supervision might affect firm performance (Chacar, Newbury, and Vissa 2010).

Government ownership and bank supervision in China

Former socialist countries were associated with a low level of economic development, under-developed financial systems and government owned or controlled banks (La Porta, Lopez-de-Silanes, and Shleifer 2002). In the 1970s, these socialist countries started reforms in the political and economic institutions to stimulate economic development, but they adopted different approaches in reforming the ownership structure of their commercial banks. The ownership structure reform in some countries, such as Russia, Hungary and Croatia, might be more abrupt, and government ownership in commercial banks was significantly reduced or even eliminated after full privatisation.

In contrast, China's reform is progressing gradually, and is completely different from other socialist origin countries. The Chinese government insists on the effective control over the banking systems, and is able to use banks to serve the government's objectives (Calomiris, Fisman, and Wang 2010). Specifically, the Law of the People's Republic of China on Commercial Banks clearly stipulates in Article 1 that 'this Law is enacted in order to ... maintain financial order and to promote the development of the socialist market economy'. In addition, the Guidelines on Corporate Governance of Commercial Banks, issued by the China Banking Regulatory Commission (CBRC hereafter) and taking effect from 2013, states that (second paragraph of Article 80) 'a commercial bank shall support national policies on industrial transformation and environmental protection, protect and save resources, and promote the sustainable development of the society'.¹

According to the CBRC, financial institutions in China comprise commercial banks and other institutions. China's commercial banks² hold 78% of the total assets of all financial institutions in China, and consist of major commercial banks³, joint stock commercial banks (JSCBs), city commercial banks and rural commercial banks. The major commercial banks include Industrial and Commercial Bank of China, Construction Bank of China, Bank of China, Bank of Communications⁴ and Agriculture Bank of China. These five banks used to be state-owned commercial banks; now they are state-controlled banks listed on stock exchanges.⁵

JSCBs are held by multi-shareholders and listed on stock exchanges. The Chinese governments at various levels such as the central or provincial governments hold shares of these banks. Such banks include CITIC Industrial Bank, China Everbright Bank, Huaxia Bank, Guangdong Development Bank, Shenzhen Development Bank, China Merchants Bank, Shanghai Pudong Development Bank, Industrial Bank, China Minsheng Bank, Evergrowing Bank, China Zheshang Bank and China Bohai Bank. Except for China Minsheng Bank which is controlled by foreign investors, the Chinese government is the controlling shareholder of all the other JSCBs.

Other financial institutions include policy banks (China Development Bank, Export and Import Bank, Agricultural Development Bank), foreign banks, and Postal Savings Bank of China. Except for foreign banks, Chinese government either owns or controls these financial institutions.

In addition to holding the shares of commercial banks as described above, the Chinese government effectively involves in commercial banks through two regulatory organisations, i.e. the CBRC and People's Bank of China (PBOC), in accordance with the Banking Supervision Law of the People's Republic of China. The CBRC has the same governmental status as other ministries and carries out strategical, organisational and regulatory functions on banking systems delegated by the State Council. The major functions of the CBRC include formulating supervisory rules and regulations on commercial banks; authorising the establishment, change, termination and business scope of commercial banks; conducting on-site examination and off-site surveillance of the banks, and enforcing actions against rule-breaking behaviours; conducting fit-and-proper tests on the senior managerial personnel of the banks; and being responsible for managing the supervisory boards of the major commercial banks.⁶

The PBOC plays the role of central bank in China. It is also a ministerial agency in government and thus can implement the central government's financial policies on banking business. The main functions of the PBOC include drafting and enforcing relevant laws, rules and regulations for commercial banks' business; formulating and implementing the monetary policy; issuing the Renminbi and administering its circulation; regulating financial markets, including the inter-bank lending market, the inter-bank bond market, foreign exchange market and gold market; preventing and mitigating systemic financial risks to safeguard financial stability.⁷

The CBRC and PBOC control, regulate, and supervise commercial banks in terms of strategical development, corporate governance, organisational structure, appointment and management of key personnels as well as banking business and risk management.

Two views on government involvement in banks and economic growth

As mentioned above, literature suggests two opposite views on the impact of government's control over commercial banks on macro-economic development (La Porta, Lopez-de-Silanes, and Shleifer 2002).⁸ Two points from development view are worth clarification. Firstly, if people trust the government and state-controlled banks, these banks can get enough savings to fulfil the great demand for capital to support the development of various industries, which is particularly important for a developing economy. Secondly, capital can be used not only to serve business and meet individual demand in the short term, but also to serve projects out of strategical and overall consideration, such as to support the industry and project that is important for a society's long-term development and benefit the whole society (Lewis 1950; Garvy 1977). This view is supported by the apparent success of the Soviet Union's industrialisation.

In contrast, the political view holds that government control of banks is out of their political considerations that might not benefit the society's economic development but benefit their supporters who return the favour in the form of votes, political contributions and bribes.⁹ This view is also supported by findings of cross-country studies such as La Porta, Lopez-de-Silanes, and Shleifer (2002), in which the authors find that, on average, for countries with English, French, German or Scandinavian legal origins, the higher government ownership of banks is associated with the lower growth of per capita GDP.

Data and analysis

Sample and data

For the purpose of comparison, our sample comprises 92 countries, including 25 English legal origin countries, 44 French origin countries, 11 Scandinavian and German origin countries and 12 socialist origin countries. The sample period starts from 1994 because the data of government ownership of banks end in 1995 in the study of La Porta, Lopez-de-Silanes, and Shleifer (2002). The data about GDP of various countries in various periods are obtained from the World Development Indicators, World Bank. The financial development data are collected from the International Financial Statistics (IFS), International Monetary Fund (IMF). The government ownership data of banks are either manually collected or obtained from the study of La Porta, Lopez-de-Silanes, and Shleifer (2002). We use the index of official supervisory power suggested by Barth, Gerard, and Levine (2001), and calculate it according to the questions used in their survey. We adopt the indicators of the government efficiency based on the study of Kaufmann, Aart, and Mastruzzi (2009), and calculate them thereupon. The data about Chinese banks are collected from the publications of the PBOC and CBRC.

Descriptive statistics

Based on the study by La Porta, Lopez-de-Silanes, and Shleifer (2002), Table 1 presents the percentage shares of the assets owned or controlled by the government

Table 1. Shares of the assets of the top 10 banks owned or controlled by the government.

Country (region)	GB95	GB70	GB95-GB70
Australia	12.33	20.89	-8.56
Bahrain	7.34	6.67	0.67
Bangladesh	95	100	-5
Canada	0	10.95	-10.95
Cyprus	0	0	0
Hong Kong of China	0	0	0
India	84.94	100	-15.06
Ireland	4.48	3.78	0.7
Israel	64.64	67.56	-2.92
Kenya	29.94	45.09	-15.15
Malaysia	9.93	20	-10.07
New Zealand	0	33.47	-33.47
Nigeria	9.91	57.53	-47.62
Pakistan	85.96	73.49	12.47
Saudi Arabia	29.1	37.59	-8.49
Singapore	13.53	12.85	0.68
South Africa	0	0	0
Sri Lanka	71.39	100	-28.61
Tanzania	94.95	100	-5.05
Thailand	17.09	24.07	-6.98
Trinidad and Tobago	1.54	3.57	-2.03
United Arab Emirates	41.93	45.86	-3.93
United Kingdom	0	0	0
United States	0	0	0
Zimbabwe	30.04	0	30.04
English origin average	28.16	34.53	-6.37
Afghanistan	100	100	0
Algeria	99.96	100	-0.04
Argentina	60.5	71.94	-11.44
Belgium	27.59	39.87	-12.28
Bolivia	18.48	53.14	-34.66
Brazil	31.7	70.8	-39.1
Chile	19.72	91.49	-71.77
Colombia	53.92	57.67	-3.75
Costa Rica	90.92	100	-9.08
Cote d'Ivoire	20.6	54.9	-34.3
Dominican Republic	38.93	70.08	-31.15
Ecuador	40.61	100	-59.39
El Salvador	26.43	100	-73.57
Egypt	88.62	53.08	35.54
France	17.26	74.37	-57.11
Greece	77.82	92.69	-14.87
Guatemala	22.2	32.1	-9.9
Honduras	29.9	49.2	-19.3
Indonesia	42.9	74.89	-31.99
Iran	100	89.36	10.64
Iraq	93.77	100	-6.23
Italy	35.95	75.69	-39.74
Jordan	26.03	28.08	-2.05
Kuwait	32.84	35.99	-3.15
Lebanon	7.18	15.31	-8.13
Libya	95.12	100	-4.88
Mexico	35.62	82.66	-47.04
Morocco	37.9	59.11	-21.21
Netherlands	9.2	7.8	1.4
Nicaragua	63.36	90.44	-27.08
Oman	25.84	4.5	21.34
Panama	17.08	17.93	-0.85
Paraguay	48.02	55	-6.98
Peru	26.46	87.38	-60.92
Philippines	27.23	52.18	-24.95
Portugal	25.66	100	-74.34

(continued)

Table 1. Continued.

Country (region)	GB95	GB70	GB95-GB70
Qatar	33.74	46.53	-12.79
Senegal	27.98	49.43	-21.45
Spain	1.98	32.64	-30.66
Syria	100	100	0
Tunisia	37.42	52.92	-15.5
Turkey	56.46	81.84	-25.38
Uruguay	68.79	42.29	26.5
Venezuela	57.98	82.88	-24.9
French origin average	45.45	65.37	-19.92
Austria	50.36	70.8	-20.44
Germany	36.36	51.9	-15.54
Japan	0	6.9	-6.9
South Korea	25.41	56.64	-31.23
Switzerland	13.35	24.85	-11.5
Taiwan of China	76.51	50.43	26.08
German origin average	33.67	43.59	-9.92
Denmark	8.87	9.8	-0.93
Finland	30.65	32.06	-1.41
Iceland	71.34	100	-28.66
Norway	43.68	54.55	-10.87
Sweden	23.2	20.78	2.42
Scandinavian origin average	35.55	43.44	-7.89
Bulgaria	85.68	100	-14.32
China	99.45	100	-0.55
Croatia	1.04	100	-98.96
Czech Republic	52	100	-48
Hungary	36.56	100	-63.44
Kazakhstan	56.13	100	-43.87
Poland	84.29	100	-15.71
Romania	62.68	100	-37.32
Russia	32.98	100	-67.02
Slovakia	73.93	100	-26.07
Slovenia	57.29	100	-42.71
Vietnam	99.06	100	-0.94
Socialist origin average	55.60	100.00	-44.40
Total average	41.57	58.89	-17.32

Data source: La Porta, Lopez-de-Silanes, and Shleifer (2002).

in 1970 (column under GB70), in 1995 (column under GB95), and the difference in these two years for the top 10 banks in 92 countries. In 1970, government ownership of banks was highest in socialist origin countries, followed by French origin, Scandinavian and German origin countries; English origin countries had the lowest government ownership of banks. In 1995, it decreased in general. However, the ranking of high to low government ownership for countries with various legal origins remained the same as in 1970. In most socialist origin countries, the government control or ownership of banks decreased substantially by an average of 44.40% in 1995 compared to that in 1970. While in China, it did not change much in 1995 (99.45%) compared to that in 1970 (100%).

To have a closer look at government ownership in Chinese banks, the data of ownership structure of 59 city commercial banks and 42 rural commercial banks are manually collected as of the first quarter of 2016. Among city commercial banks, 26 are privately controlled while 33 are state-controlled. Among rural commercial banks, 30 banks are privately controlled and 12 are state-controlled. In summary, despite the

Table 2. Comparison of total assets share distribution of the Chinese banking institutions between 2004 and 2016.

	All financial institutions	Major commercial banks	JSCBs	City commercial banks	Other financial institutions
Q1 2016					
Total Assets (RMB100 million)	1,980,607	751,696	376,335	231,255	612,321
Share (%)	100	38.0	19.0	11.7	31.4
Q1 2004					
Total Assets (RMB100 million)	288,406	158,893	40,941	14,606	73,966
Share (%)		55.1	14.2	5.1	25.6
2016 versus 2004					
Change rate of total assets	5.87	3.73	8.19	14.83	6.96
Change rate of share		−0.31	0.34	1.29	0.22

Notes: We integrate the information from 'Quarterly Total Assets and Total Liabilities of the Banking Institutions' published by the CBRC from 2004 to 2016. [Table 1](#) reports the assets distribution of Q1 2004 and Q1 2016 for comparison.

increase in the share-holding of banks by non-government owner compared to the findings by La Porta, Lopez-de-Silanes, and Shleifer (2002), government share-holding is still the dominant ownership of Chinese banks.

[Table 2](#) compares the total assets share distribution of financial institutions in China. The total assets of all financial institutions increased around six times from 2004 to 2016. The proportion of total assets held by major commercial banks decreased from 55.1% in 2004 to 38% in 2016 while the proportion of total assets held by other categories of banks increased. In short, during the period from 2004 to 2016, the banking sector in China expanded largely with an increase in the non-government ownership.

Comparison of official supervisory power and government efficiency

Following Cull, Haber, and Imai (2011), we use the index of official supervisory power suggested by Barth, Caprio, and Levine (2008) to measure the extent to which a country's commercial bank supervisory agency has the authority to take specific actions. It is composed of information on many features of official supervision.¹⁰ As suggested by Galang (2012) and Cuervo-Cazurra (2008), we also compare the indicators of government efficiency obtained from the World Bank's project, which might affect the efficiency of government governance in banking industry. These indicators consist of six dimensions of governance: voice and accountability, political stability and absence of violence, government effectiveness, regulatory quality, rule of law, and control of corruption (Kaufmann, Aart, and Mastruzzi 2009).

[Table 3](#) presents the ranking of 92 countries based on the index of official supervisory power and the average of each of the six governance indicators from 1996 to 2008. For official supervisory power, Scandinavian origin countries have the highest average index, followed by English origin and French origin countries; German origin and Socialist origin countries have the lowest average index. In terms of government efficiency, for voice and accountability, French origin countries rank the highest, followed by socialist origin, English origin, and Scandinavian origin countries; German origin countries have the lowest average value. For the other five indicators, i.e.

Table 3. Rank of index of official supervisory power and indicators of government efficiency.

Country (region)	OSI	VA	PV	GE	RQ	RL	CC
Panel A Country (region) ranks of indicators							
Australia	30	2	16	11	9	10	13
Bahrain	6	68	54	41	35	40	37
Bangladesh	40	67	84	85	88	83	91
Canada	66	1	15	9	15	11	11
Cyprus	6	91	38	25	21	29	27
Hong Kong of China		26	21	21	2	22	18
India	54	75	80	59	69	50	64
Ireland	40	39	9	18	8	16	17
Israel	61	10	86	27	29	27	26
Kenya	6	39	83	84	73	89	89
Malaysia	40	26	41	31	43	42	44
New Zealand	54	75	6	12	7	7	3
Nigeria	20	91	94	92	90	93	94
Pakistan		10	92	80	84	85	85
Saudi Arabia	6	26	69	66	64	48	50
Singapore	70	10	8	1	1	15	5
South Africa	69	91	64	34	46	52	40
Sri Lanka	40	10	89	67	61	56	57
Tanzania		39	59	75	77	66	81
Thailand	40	10	60	50	52	49	60
Trinidad and Tobago	66	39	50	48	38	53	49
United Arab Emirates		26	27	35	36	35	31
United Kingdom	30	39	29	13	4	13	12
United States	12	10	34	16	15	17	16
Zimbabwe		81	87	94	94	94	92
English origin average	38	40	52	44	42	44	44
Afghanistan		82	95	95	95	96	96
Algeria		69	90	82	87	86	73
Argentina	30	49	55	60	78	69	66
Belgium	20	3	20	15	20	18	19
Bolivia	40	63	71	78	72	75	76
Brazil	6	48	56	58	57	64	52
Chile	40	18	32	24	17	23	22
Colombia		65	93	65	59	79	65
Costa Rica		16	26	45	40	41	36
Cote d'Ivoire		75	91	93	86	92	83
Dominican Republic		57	51	71	67	74	72
Ecuador		75	76	88	85	82	86
El Salvador	30	91	52	68	56	73	61
Egypt	20	57	73	73	75	57	68
France	61	39	30	19	26	20	20
Greece	48	75	37	36	33	32	41
Guatemala	61	57	74	77	66	90	77
Honduras	20	91	68	79	76	84	80
Indonesia	12	57	88	76	79	80	87
Iran		91	79	81	92	77	71
Iraq		26	96	96	96	95	95
Italy	68	75	35	37	31	38	39
Jordan	61	91	61	52	51	46	47
Kuwait	30	10	46	49	54	37	32
Lebanon	20	75	85	69	68	67	70
Libya		91	58	90	93	81	82
Mexico	48	26	67	51	48	70	62
Morocco	20	39	66	61	65	55	53
Netherlands	61	10	11	10	3	12	9
Nicaragua		57	62	86	74	78	75
Oman	6	39	25	46	42	36	35
Panama	20	75	48	54	44	61	67
Paraguay		57	72	89	81	88	93

(continued)

Table 3. Continued.

Country (region)	OSI	VA	PV	GE	RQ	RL	CC
Peru	12	91	78	71	53	76	58
Philippines	30	26	81	64	62	68	74
Portugal	20	10	14	26	24	25	24
Qatar	12	75	23	43	49	39	30
Senegal		39	65	62	70	63	63
Spain	48	39	39	22	22	24	23
Syria		91	70	91	91	71	79
Tunisia		57	47	44	60	51	48
Turkey	40	91	77	53	55	54	55
Uruguay		17	33	42	47	44	29
Venezuela	12	66	82	87	89	91	90
French origin average	32	56	59	61	60	61	59
Austria	12	4	10	14	13	9	14
Germany	40	10	18	17	16	14	15
Japan	20	57	14	23	30	21	25
South Korea	48	26	40	29	39	33	43
Switzerland	20	57	3	2	10	2	8
Taiwan of China	54	26	31	28	27	30	33
German origin average	32	30	19	19	23	18	23
Denmark	54	39	12	3	5	6	4
Finland	54	26	1	4	6	5	1
Iceland		10	2	7	18	1	2
Norway		26	5	8	19	3	10
Sweden	68	75	7	6	12	8	7
Scandinavian origin average	59	35	5	6	12	5	5
Bulgaria		46	43	55	45	59	56
China	48	84	57	56	71	65	69
Croatia	30	56.5	44	47	50	58	51
Czech Republic	20	26	22	32	28	34	42
Hungary	2	39	24	33	25	31	34
Kazakhstan		26	49	83	82	87	88
Poland	30	39	36	40	37	43	45
Romania	54	57	45	63	58	62	59
Russia	61	91	75	72	80	28	84
Slovakia		75	28	38	32	47	46
Slovenia	1.5	56.5	17	30	34	26	28
Vietnam	54	83	42	74	83	72	78
Socialist origin average	33	57	40	52	52	51	57
Panel B Average of indicators for countries of various legal origins							
English origin average	10.65	0.23	−0.10	0.61	0.56	0.48	0.51
French origin average	11.64	−0.26	−0.32	−0.04	0.00	−0.14	−0.09
German origin average	11.67	0.69	0.96	1.50	1.18	1.41	1.39
Scandinavian origin average	8.00	0.40	1.34	2.09	1.53	1.92	2.25
Socialist origin average	11.67	−0.22	0.34	0.24	0.30	0.18	−0.05
Total Mean	11.18	−0.02	0.00	0.39	0.35	0.26	0.30
Total SD	2.86	1.07	0.95	1.01	0.92	1.02	1.08

Data source: Barth, Gerard, and Levine (2001); Kaufmann, Aart, and Mastruzzi (2009) .

political stability and absence of violence, government effectiveness, regulatory quality, rule of law, and control of corruption, the ranks are the same as follows: French origin countries rank the highest, followed by socialist origin, English origin and German origin countries; Scandinavian origin countries rank last.

China lies in the medium or lower medium rank in terms of official supervisory power and government efficiency compared to other countries in the sample. Specifically, China ranked 45th for the index of supervisory power, 80th for voice and

accountability, 54th for political stability and absence of violence, 53rd for government effectiveness, 67th for regulatory quality, 60th for rule of law, and 65th for control of corruption.

Comparison of per capita GDP growth

Table 4 presents per capita GDP in 1994, per capita GDP in 2016 (constant 2010 US\$), the average growth of per capita GDP in the period from 1995 to 2016, standard deviation of per capita GDP growth, number of years in which the per capita GDP growth is negative for 92 countries. The table also presents the difference in per capita GDP growth between China and other countries. In both 1994 and 2016, Scandinavian origin countries had the highest average per capita GDP, followed by German origin, English origin, and French origin countries; socialist origin countries had the lowest average per capita GDP. However, in terms of average growth rate of per capita GDP, socialist origin countries rank the highest, followed by English origin, French origin countries; Scandinavian and German origin countries rank the lowest. It seems that countries with a lower per capita GDP tend to have higher growth. As for the stability of average growth of per capita GDP, socialist origin, Scandinavian and German origin countries are more stable than English origin countries; and French origin countries are the most unstable in average growth of per capita GDP.

China's per capita GDP grew about 516.5% from 1994 to 2015. Compared to other countries, China, with the most government involvement in banks, has the highest growth in per capita GDP with the average annual growth rate of 8.63%. With the standard deviation of 1.84% and no negative per capita GDP, China is one of the countries with lowest volatility and highest stability in the economic development, and business and living environment.

Comparison of economic development in countries in years with per capita GDP less than \$6,893 (constant 2010 US\$)

Literature suggests a 'convergence' effect in economic growth that initially poorer countries grow faster (Barro 1991). Snowden and Stonehouse (2006, 166) also argue that '(at) low levels of around \$1,000 GDP per capita, the constraints on productivity often evolve around problems with the infrastructure. When you get to \$15,000 GDP per capita you need the institutional and incentive structure to create original best-in-the-world innovations'. To mitigate these effects, we screen the countries with per capita GDP less than that of China in 1994, and identify 12 countries. Then we compare the per capita GDP of these countries in 2016 against the per capita GDP of China and find these countries still have less per capita GDP than China. We also find that more than 20 countries had higher per capita GDP than China in 1994 but China exceeded these countries in 2016. Therefore, the convergence effect may not explain the economic development in these countries.

To further address the possible 'convergence' effect, a sub-sample is constructed controlling for the level of per capita GDP. Using China's per capita GDP of \$6,893 (constant 2010 US\$) in 2016 as the benchmark, in the period 1960–2016, we identify the first

Table 4. Average annual growth of GDP per capita (*GDPGROW*) for 1995–2016.

Country (region)	GDP 1994	GDP 2016	Average <i>GDPGROW</i>	SD	Number of years <i>GDPGROW</i> < 0	vs China	<i>p</i> -value
Australia	37,098.80	55,478.60	1.85	1.05	1	−6.78	.0000
Bahrain	21,623.00		0.19	1.71	8	−8.44	.0000
Bangladesh	433.41	1,029.58	4.02	1.24	0	−4.61	.0000
Canada	36,894.00	50,262.10	1.43	1.68	2	−7.20	.0000
Cyprus	22,559.50	28,448.80	1.11	3.04	7	−7.53	.0000
Hong Kong of China	21,813.70		2.51	3.43	4	−6.13	.0000
India	589.71	1,861.49	5.38	2.00	0	−3.25	.0000
Ireland	26,552.30	69,974.10	4.67	6.00	3	−3.97	.0039
Israel	23,692.80	33,677.50	1.63	1.90	4	−7.00	.0000
Kenya	849.70	1,143.07	1.38	2.20	5	−7.25	.0000
Malaysia	5,858.95	11,031.80	2.99	3.79	3	−5.64	.0000
New Zealand	25,970.40	36,840.50	1.61	1.44	3	−7.02	.0000
Nigeria	1,277.99	2,455.92	3.19	6.50	4	−5.44	.0006
Pakistan	796.63	1,178.80	1.81	1.74	4	−6.82	.0000
Saudi Arabia	19,041.10	21,395.40	0.59	3.53	10	−8.04	.0000
Singapore	27,939.60	52,600.60	3.01	4.23	4	−5.63	.0000
South Africa	5,474.20	7,488.99	1.45	1.72	4	−7.18	.0000
Sri Lanka	1,403.95	3,832.34	4.69	2.15	1	−3.94	.0000
Tanzania	456.89	867.06	2.96	1.37	0	−5.67	.0000
Thailand	3,297.87	5,901.88	2.75	3.67	3	−5.89	.0000
Trinidad and Tobago	6,588.40	16,259.00	4.29	4.60	5	−4.34	.0002
United Arab Emirates	60,932.30	40,864.30	−1.66	5.16	11	−10.29	.0000
United Kingdom	30,014.60	41,981.40	1.55	1.75	2	−7.08	.0000
United States	38,105.00	52,364.20	1.47	1.58	3	−7.16	.0000
Zimbabwe	1,234.97	917.56	−0.98	8.38	14	−9.61	.0000
English origin average	16,819.99	23,385.00	2.16	3.03	4.20	−6.48	
Afghanistan		617.89	3.99	5.65	4	−4.65	0.0059
Algeria	3,164.90	4,827.72	1.95	1.49	2	−6.69	.0000
Argentina	7,952.71	10,154.00	1.28	5.76	9	−7.35	.0000
Belgium	34,479.90	45,469.70	1.28	1.50	4	−7.36	.0000
Bolivia	1,465.80	2,457.63	2.39	1.50	2	−6.25	.0000
Brazil	8,319.21	10,826.30	1.24	2.70	8	−7.39	.0000
Chile	7,498.85	15,019.60	3.24	2.40	2	−5.40	.0000
Colombia	4,679.24	7,525.86	2.21	2.41	2	−6.42	.0000
Costa Rica	5,563.02	9,714.10	2.58	1.90	2	−6.05	.0000
Cote d'Ivoire	1,266.53	1,552.77	1.00	3.79	11	−7.63	.0000
Dominican Republic	2,926.54	6,909.13	4.02	2.85	3	−4.61	.0000
Ecuador	3,844.78	5,191.10	1.42	2.90	6	−7.22	.0000
El Salvador	2,591.51	3,802.86	1.77	1.59	1	−6.86	.0000
Egypt	1,618.58	2,724.40	2.41	1.62	3	−6.22	.0000
France	33,569.30	42,015.70	1.04	1.40	3	−7.60	.0000
Greece	19,591.40	22,699.10	0.75	3.97	6	−7.88	.0000
Guatemala	2,296.93	3,100.21	1.38	1.15	2	−7.26	.0000
Honduras	1,575.27	2,137.81	1.42	2.15	2	−7.21	.0000
Indonesia	2,083.06	3,974.06	3.07	4.04	2	−5.57	.0000
Iran	4,257.11		1.72	3.59	6	−6.92	.0000
Iraq	2,345.59	5,695.68	5.21	15.13	7	−3.42	.1576
Italy	31,909.20	34,362.70	0.36	2.10	6	−8.27	.0000
Jordan	2,623.57	3,258.49	1.02	2.62	8	−7.61	.0000
Kuwait		35,250.90	−0.59	6.02	13	−9.23	.0000
Lebanon	6,416.33	7,143.96	0.58	4.24	13	−8.06	.0000
Libya			−2.37	18.56	5	−11.00	.0377
Mexico	7,896.12	9,707.91	0.99	3.02	6	−7.64	.0000
Morocco	1,848.78	3,204.86	2.59	3.42	4	−6.04	.0000
Netherlands	37,461.60	52,267.70	1.55	2.00	5	−7.09	.0000
Nicaragua	1,076.04	1,946.37	2.75	2.10	2	−5.88	.0000
Oman	15,923.70		0.38	3.19	10	−8.25	.0000
Panama	4,755.93	10,982.40	3.92	3.04	3	−4.71	.0000
Paraguay	2,814.77	3,925.56	1.62	4.41	8	−7.02	.0000

(continued)

Table 4. Continued.

Country (region)	GDP 1994	GDP 2016	Average <i>GDPGROW</i>	SD	Number of years <i>GDPGROW</i> < 0	vs China	<i>p</i> -value
Peru	2,975.98	6,089.40	3.34	2.67	3	−5.29	.0000
Philippines	1,472.98	2,753.35	2.90	2.05	2	−5.73	.0000
Portugal	17,398.10	22,426.30	1.18	2.15	5	−7.45	.0000
Qatar		66,410.80	0.62	3.98	9	−8.01	.0000
Senegal	790.50	1,092.25	1.49	1.69	5	−7.14	.0000
Spain	23,153.20	31,505.30	1.44	2.32	6	−7.20	.0000
Syria			1.37	2.76	3	−7.26	.0000
Tunisia	2,418.18	4,265.37	2.63	2.08	2	−6.00	.0000
Turkey	6,889.59	14,117.00	3.41	4.41	4	−5.22	.0000
Uruguay	8,221.95	14,010.00	2.53	4.06	5	−6.10	.0000
Venezuela	12,325.10		0.74	6.42	9	−7.89	.0000
French origin average	8,704.15	13,618.88	1.81	3.61	5.07	−6.82	
Austria	35,688.70	47,996.60	1.37	1.68	4	−7.26	.0000
Germany	34,289.10	45,845.50	1.35	2.08	3	−7.28	.0000
Japan	39,441.60	47,623.30	0.88	1.89	5	−7.75	.0000
South Korea	11,113.50	25,458.90	3.89	3.30	1	−4.74	.0000
Switzerland	61,889.70	76,691.10	0.99	1.57	5	−7.64	.0000
Taiwan of China							
German origin average	36,484.52	48,723.08	1.70	2.11	3.60	−6.94	
Denmark	47,928.40	60,670.20	1.10	1.85	3	−7.54	.0000
Finland	30,822.60	45,823.80	1.87	3.15	5	−6.76	.0000
Iceland	30,306.90	48,441.90	2.21	3.26	5	−6.43	.0000
Norway	67,999.70	90,288.80	1.31	1.75	5	−7.32	.0000
Sweden	36,419.50	56,473.00	2.04	2.41	3	−6.59	.0000
Scandinavian origin average	42,695.42	60,339.54	1.71	2.48	4.20	−6.93	
Bulgaria	3,660.40	7,967.71	3.66	3.52	3	−4.97	.0000
China	1,118.50	6,893.78	8.63	1.84	0	0.00	.5000
Croatia		14,452.10	2.64	3.70	6	−5.99	.0000
Czech Republic	12,666.70	21,894.10	2.56	2.83	5	−6.07	.0000
Hungary	8,808.38	14,997.20	2.48	2.60	2	−6.15	.0000
Kazakhstan	4,001.67	10,582.50	4.63	4.69	5	−4.01	.0006
Poland	6,122.31	15,066.00	4.19	1.71	0	−4.44	.0000
Romania	4,574.59	10,065.50	3.74	4.31	5	−4.89	.0000
Russia	6,176.87		2.90	5.05	7	−5.73	.0000
Slovakia	8,242.70	19,275.10	3.99	3.21	2	−4.65	.0000
Slovenia		24,460.40	2.39	3.26	3	−6.24	.0000
Vietnam	539.61	1,735.29	5.46	1.08	0	−3.17	.0000
Socialist origin average	5,591.17	13,399.06	3.94	3.15	3.17	−4.69	

Data source: Global Financial Development, International Monetary Fund (<http://www.imf.org/external/pubs/ft/weo/2017/01/weodata/index.aspx>).

year (going backward from 2016) with per capita GDP less than \$6,893, and calculate the average growth rate of per capita GDP 10 years before that year. For example, Australia is excluded because the per capita GDP of Australia exceeds \$6,893 in all years during the whole period; Singapore had a per capita GDP of \$6,506 in 1970, so we calculate the average growth rate of per capita GDP from 1961 to 1970 for Singapore.

Table 5 presents the year when the country's per capita GDP reached \$6,893, the 10-year average growth rate of per capita GDP, the difference in the average growth rate versus China, the *p*-value of the *t*-test, the standard deviation of the growth, and the number of years when the growth was negative. We find, from Table 5, that with control for per capita income, China still has the highest average growth in per capita GDP, and the difference in the average growth between China and all other countries

Table 5. Average 10-year GDP per capita growth (*GDPGROW*) in countries (regions) with GDP per capita (GDP) less than \$6,893 (constant 2010 US\$).

Country (region)	Year GDP < =US\$6,893	Average <i>GDPGROW</i>	vs China	<i>p</i> -value	SD	No. of years with <i>GDPGROW</i> < 0
Australia	NA					
Bahrain	NA					
Bangladesh	2016	5.04	−3.41	.00045	0.62	0
Canada	NA					
Cyprus	NA					
Hong Kong of China	1972	6.04	−2.41	.07760	4.52	1
India	2016	5.96	−2.49	.00781	1.88	0
Ireland	NA					
Israel	NA					
Kenya	2016	2.44	−6.01	.00000	2.16	1
Malaysia	2001	3.74	−4.71	.01317	5.43	2
New Zealand	NA					
Nigeria	2016	2.23	−6.22	.00001	2.68	2
Pakistan	2016	1.53	−6.92	.00000	1.36	2
Saudi Arabia	NA					
Singapore	1970	6.87	−1.58	.20931	5.50	1
South Africa	2006	2.01	−6.44	.00000	1.67	1
Sri Lanka	2016	5.35	−3.10	.00235	2.02	0
Tanzania	2016	3.42	−5.03	.00001	1.07	0
Thailand	2016	2.72	−5.73	.00004	2.73	1
Trinidad and Tobago	1995	−1.01	−9.46	.00000	3.41	6
United Arab Emirates	NA					
United Kingdom	NA					
United States	NA					
Zimbabwe	2016	2.19	−6.26	.04010	9.90	5
English origin average		3.47	−4.98		3.21	1.57
Afghanistan	2016	4.67	−3.78	.05404	6.46	3
Algeria	2016	1.21	−7.24	.00000	0.63	1
Argentina	2002	−0.50	−8.95	.00045	5.97	5
Belgium	NA					
Bolivia	2016	3.33	−5.12	.00001	1.00	0
Brazil	1992	0.26	−8.19	.00003	3.96	5
Chile	1992	3.75	−4.70	.00482	4.39	1
Colombia	2012	3.49	−4.96	.00002	1.63	0
Costa Rica	2015	3.09	−5.36	.00004	2.44	1
Cote d'Ivoire	2016	2.61	−5.84	.00146	4.54	3
Dominican Republic	2016	3.97	−4.48	.00041	2.69	1
Ecuador	2016	1.70	−6.75	.00001	2.93	3
El Salvador	2016	1.07	−7.38	.00000	1.79	1
Egypt	2016	2.10	−6.35	.00000	2.07	3
France	NA					
Greece	NA					
Guatemala	2016	1.33	−7.12	.00000	1.42	1
Honduras	2016	1.34	−7.11	.00000	2.16	1
Indonesia	2016	4.25	−4.20	.00009	0.60	0
Iran	2016	0.29	−8.16	.00021	4.53	5
Iraq	2016	3.30	−5.15	.00139	3.92	2
Italy	NA					
Jordan	2016	−0.85	−9.30	.00000	2.26	7
Kuwait	NA					
Lebanon	2006	−0.53	−8.98	.00000	1.71	7
Libya	NA					
Mexico	1988	0.63	−7.82	.00024	4.83	5
Morocco	2016	2.49	−5.96	.00000	1.37	1
Netherlands	NA					
Nicaragua	2016	2.92	−5.53	.00006	2.76	1
Oman	NA					
Panama	2006	3.07	−5.38	.00007	2.68	1
Paraguay	2016	3.58	−4.87	.01132	5.44	2
Peru	2016	4.14	−4.31	.00064	2.74	1

(continued)

Table 5. Continued.

Country (region)	Year GDP <=US\$6,893	Average GDPGROW	vs China	p-value	SD	No. of years with GDPGROW < 0
Philippines	2016	3.90	−4.55	.00008	1.97	1
Portugal	NA					
Qatar	NA					
Senegal	2016	1.26	−7.19	.00000	1.53	2
Spain	NA					
Syria	NA					
Tunisia	2016	1.62	−6.83	.00000	2.29	2
Turkey	1994	2.28	−6.17	.00078	4.39	3
Uruguay	1979	2.33	−6.12	.00001	2.55	2
Venezuela	NA					
French origin average		2.20	−6.25		2.89	2.29
Austria	NA					
Germany	NA					
Japan	NA					
South Korea	1987	7.38	−1.07	.30488	4.27	1
Switzerland	NA					
Taiwan of China	NA					
German origin average		7.38	−1.07		4.27	1
Denmark	NA					
Finland	NA					
Iceland	NA					
Norway	NA					
Sweden	NA					
Scandinavian origin average						
Bulgaria	2010	5.54	−2.91	.02372	3.61	1
China	2016	8.45	0.00	.50000	2.26	0
Croatia	NA					
Czech Republic	NA					
Hungary	NA					
Kazakhstan	2004	5.37	−3.08	.07872	6.04	2
Poland	1996	2.70	−5.75	.02070	5.19	1
Romania	2005	3.43	−5.02	.00333	4.40	3
Russia	2001	−2.41	−10.86	.00124	8.34	6
Slovakia	NA					
Slovenia	NA					
Vietnam	2016	4.93	−3.52	.00035	0.64	0
Socialist origin average		4.00	−4.45		4.36	1.86

Data source: Global Financial Development, International Monetary Fund (<http://www.imf.org/external/pubs/ft/weo/2017/01/weodata/index.aspx>).

are economically substantial and statistically significant. Also, China has relatively low volatility in the growth of per capita GDP and no negative growth in all the years, so China has one of the most stable economic developments.

Comparison of financial development

Following the literature (La Porta, Lopez-de-Silanes, and Shleifer 2002; Beck, Levine, and Loayza 2000), we measure financial development using the ratio of private credit to GDP, the ratio of stock market capitalisation to GDP, the ratio of liquid liability to GDP, and the ratio of bank overhead costs to total bank assets. Table 6 displays the average of each of the ratios for the year of 1994 and 2015 respectively in countries of various legal origins in Panel B, and presents the ranking of the 92 countries based

Table 6. Financial development in 1994 vs. 2015.

	PCG		SMCG		LLG		BOC	
	1994	2015	1994	2015	1994	2015	1994	2015
Panel A. Country (region) ranks of proxies								
Australia	21	9	18	17	39	16	63	86.5
Bahrain	43	38	12	28	26	32	91	78.5
Bangladesh	81	66	74	71	77	60	59	44
Canada	17	11	9	10	18	15	73	69
Cyprus	5	1	46	70	3	4	30	27
Hong Kong of China	3	2	2	1	2	1	85	88
India	64	60	28	23	54	39	69	49
Ireland	40	29	25	31	42	20	87	76
Israel	22	43	20	24	21	34	58	50
Kenya	73	72	33	58	61	76	23	10
Malaysia	7	16	1	7	6	8	75	81
New Zealand	13	6	21	38	20	29	53	90
Nigeria	85	90	56	76	78	94	2	13
Pakistan	63	88	38	67	53	77	42	41
Saudi Arabia	66	51	27	25	48	42	81	80
Singapore	15	10	3	3	17	11	88	86.5
South Africa	27	42	4	2	49	73	56	29
Sri Lanka	88	80	40	56	66	81	36	31
Tanzania	89	91	75	81	80	91	20	5
Thailand	4	20	10	13	14	17	72	45
Trinidad and Tobago	52	69	58	29	46	53	35	37.5
United Arab Emirates	34	36	43	37	41	30	86	74.5
United Kingdom	8	8	6	9	38	7	94	65
United States	39	59	15	5	32	44	39	35
Zimbabwe	75	94	39	6	64	90	10	3
Average English origin	41	44	28	31	40	42	57	52
Afghanistan	93	95			81	86	12	22
Algeria	92	86			51	41	68	73
Argentina	74	92	45	78	87	93	15	6
Belgium	16	47	29	21	16	12	80	74.5
Bolivia	35	63	80	69	57	49	22	15
Brazil	44	41	47	51	70	36	8	26
Chile	41	33	7	20	63	69	40	48
Colombia	51	64	53	50	75	83	4	21
Costa Rica	84	53	68	83	71	70	14	11
Cote d'Ivoire	65	85	76	46	79	82	24	30
Dominican Republic	78	82			84	92	16	4
Ecuador	69	81	64	79	82	88	13	9
El Salvador	56	65		48	59	78	34	12
Egypt	57	83	66	65	15	43	78	64
France	11	26	31	22	29	25	83	57
Greece	49	18	57	63	35	21	37.5	67
Guatemala	82	73			88	80	18	17
Honduras	58	52			73	66	54	78.5
Indonesia	33	75	41	43	55.5	85	57	25
Iran	72	62	70	42	58	62		
Iraq	95	93			85	74	95	24
Italy	24	30	51	54	25	28	51.5	56
Jordan	23	39	14	26	7	14	48	53.5
Kuwait	71	25	24	34	9	22	89	84
Lebanon	42	24	44	61	4	2	46	82.5
Libya	62	89			40	37	60	71
Mexico	46	84	34	47	74	89	27	19
Morocco	59	44	60	41	30	18	65	37.5
Netherlands	12	21	19	15	13	13	92	69
Nicaragua	77	77			93	87	17	8
Oman	61	46	49	35	76	67	47	62.5
Panama	25	35	67	52	36	54	62	33.5
Paraguay	60	54	78	82	69	68	25	2

(continued)

Table 6. Continued.

	PCG		SMCG		LLG		BOC	
	1994	2015	1994	2015	1994	2015	1994	2015
Peru	86	71	48	49	91	75	6	20
Philippines	53	67	13	19	52	46	21	43
Portugal	26	13	52	55	12	23	61	69
Qatar	50	45	5	11	28	31	84	92
Senegal	67	74			86		7	16
Spain	18	14	11	27	19	19	66	59
Syria	90	87			44	48	93	53.5
Tunisia	30	37	59	64	47	51	43	42
Turkey	83	48	50	57	83	71	33	52
Uruguay	70	76	77	85	65	65	11	1
Venezuela	87	78	61	84	72	72	9	7
Average French origin	56	58	47	49	54	54	43	40
Austria	10	31	55	62	10	26	74	55
Germany	9	34	42	40	23	27	77	66
Japan	1	23	17	12	1	3	90	93
South Korea	38	7	26	18	62	45	64	58
Switzerland	2	4	8	4	5	5	70	32
German origin average	12	20	30	27	20	21	75	61
Taiwan of China							82	77
Denmark	48	3	35	32	33	55	50	94
Finland	19	27	32	33	34	40	71	95
Iceland	37	28		68	60	35	26	39.5
Norway	28	19	37	39	37	61	51.5	89
Sweden	45	12	22	16	55.5	57	55	91
Scandinavian origin average	35	18	32	38	44	50	51	82
Bulgaria	31	49	81	74	22	33	1	46.5
China	14	5	62	30	11	6	79	82.5
Croatia	54	40	69	45	92	47	19	23
Czech Republic	20	61	63	66	24	38	41	72
Hungary	55	68	71	75	45	64	45	14
Kazakhstan	80	70	65	73	95	84	3	62.5
Poland	79	56	72	53	67	58	31	39.5
Romania	94	79	82	77	90	79	32	28
Russia	91	50	83	60	94	63	5	33.5
Slovakia	36	58	54	80	27	59	37.5	46.5
Slovenia	68	57	73	72	68	56	28	51
Vietnam	76	22	79	59	89	10	67	61
Socialist origin average	58	51	71	64	60	50	32	47
Panel B. Average of proxies for countries with various legal origins (%)								
Average English origin	52.38	82.45	69.54	117.59	59.67	92.17	3.26	2.48
Average French origin	31.59	52.66	26.78	39.39	44.77	68.46	4.22	3.61
German origin average	110.20	115.13	48.01	95.10	98.09	131.36	1.61	1.75
Scandinavian origin average	47.55	119.91	33.33	55.04	50.49	69.06	2.93	1.12
Socialist origin average	30.88	60.78	4.16	22.20	38.38	77.01	9.58	2.36
Total average	42.40	69.04	38.55	65.38	51.27	79.71	4.41	2.87

Data source: International Financial Statistics, International Monetary Fund (<http://www.imf.org/external/pubs/ft/weo/2017/01/weodata/index.aspx>).

on the four ratios in Panel A. For the ratio of private credit to GDP, China ranked 13th in 1994 and improved to 5th in 2015; for the ratio of stock market capitalisation to GDP, China's rank improved from 58th in 1994 to 28th in 2015; for the ratio of liquid liability to GDP, China ranked 10th in 1994 and 6th in 2015; and for the ratio of bank overhead costs to total bank assets, China ranked 75th in 1994 and improved to 80th in 2015. To summarise, China's financial development was quite good in 1994, and progressed steadily during the period of 1994 to 2015.

Regression results of per capita GDP growth

Regressions are estimated to examine the association between government ownership of banks and economic growth across countries. The model is specified as follows:

$$GDPGROW = \beta_0 + \beta_1 GB95 + \beta_2 LGGDP94 + \beta_3 X + \beta_4 GB95 * English + \beta_5 GB95 * French + \beta_6 GB95 * Socialist + \varepsilon \quad (1)$$

where *GDPGROW* is the average annual growth rate of GDP per capita from 1995 to 2015; *GB95* is the government ownership of banks in 1995; *LGDP94* is the natural logarithm of GDP per capita in 1994 to control for the initial level of GDP per capita; *X* is alternatively the official supervisory index (*OSI*), voice and accountability (*VA*), political stability and absence of violence (*PV*), government effectiveness (*GE*), regulatory quality (*RQ*), rule of law (*RL*) or control of corruption (*CC*); *English* (*French* and *Socialist*) is a dummy variable that equals 1 if it is an English (French and socialist) origin country and 0 otherwise; *GB95*English* is the interaction between government ownership of banks and English legal origin; *GB95*French* is the interaction between government ownership of banks and French legal origin; *GB95*Socialist* is the interaction between government ownership of banks and socialist origin.

Table 7 presents the correlation between variables. In Panel A of Table 8, Model 1 includes only *GB95* and the initial GDP per capita (*LGDP94*) as independent variables and Model 2 adds the interaction between *GB95* and legal origins. In Model 1, the coefficient of *GB95* is statistically significantly positive at the 5% level, which suggests higher government ownership of banks is associated with higher economic growth. In Model 2, the coefficient on *GB95* remains statistically significantly positive at the 5% level while the coefficient of *GB95*Socialist* is also statistically significantly positive at the 10% level, which indicates the higher government ownership of banks is associated with higher economic growth in socialist countries. The results in Model 3 and Model 4 are qualitatively similar as in Model 2 when the official supervisory index (*OSI*) is added into the model.

In Panel B of Table 8, in addition to *GB95* and *LGDP94*, government effectiveness (*GE*) is included as a control variable in Model 1 and Model 2; rule of law (*RL*) is included as a control variable in Models 3 and 4; and control of corruption (*CC*) is included as a control variable in Models 5 and 6.¹¹ The results in all models are qualitatively similar and indicate that higher government ownership of banks is associated with higher economic growth in socialist countries.

Regressions are also estimated to examine the association between government ownership of banks and financial development across countries. The model is specified as follows:

$$Y = \beta_0 + \beta_1 GB95 + \beta_2 LGGDP94 + \beta_3 X + \beta_4 GB95 * English + \beta_5 GB95 * French + \beta_6 GB95 * Socialist + \varepsilon \quad (2)$$

where *Y* is alternatively the ratio of private credit to GDP (*PCG*), the ratio of stock market capitalisation to GDP (*SMCG*), the ratio of liquid liabilities to GDP (*LLG*) and the ratio of bank overhead costs to total assets (*BOC*); all other variables are the same as defined in Equation (1).

Table 7. Pearson correlation coefficient for variables.

	GB95	GDPGROW	PCG	SMCG	LLG	BOC	OSI	VA	PV	GE	RQ	RL
GDPGROW	0.314***											
PCG	-0.474***	-0.057										
SMCG	-0.334***	-0.044	0.450***									
LLG	-0.323***	-0.058	0.744***	0.623***								
BOC	0.145	0.013	-0.341***	-0.166	-0.311***							
OSI	0.034	-0.172	-0.192	-0.416***	-0.007	0.240*						
VA	-0.180*	-0.041	0.120	0.073	0.051	0.041	0.042					
PV	-0.396***	-0.163	0.610***	0.136	0.370***	-0.154	-0.116	0.442***				
GE	-0.466***	-0.204*	0.692***	0.307***	0.452***	-0.350***	-0.263**	0.407***	0.811***			
RQ	-0.499***	-0.032	0.573***	0.277**	0.328***	-0.073	-0.184	0.404***	0.728***	0.756***		
RL	-0.441***	-0.190*	0.678***	0.254**	0.430***	-0.280***	-0.217*	0.517***	0.863***	0.937***	0.787***	
CC	-0.432***	-0.147	0.677***	0.280**	0.414***	-0.267**	-0.255**	0.412***	0.796***	0.942***	0.746***	0.930***

Note: * $p < .1$; ** $p < .05$; *** $p < .01$.

Table 8. Regression of average growth of GDP per capita (*GDPGROW*): Panel A and Panel B.Panel A. Dependent variable: average annual growth of GDP per capita (*GDPGROW*)

Independent variable	Model 1	Model 2	Model 3	Model 4
Intercept	4.923***	5.581***	7.649***	7.550***
	1.226	1.338	1.430	1.346
<i>GB95</i>	0.013**	0.015**	0.015*	0.014
	0.006	0.007	0.008	0.010
<i>LGGDP94</i>	−0.362***	−0.419***	−0.510***	−0.511***
	0.123	0.136	0.120	0.116
<i>OSI</i>			−0.115**	−0.082*
			0.048	0.044
<i>GB95*English</i>		−0.011		−0.003
		0.011		0.012
<i>GB95*French</i>		−0.013*		−0.022**
		0.008		0.010
<i>GB95*Socialist</i>		0.018*		0.016
		0.009		0.012
Adj. R^2 (%)	23.2	38.9	38.0	54.1
N	84	84	61	61

Panel B. Dependent variable: average annual growth of GDP per capita (*GDPGROW*)

Independent variable	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Intercept	7.347***	7.415***	7.733***	8.170***	7.792***	7.993***
	1.911	1.746	1.846	1.774	1.877	1.711
<i>GB95</i>	0.016**	0.011	0.015**	0.009	0.016**	0.008
	0.006	0.007	0.006	0.007	0.006	0.007
<i>LGGDP94</i>	−0.677***	−0.661***	−0.713***	−0.744***	−0.721***	−0.726***
	0.225	0.200	0.211	0.199	0.210	0.186
<i>GE, RL or CC</i>	0.537*	0.451*	0.607**	0.592**	0.600***	0.573***
	0.277	0.245	0.268	0.269	0.224	0.198
<i>GB95*English</i>		−0.006		−0.008		−0.003
		0.010		0.010		0.010
<i>GB95*French</i>		−0.005		−0.004		−0.002
		0.008		0.008		0.008
<i>GB95*Socialist</i>		0.023**		0.024**		0.027***
		0.009		0.009		0.009
Adj. R^2 (%)	26.8	40.8	27.4	42.1	29.3	43.9
N	84	84	84	84	84	84

Notes: * $p < .1$; ** $p < .05$; *** $p < .01$. *English* (*French* and *Socialist*) is a dummy variable that equals 1 if it is an English (*French* and *socialist*) origin country and 0 otherwise. All other variables are as defined in [Appendix](#).

In Panel A of [Tables 9–12](#), Model 1 includes only *GB95* and the initial GDP per capita (*LGGDP94*) as independent variables; Model 2 adds the interaction between *GB95* and legal origin; and Models 3 and 4 include the official supervisory index (*OSI*) as a control variable. In Panel B of [Tables 9–12](#), in addition to *GB95* and *LGGDP94*, government effectiveness (*GE*) is included as a control variable in Models 1 and 2; rule of law (*RL*) is included as a control variable in Models 3 and 4; and control of corruption (*CC*) is included as a control variable in Models 5 and 6.

Although government ownership is negatively associated with the ratio of private credit to GDP, the ratio of stock market capitalisation to GDP and the ratio of liquid liabilities to GDP, the coefficient of *GB95*Socialist* is always positive, which indicates higher government ownership of banks is associated with higher financial development in socialist countries. All these results are consistent with the development view.¹²

Table 9. Regression of private credit/GDP (PCG): Panel A and Panel B.

Panel A. Dependent variable: private credit/GDP (PCG)				
Independent variable	Model 1	Model 2	Model 3	Model 4
Intercept	−65.643*** 23.891	−56.108* 29.558	−28.688 43.233	−26.524 48.952
GB95	−0.331** 0.161	−0.186 0.251	−0.197 0.239	−0.068 0.425
LGGDP94	16.983*** 2.655	16.163*** 3.258	15.284*** 3.470	14.793*** 4.059
OSI			−2.132 1.820	−1.549 1.890
GB95*English		−0.150 0.265		−0.199 0.435
GB95*French		−0.391 0.238		−0.553 0.416
GB95*Sociatlist		0.103 0.300		0.113 0.482
Adj. R ² (%)	36.4	38.9	25.4	28.2
N	84	84	61	61

Panel B. Dependent Variable: Private Credit/GDP (PCG)						
Independent variable	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Intercept	52.205 32.894	47.785 30.521	52.815 32.430	55.584 33.741	43.607 35.735	38.220 33.903
GB95	−0.203 0.158	−0.402 0.264	−0.283* 0.155	−0.412 0.248	−0.253 0.155	−0.457* 0.274
LGGDP94	1.698 4.095	2.421 3.708	2.221 4.080	2.114 4.203	3.315 3.979	4.151 3.617
GE, RL or CC	26.123*** 5.360	25.569*** 5.164	25.590*** 5.075	25.535*** 5.489	22.841*** 4.531	22.405*** 4.362
GB95*English		0.114 0.265		−0.013 0.242		0.162 0.280
GB95*French		0.088 0.268		0.021 0.240		0.062 0.275
GB95*Sociatlist		0.427 0.315		0.370 0.300		0.458 0.328
Adj. R ² (%)	47.1	47.6	45.2	46	46.5	47.6
N	84	84	84	84	84	84

Notes: * $p < .1$; ** $p < .05$; *** $p < .01$. *English* (*French* and *Sociatlist*) is a dummy variable that equals 1 if it is an English (*French* and *sociatlist*) origin country and 0 otherwise. All other variables are as defined in [Appendix](#).

Discussion and conclusion

The objective of this study is not to falsify or verify any theory about the relationship between government involvement in commercial banks and economic development, but to compare the economic growth across countries with different extents of government involvement in commercial banks and with China as the focus of the comparison. This study finds a positive association between government involvement in banks and per capita GDP growth in China. Applying the arguments and assumptions in the literature of the development and political theories and considering China's unique characteristics, we propose some possible explanations for the positive association.

Firstly, one of the main assumptions from the political view is that politicians' decisions are not made based on the whole society's interests but on their voters' interests. In China, the political institutions follow a pattern of multi-party cooperation and political consultation under the leadership of the Communist Party of

Table 10. Regression of stock market capitalisation to GDP (%) (*SMCG*): Panel A and Panel B.Panel A. Dependent variable: stock market capitalisation to GDP (%) (*SMCG*)

Independent variable	Model 1	Model 2	Model 3	Model 4
Intercept	60.760	14.521	124.710*	102.017
	49.297	51.813	71.437	73.074
<i>GB95</i>	−1.247**	−1.826**	−0.694***	−0.858**
	0.521	0.876	0.215	0.349
<i>LGDP94</i>	5.945	11.189*	4.143	6.123
	4.928	6.540	5.274	5.471
<i>OSI</i>			−7.102**	−6.569**
			2.755	2.785
<i>GB95*English</i>		1.052*		0.465
		0.562		0.344
<i>GB95*French</i>		0.317		−0.077
		0.415		0.342
<i>GB95*Socialist</i>		0.757		0.206
		0.565		0.347
Adj. R^2 (%)	9.5	7.3	34.1	33.4
N	77	77	59	59

Panel B. Dependent variable: stock market capitalisation to GDP (%) (*SMCG*)

Independent variable	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Intercept	229.714***	180.183***	208.598***	156.644***	194.283**	143.487**
	64.605	51.899	64.266	57.027	73.858	60.290
<i>GB95</i>	−1.103**	−2.175**	−1.246**	−2.121**	−1.162**	−2.191**
	0.496	0.956	0.520	0.936	0.494	1.007
<i>LGDP94</i>	−15.960***	−10.732**	−12.364**	−6.538	−10.797*	−5.323
	5.784	4.991	5.945	5.968	6.242	5.117
<i>GE, RL or CC</i>	37.768***	40.938***	31.722***	31.798***	28.171***	30.984**
	9.231	9.811	9.823	10.665	10.377	11.988
<i>GB95*English</i>		1.479**		1.217**		1.483**
		0.647		0.580		0.700
<i>GB95*French</i>		1.052*		0.770		0.940
		0.568		0.495		0.615
<i>GB95*Socialist</i>		1.280*		1.089*		1.247*
		0.677		0.629		0.729
Adj. R^2 (%)	11.9	9.8	10.3	7.8	10.8	8.8
N	77	77	77	77	77	77

Notes: * $p < .1$; ** $p < .05$; *** $p < .01$. *English* (*French* and *Socialist*) is a dummy variable that equals 1 if it is an English (*French* and *socialist*) origin country and 0 otherwise. All other variables are as defined in [Appendix](#).

China (CPC). The role played by ‘voters’ is not that important as in other countries with two party system or multiparty system as assumed by the political view. Therefore, the motivation of getting more votes at the expenses of economic development is weaker in China’s political environment than in countries with other legal origins.

Secondly, the key assumption of the development view is that people trust government and their controlled banks. This is particularly true in China. The Chinese government has been governing China since 1949. The Chinese people trust government-controlled banks, because there has been no bank failure in China since 1949, and it has become a convention to save money at government-controlled banks.¹³ For example, the five major commercial banks have branches all over China covering rural and urban areas, and are well-known among the people. They are usually labelled as ‘five giants’ in the Chinese commercial banking market.

Table 11. Regression of liquid liabilities to GDP (%) (*LLG*): Panel A and Panel B.

Panel A. Dependent variable: liquid liabilities to GDP (%) (<i>LLG</i>)				
Independent variable	Model 1	Model 2	Model 3	Model 4
Intercept	−3.741 33.430	−20.254 36.482	−0.181 49.027	−17.349 53.932
<i>GB95</i>	−0.339 0.221	−0.798** 0.338	−0.137 0.287	−0.663* 0.342
<i>LGDP94</i>	11.035*** 3.403	13.134*** 3.833	9.430** 4.281	11.108** 4.708
<i>OSI</i>			0.544 1.859	1.211 1.910
<i>GB95*English</i>		0.495* 0.292		0.468 0.320
<i>GB95*French</i>		0.265 0.260		0.092 0.299
<i>GB95*Socialist</i>		0.832** 0.352		0.889** 0.428
Adj. <i>R</i> ² (%)	14.3	16.5	4.8	8.9
N	83	83	61	61

Panel B. Dependent variable: liquid liabilities to GDP (%) (<i>LLG</i>)						
Independent variable	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Intercept	96.492** 41.923	81.502** 37.593	91.360** 40.193	82.689** 41.176	72.105 43.937	55.669 40.955
<i>GB95</i>	−0.241 0.230	−1.000*** 0.376	−0.306 0.224	−0.999*** 0.348	−0.290 0.225	−1.010*** 0.369
<i>LGDP94</i>	−1.876 5.089	−0.200 4.509	−0.765 4.956	0.264 5.122	1.591 5.015	3.523 4.569
<i>GE, RL or CC</i>	21.649*** 7.335	24.153*** 7.226	20.174*** 7.416	22.891*** 8.344	15.542** 6.619	17.573*** 6.598
<i>GB95*English</i>		0.728** 0.331		0.605** 0.289		0.730** 0.326
<i>GB95*French</i>		0.709** 0.331		0.628** 0.293		0.616* 0.316
<i>GB95*Socialist</i>		1.126*** 0.397		1.062*** 0.368		1.104*** 0.395
Adj. <i>R</i> ² (%)	19.3	21.9	17.8	20.3	17.1	20.0
N	83	83	83	83	83	83

Notes: * $p < .1$; ** $p < .05$; *** $p < .01$. *English* (*French* and *Socialist*) is a dummy variable that equals 1 if it is an English (*French* and *socialist*) origin country and 0 otherwise. All other variables are as defined in [Appendix](#).

Thirdly, the development view argues that the government-controlled banks can get enough savings to provide capital not only to serve the short-term demand of individuals and businesses but also to support projects and industries that are important for the society's long-term development. This advantage/characteristic is vital for China's economic development. The Chinese economy is characterised by a large population, underdeveloped industrial sectors, and imbalanced development in different areas. Therefore, a long-term strategical development design and a macro development distribution in terms of industry and location are important to China's economic development, e.g. the transportation infrastructure, but the implementation of these projects demands a large amount of capital. The effective government control over commercial banks has been playing a determinant role in financing these strategical projects, which benefit the economic growth of China.

Finally, according to the political view, government control of banks can cause bribes and corruptions of government officers, which would negatively affect economic development. In fact, bribes and corruptions are common to governments

Table 12. Regression of bank overhead costs to total assets (%) (BOC): Panel A and Panel B.

Panel A. Dependent variable: bank overhead costs to total assets (%) (BOC)

Independent variable	Model 1	Model 2	Model 3	Model 4
Intercept	7.109***	6.578***	4.964***	5.038***
	2.028	2.476	1.362	1.463
<i>GB95</i>	0.008	−0.001	−0.005	−0.010
	0.013	0.007	0.006	0.008
<i>LGDP94</i>	−0.504**	−0.469*	−0.396***	−0.394***
	0.198	0.238	0.116	0.133
<i>OSI</i>			0.096**	0.080*
			0.042	0.041
<i>GB95*English</i>		0.001		0.002
		0.013		0.010
<i>GB95*French</i>		0.034		0.015
		0.024		0.011
<i>GB95*Socialist</i>		−0.007		0.002
		0.010		0.010
Adj. R^2 (%)	5.0	10.6	19.2	20.2
N	83	83	61	61

Panel B. Dependent variable: bank overhead costs to total assets (%) (BOC)

Independent variable	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Intercept	1.378	2.731	3.388	5.172**	4.599*	5.468**
	3.799	3.211	2.318	2.247	2.365	2.187
<i>GB95</i>	0.002	0.007	0.007	0.002	0.006	0.002
	0.011	0.006	0.013	0.009	0.013	0.007
<i>LGDP94</i>	0.236	0.039	−0.043	−0.293	−0.191	−0.328
	0.443	0.350	0.254	0.248	0.255	0.217
<i>GE, RL or CC</i>	−1.255**	−0.944***	−0.788**	−0.317	−0.517**	−0.261
	0.531	0.346	0.329	0.505	0.246	0.275
<i>GB95*English</i>		−0.009		−0.001		−0.003
		0.011		0.014		0.014
<i>GB95*French</i>		0.016		0.029		0.028
		0.020		0.029		0.027
<i>GB95*Socialist</i>		−0.019**		−0.011		−0.012
		0.009		0.013		0.012
Adj. R^2 (%)	10.3	12.7	6.0	9.8	5.2	9.8
N	83	83	83	83	83	83

Notes: * $p < .1$; ** $p < .05$; *** $p < .01$. *English* (*French* and *Socialist*) is a dummy variable that equals 1 if it is an English (*French* and *socialist*) origin country and 0 otherwise. All other variables are as defined in [Appendix](#).

around the world. The Chinese government has been combatting corruption for many years. Two organs at the top level of the government and the CPC have been established: the Ministry of Supervision (MOS) was established in 1987, and the Central Commission for Discipline Inspection (CCDI) was established in 1949. The CCDI is the highest internal-control institution of the CPC, aimed at enforcing internal rules and regulations and combating corruption and malfeasance in the Party. The MOS is responsible for maintaining an efficient, disciplined, clean and honest government, and educating public servants about their duty and discipline.

From 2012 to 2016, China has ‘netted’ over 120 high-ranking officials, including about a dozen high-ranking military officers, several senior executives of state-owned companies, and five national leaders. More than 100,000 people have been indicted for corruption (China Power 2016; *Economist* 2015; News China 2016; Xinhua 2016; ChinaNews 2017). Whether China can continue the sustainable development of economy depends to a large extent on the success of the battle against corruptions.

This study provides several implications to researchers, practitioners, and policy makers. Facing controversial theories and mixed empirical evidences, policy makers should make decisions based on theories that work best for the country or are most suitable to the unique and the most important characteristics of the country. To this end, more trials and errors may be necessary to achieve a thorough and deep understanding on the country. Another implication concerns investors and firms on investment and business in foreign countries. In addition to legal origin, government ownership and involvement suggested by previous studies, more knowledge about the government such as its efficiency, economic policies' effectiveness, and the compatibility of their political and economic institutions and policies with the political, economic and historical environments may facilitate wise decisions and success in investment and business running.

Notes

1. Please visit the Chinese Government's Official Web Portal at http://english1.english.gov.cn/2011-08/05/content_1920324.htm.
2. Please see the CBRC publications at <http://www.cbrc.gov.cn>.
3. According to the CBRC publications (Chinese version), major commercial banks were called state-owned commercial banks (SOCBs) until 2009; and from 2010 onwards they have been renamed as 'major commercial banks'. However, in the English version, 'SOCBs' was replaced by 'major commercial banks' in 2013. In addition, in the Major Supervisory Indicators for Commercial Banks as of Q1-2014 published by the CBRC (English version), it notes that 'the commercial banks include the state-owned commercial banks, joint-stock commercial banks, city commercial banks, rural commercial banks and foreign banks. **The major commercial banks include the state-owned commercial banks (SOCBs) and the joint stock commercial banks (JSCBs)**' (emphasis mine). By comparing the content with the Chinese version and referring to other documents, the authors decide to regard major commercial banks as originally state-owned commercial banks.
4. According to the publications of the CBRC, Bank of Communications was a JSCB till 2006 and became a SOCB in 2007.
5. State-controlled firms are firms in which government is the ultimate major (controlling) shareholder. Privately controlled firms are firms in which the ultimate controlling shareholders of the firms are family, an individual or a group of individual investors.
6. See the CBRC publications at <http://www.cbrc.gov.cn/showyjhhjindex.do>.
7. See the PBOC publications at <http://www.pbc.gov.cn/english/130712/index.html>.
8. The degree of involvement and the differences in government efficiency, policies and political institutions affect industry's development (see e.g. Galang 2012).
9. For private banks, there exists relationship banking; trading activities are affected by the client-bank relationship, which can affect the social economy (Wan et al. 2008).
10. The official supervisory index measures the degree to which the country's commercial bank supervisory agency has the authority to take specific actions. The questions that are used to calculate the index of official supervisory powers are (Data source: Barth, Caprio, and Levine 2008):

- (1) Does the supervisory agency have the right to meet with external auditors about banks?
 - (2) Are auditors required to communicate directly to the supervisory agency about elicit activities, fraud, or insider abuse?
 - (3) Can supervisors take legal action against external auditors for negligence?
 - (4) Can the supervisory authority force a bank to change its internal organisational structure?
 - (5) Are off-balance sheet items disclosed to supervisors?
 - (6) Can the supervisory agency order the bank's directors or managers to constitute provisions to cover actual or potential losses?
 - (7) Can the supervisory agency suspend the directors' decision to distribute: (a) Dividends? (b) Bonuses? (c) Management fees?
 - (8) Can the supervisory agency supersede the rights of bank shareholders and declare a bank insolvent?
 - (9) Can the supervisory agency suspend some or all ownership rights?
 - (10) Can the supervisory agency: (a) Supersede shareholder rights? (b) Remove and replace management? (c) Remove and replace directors?
 - (11) The official supervisory index has a maximum value of 14 and a minimum value of 0, where larger numbers indicate greater power.
11. We only report the results of three of the indicators of government efficiency, i.e. government effectiveness (*GE*), rule of law (*RL*) and control of corruption (*CC*), because these three variables are significant in both of the regression analyses of GDP growth and financial development.
 12. Please note that this study is not designed to verify either the political or the development view.
 13. When Hainan Development Bank collapsed in 1998, China's central bank prevented possible losses of depositors by transferring their accounts at full value to the much larger Industrial and Commercial Bank of China.

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Appendix

Description of the variables.

Variable name	Description and source
<i>GB95</i>	Government ownership of banks in 1995: Share of the assets of the top 10 banks in a given country owned by the government in 1995. Data source: La Porta, Lopez-de-Silanes, and Shleifer (2002).
<i>GB70</i>	Government ownership of banks in 1970: Share of the assets of the top 10 banks in a given country owned by the government in 1970. Data source: La Porta, Lopez-de-Silanes, and Shleifer (2002).
<i>GDP</i>	GDP per capita (constant 2010 US\$). Data source: World Development Indicators, World Bank.
<i>GDPGROW</i>	GDP per capita growth (annual %). Data source: World Development Indicators, World Bank.
<i>PCG</i>	Private credit/GDP: Private credit by deposit money banks and other financial institutions to GDP, calculated using the following deflation method: $\{(0.5) * [F_t/P_{et} + F_{t-1}/P_{et-1}]\} / [GDP_t/P_{at}]$, where F is credit to the private sector, P_e is end-of period CPI, and P_a is average annual CPI. Data source: IFS, IMF.
<i>SMCG</i>	Stock market capitalisation to GDP (%), calculated using the following deflation method: $\{(0.5) * [F_t/P_{et} + F_{t-1}/P_{et-1}]\} / [GDP_t/P_{at}]$, where F is credit to the private sector, P_e is end-of period CPI, and P_a is average annual CPI. Data source: IFS, IMF.
<i>LLG</i>	Ratio of liquid liabilities to GDP, calculated using the following deflation method: $\{(0.5) * [F_t/P_{et} + F_{t-1}/P_{et-1}]\} / [GDP_t/P_{at}]$, where F is credit to the private sector, P_e is end-of-period CPI, and P_a is average annual CPI. Data source: IFS, IMF.
<i>BOC</i>	Bank overhead costs to total assets (%). Raw data are collected from Bankscope. Data source: IFS, IMF.
<i>OSI</i>	The official supervisory index, see Note 10.
<i>VA</i>	Voice and Accountability (VA) captures perceptions of the extent to which a country's citizens are able to participate in selecting their government, as well as freedom of expression, freedom of association, and a free media. Data source: Kaufmann, Aart, and Mastruzzi (2009).
<i>PV</i>	Political Stability and Absence of Violence (PV) captures perceptions of the likelihood that the government will be destabilised or overthrown by unconstitutional or violent means, including politically-motivated violence and terrorism. Data source: Kaufmann, Aart, and Mastruzzi (2009).
<i>GE</i>	Government Effectiveness (GE) captures perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies. Data source: Kaufmann, Aart, and Mastruzzi (2009).
<i>RQ</i>	Regulatory Quality (RQ) captures perceptions of the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development. Data source: Kaufmann, Aart, and Mastruzzi (2009).
<i>RL</i>	Rule of Law (RL) captures perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence. Data source: Kaufmann, Aart, and Mastruzzi (2009).
<i>CC</i>	Control of Corruption (CC) captures perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as 'capture' of the state by elites and private interests. Data source: Kaufmann, Aart, and Mastruzzi (2009).