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THE PRIVATE SECTOR ADVANCES IN CHINA: THE EVOLVING OWNERSHIP STRUCTURES OF THE LARGEST COMPANIES IN THE XI JINPING ERA

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This paper documents recent structural changes in China's corporate landscape, based on company-level data, providing a complementary perspective to that of official Chinese statistics. We classify China's largest companies by revenue since 2004 (based on Fortune Global 500 rankings), and largest listed companies by market capitalisation since 2010, into state and private-sector categories, using a conservative definition of the private sector. Among the largest companies by revenue, the private sector was non-existent in the mid-2000s but has grown steadily in the past decade, even though the state sector still dominates. The aggregate revenue of private-sector companies grew from zero in Fortune's ranking in 2005 (based on 2004 revenue) to $104 billion in the 2011 ranking, or merely 3.8 percent of the $2.78 trillion in aggregate revenue for all Chinese companies in the ranking, and to $1.7 trillion in the latest 2021 ranking (based on 2020 revenue), or 19 percent of the Chinese companies' aggregate revenue. As for market value of the largest listed firms, the private sector's share in the top 100 listed Chinese companies was only 8 percent at end-2010 but crossed the 50 percent threshold in 2020 and retreated slightly in 2021 to 48 percent, following that year's regulatory crackdown on several private-sector-dominated industries. These findings do not support a narrative of broad-based rollback in recent years of previous private-sector expansion

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INTRODUCTION

The respective roles of the state and private sectors in China's economic development have long been a matter of intense debate, both inside and outside China. Since the start of the reform and opening-up era in the late 1970s, China's economy has grown spectacularly, with the lion's share of the expansion attributable to the dynamism of the country's private sector. In the context of China's political system founded on the supremacy of the Chinese Communist Party (CCP), however, analysts have often mentioned two key potential curbs on the private sector's expansion.

First, while China's entrepreneurs are welcome to develop businesses from the bottom up, there may be an upper limit to the size that private-sector companies are allowed to reach. This stance, summarised by the four-character idiom *"grasp the large, let go of the small"* (抓大放小, *Zhua Da Fang Xiao*), was adopted as policy in 1995 after extensive discussions (Garnaut *et al*, 2006, page 37). It is specifically associated with Premier Zhu Rongji's reform of state-owned enterprises (SOEs), under which many smaller SOEs were privatised or liquidated while the larger SOEs were restructured to make them viable. It can also be viewed as an echo of other Communist policy experiments in which the state has reserved for itself the most strategically important parts of the economic system, typically associated with the largest enterprises, while leaving the rest to more efficient private-sector enterprise—a concept that goes back to the Soviet Union's New Economic Policy (NEP) of the early 1920s. At the Fourth Congress of the Communist International in November 1922, Lenin memorably referred to the activities that the state should keep for itself as the *"commanding heights"* (Yergin and Stanislaw, 1998, page xii)[1].

Second, the regime may opt to roll back the advance of the private sector in order to restore the supremacy of the state, even if that carries an opportunity cost in terms of lost growth potential. This option is captured by the idiom *"the state advances and the private sector retreats"* (国进民退, *Guo Jin Min Tui*)[2], which first gained currency in the wake of the Chinese government's massive credit expansion starting in 2008, when much of the unprecedented stimulus went to state-owned enterprises.

This paper presents an in-depth analysis of China's largest companies to shed light on the extent to which these two concepts correspond with the evolution of China's corporate sector in the last decade

[1] Deng Xiaoping, the architect of China's reform and opening up, spent a critical formative year in Moscow in 1926-1927 during the NEP's brief heyday.
[2] Importantly, 国 *Guo* in that idiom refers to the Chinese state and not the Communist Party, so *Guo Jin Min Tui* should not be confused with the CCP's political control over China's private-sector companies.

or so. Two complementary and partly overlapping rankings of China's largest companies serve as the basis of this research: first, a ranking by revenue, based on the yearly Fortune Global 500 lists in which Chinese companies now form the single largest national subset; and second, a ranking of the largest 100 listed Chinese companies by market capitalisation. Some of the largest companies by revenue are unlisted, while some of the most valuable listed companies have relatively low revenues. Thus, combining the two perspectives presents a comprehensive overview of the upper ranks of China's corporate world.

To give orders of magnitude, the aggregate headcount of the Chinese companies in the paper's first sample (largest by revenue) was around 21 million in 2020, or slightly under a twentieth of China's total urban employment, a ratio that has been fairly stable over the 2010-20 decade. Their aggregate revenue, roughly \$2.8 trillion in 2010, has grown at a similar pace as China's nominal GDP over the 2010-20 decade to nearly \$8.8 trillion in 2020[3]. As for the largest 100 listed companies by market capitalisation, their aggregate headcount or revenue are significantly lower, as would be expected since they do not include some very large but unprofitable unlisted SOEs. Together, these largest 100 listed companies represent about two-fifths of the entire market capitalisation of all China's listed companies.

Our period of observation started with the ascendancy of Xi Jinping, who entered the CCP's Politburo Standing Committee in 2007, was confirmed as the future leader in 2010[4], and rose to the number one position in 2012. Many Western observers of China (eg Livingston, 2020; Tan, 2021; Anderlini, 2021, among numerous others) have equated the Xi Jinping era with greater dominance of the state in the Chinese economy. Our findings, however, suggest that neither *Zhua Da Fang Xiao* nor *Guo Jin Min Tui* aptly captures the trend of the period. Instead, we find that, among China's largest companies, the relative share of those controlled by the state through majority or minority ownership stakes has followed an unmistakable downward trend during that period, from a starting point of near-complete dominance. Among China's largest companies by revenue, the private sector was basically non-existent in the mid-2000s but has grown steadily over the past decade. In Fortune's 2005 Global 500 ranking (based on 2004 revenue), all 15 Chinese companies were SOEs, with an aggregate revenue of \$447 billion. In the 2011 ranking (based on 2010 revenue), there were only four private-sector companies out of 58 Chinese companies, accounting for \$104 billion or merely 3.8 percent out of

[3] Whereas it makes sense to compare the respective growth rates, the companies' aggregate revenue is not a measure of their value added or collective contribution to GDP, and thus cannot be directly compared to GDP figures in absolute or relative terms. For reference, China's GDP in 2020 was nearly \$15 trillion.

[4] Xi Jinping's forthcoming number one status is widely considered to have been finally confirmed with his appointment as vice chairman of the Central Military Commission on October 18, 2010.

$2.78 trillion in aggregate revenue. In the latest 2021 ranking (based on 2020 revenue), the private-sector companies were 32 out of 130, and their revenue was $1.7 trillion out of $8.7 trillion, or 19 percent of the total. As for market value of the largest listed firms, the private sector's share in the largest 100 listed Chinese companies was only 8 percent in late 2010 but crossed the 50 percent threshold in 2020 and retreated slightly in 2021 to 48 percent, despite the creeping regulatory crackdown on several private-sector-dominated industries last year. Indeed, the 2010s appear to be the period when what Nicholas R. Lardy has called the *"displacement of SOEs"* by the private sector, as a consequence of the latter's superior dynamism (Lardy, 2018, page 330), finally reached the commanding heights of China's largest companies.

The paper is organised into two main sections. Section 1 explores the ownership and listing structures of China's largest companies and introduces a taxonomy that we believe reflects the complexities of the country's present corporate landscape. Section 2 identifies and analyses the above-mentioned trend of the gradually rising importance of the private sector among China's largest companies, both in terms of revenue and market capitalisation, over our period of observation. We conclude with reflections on recent developments and whether they may generate different trends in the near future.

1. CORPORATE STRUCTURES WITH CHINESE CHARACTERISTICS

We first examine patterns in ownership structures and listing status of China's largest companies[5] and derive a taxonomy for corporate data analysis. Our definition of which companies are 'Chinese' is based on a combination of activity and ownership criteria, not on the jurisdiction where the shares of a company are listed (see appendix A). We exclude companies that are majority-owned by entities outside of mainland China[6]. We include companies headquartered outside mainland China that are majority-owned by mainland interests and are active in mainland China, including Hong Kong-based Chinese SOEs[7].

[5] Throughout this paper we often refer to corporate groups as 'companies' for the sake of readability.

[6] We do include companies in which the largest shareholder is non-Chinese and holds a substantial minority stake, however. This is the case of Alibaba (with Softbank as largest shareholder), DiDi (Softbank Vision Fund), and Tencent (Prosus, a listed investment company that in turn is majority-owned by South Africa's Naspers). By 'mainland China' we refer to the People's Republic of China minus the special administrative regions of Hong Kong and Macau.

[7] The latter include China Merchants Group, China Resources, China Travel Services, and China Overseas Land & Investment.

The divide between state-sector and private-sector companies is fundamental in China and stands at the core of our analysis[8]. An extensive literature has concluded that this divide has substantial economic relevance, summarised by the observation of *"systematic differences in economic performance between state and private firms in China"* (Lardy, 2014, page 121). As a consequence, we focus on corporate ownership, while being also aware of the presence and role of the CCP in the private sector. We come back to that issue at the end of this section (subsection 1.4).

1.1 Varieties of state ownership

What are often referred to as state-owned enterprises in China are not necessarily wholly owned, or even majority-owned, by the Chinese state. Many state firms involve hybrids of state and private ownership. In practice, there is a continuum of corporate ownership structures in China, from 100 percent state ownership to full private-sector ownership[9]. A key question then becomes where to place the dividing point(s) on that continuum.

In official Chinese statistics and corporate disclosures of mainland-listed companies, the boundary between companies deemed state-owned or privately owned is defined by a concept of "actual controller" as detailed in Box 1[10]. But the ownership structures of China's largest companies can be fairly complex, as we illustrate in a series of examples below in this section. In some cases, the Chinese state can have enough equity ownership to confer it a substantial role in the company's governance, without meeting the criteria to be deemed the company's 'actual controller' in the Chinese legal sense. Thus, Chinese taxonomy based on 'actual controller' determinations can lead to an underestimation of the state's influence. Even though the extent of such underestimation may not be very large overall, we think it worthwhile to use more robust categories.

[8] The word 'private' carries two very different possible meanings in the analyses of corporate ownership structures: either as opposed to state-owned (as in private sector) or as opposed to stock market-listed (as in private equity). Similarly, the word 'public' may refer either to state ownership (public sector) or to stock market listing (public listing). Aiming to minimise confusion, we do our best to avoid the latter meaning.
[9] The *"blurred boundary"* between SOEs and private-sector companies has been described, among others, by Milhaupt and Zheng (2015).
[10] Because the word 'control' can carry different meanings depending on context, we keep quote marks throughout this paper when referring to China's legal notion of actual controller.

Box 1: 'Actual controller' in mainland Chinese law and statistics

Companies listed on a mainland Chinese exchange are required to disclose who control(s) them[11]. Chinese companies listed overseas are subject to no comparable disclosure requirement. For mainland-listed companies, two concepts of control are defined in the Company Law of China[12].

- A *"controlling shareholder"* (控股股东) is one *"whose capital contribution accounts for more than 50 percent of the total capital of a company with limited liability, or who holds an amount of shares that accounts for more than 50 percent of the total amount of the shares of a joint-stock company, or a shareholder, although the amount of his capital contribution or the proportion of the shares he holds is less than 50 percent, whose voting rights enjoyed on the basis of the amount of capital contribution made or the number of shares held are enough to have a vital bearing on the resolutions of a shareholder assembly or a shareholder general assembly"*.
- An *"actual controller"* (实际控制人) is *"a person who is able practically to govern the behavior of a company through investment relations, agreements or other arrangements, although the person is not a shareholder of the company"*.

In other words, a controlling shareholder exercises direct control, and an actual controller exercises ultimate indirect control by controlling a controlling shareholder. Despite the legal stipulation that an actual controller is not a shareholder of the company, it is usual practice in China for a company to disclose a controlling shareholder also as actual controller when that entity or individual is the ultimate controlling one, for example, if an individual directly holds a majority equity stake in a listed company. We conform to this usage in the rest of this paper.

Not all mainland-listed companies acknowledge an actual controller. One estimate suggests that the share of companies that disclose no actual controller among all domestically listed ('A-share') companies has increased from 1 percent at end- 2000 to nearly 6 percent at mid-2020[13]. A China Securities Regulatory Commission regulation revised in 2020 on takeovers of listed companies

[11] See "Administrative Measures for the Disclosure of Information of Listed Companies" as revised and issued by the China Securities Regulatory Commission in March 2021 at http://www.csrc. gov.cn/csrc/c101864/c2ee1a791fddc4f5ebeeb70aa8e2399cf/content.shtml (in Chinese).
[12] See the Company Law of China at https://www.sipf.com.cn/flfg/2020/03/12855.shtml (in Chinese).
[13] See "Companies without actual controller need to avoid three risks (没了实际控制人的上市公司，必须绕开三大风险)," Sohu.com, March 2, 2021, available at https://www.sohu. com/a/453633706_644547 (in Chinese).

suggests that when the following conditions are met at the same time, a listed company may be regarded as having no controlling shareholder or actual controller[14]:

- Ownership of stakes is diversified that no shareholder owns more than 50 percent,
- No shareholder holds 30 percent or more of a company's voting rights,
- No shareholder holds enough voting rights to appoint more than half of the members of a company's board of directors, and
- No shareholder can dictate the decisions made by the shareholder meeting.

In Chinese official statistics, current definitions stem from the SOE reform process of the late 1990s (Lardy, 2019, page 81). Before those reforms, most SOEs were public-law rather than commercial-law entities, namely agencies or departments of central or local government. The reforms, broadly referred to in China as *gaizhi* (改制, meaning *"ownership transformation"* or *"system transformation"*; see Song, 2018, page 351), led to their 'corporatisation' or transformation into commercial companies, namely limited-liability or joint-stock companies owned by their shareholders.

Long-established statistical series based on registration status (按登记注册类型分) reserve the SOE label for the traditional form of state-owned enterprises, formally known as *"enterprises owned by the whole people"*, usually those public-law entities that have not been corporatised. More recent statistical series introduced between 1998 and 2006, based on control (按控股情况分)[15], label as SOEs those public-law state-owned enterprises as well as commercial, shareholder-owned companies that are controlled by the state. This 'control-based' statistical category of SOEs thus complements other categories of commercial entities: namely, companies under mainland private-sector or collective-sector[16] control; companies under control from Hong Kong, Macau, or Taiwan; and

[14] See Regulations on the Takeover of Listed Companies revised and issued by the China Securities Regulatory Commission in March 2020 in Chinese at http://www.csrc.gov.cn/pub/newsite/ssgsjgb/ssbssgsjgfgzc/202003/t20200320_372443.html.

[15] The duality of SOE statistics based on registration status versus control often generates confusion. For example, there is an often-quoted series of the share of SOEs in total urban employment, which has been decreasing dramatically from above 75 percent in 1980 to below 15 percent since 2016. But this refers to SOEs by registration status, implying that the employees of large corporatised SOEs such as those analysed in our research are typically not counted in that number, which also include public-sector entities that might not be called companies in a non-Chinese context, eg schools, hospitals, or research institutes. China's urban employment statistics disaggregated by registration status during 2015-2019 can be found in table 4-1 in the 2020 China Statistical Yearbook available at http://www.stats.gov.cn/tjsj/ndsj/2020/indexch.htm. The International Monetary Fund's 2020 Article IV staff report on China, for example, cites this registration status-based series without providing context: Table 8, page 62, available at https://www.imf.org/en/Publications/CR/Issues/2021/01/06/Peoples- Republic-of-China-2020-Article-IV-Consultation-Press-Release-Staff-Report-and-49992.

[16] Collective enterprises were important in the early phases of China's reform and opening up in the 1980s and 1990s but have decreased dramatically in number and economic significance. Haier Smart Home, an appliances manufacturer, is the

companies under "*foreign control*" from further abroad (Lardy, 2014, box 2.1, pages 47-48). We assume that the underlying determinations of controlling entity by Chinese statisticians follow the same criteria as those for actual controller detailed above.

To that end, we adopt a slightly different taxonomy based on explicit ownership thresholds. This is made straightforward by the fact that Chinese law does not allow multiple classes of shares with unequal voting rights. Thus, the principle of one share one vote always applies in Chinese mainland companies (Wang 2020, page 315), and also did in Hong Kong until a reform in 2018 allowed dual-class shares[17]. We reckon that, if the state's stake in a company's equity capital is below 10 percent, it is unlikely to exercise much influence as a shareholder, especially in the Chinese context in which dispersed-ownership companies are extremely rare[18]. By contrast, we presume at least some influence of the state as shareholder in all companies where its equity stake is above 10 percent[19].

We came across multiple cases in which the state has significant equity ownership but is not acknowledged as actual controller in company disclosures. One such example is China's largest semiconductor foundry company, Semiconductor Manufacturing International Corporation (SMIC), which discloses no actual controller. As of December 31, 2020, SMIC's two largest shareholders were state-owned entities: the Central State-owned Assets Supervision and Administration Commission (Central SASAC, see Box 2) owned 23.3 percent of SMIC's equity capital through China Information and Communication Technologies Group Corporation (CICT) and China Datang Corporation, and National Integrated Circuit Industry Investment Fund (often referred to as the Big Fund)[20] owned a further 9.72 percent, partly via its wholly owned Xinxin (Hong Kong) Capital Co. Ltd. Through Central SASAC and the Big Fund, the central government of China was the largest shareholder in SMIC and could be presumed

only ostensibly (albeit not unambiguously) collective-controlled company among all China's largest companies within the scope of our analysis; see appendix A for details.

[17] This may change with the introduction of so-called special management shares that would give the Chinese state specific governance rights in some media and/or platform companies. Like with the 2018 reform in Hong Kong, however, the impact of this reform remains extremely limited and far too small to affect our findings. Special management shares have been discussed since at least 2013 but implemented so far only in a few media and/or platform companies, including China Weibo and reportedly of ByteDance; see Li Yuan, "China Wants to Own Small Stake in Web Firms," *Wall Street Journal*, April 27, 2016, at https://www.wsj.com/articles/china-wants-to-own-small-stake-in-web-firms-1461781500; and Keith Zhai and Liza Lin, "China Steps Up Direct Involvement in Internet-Content Firms," *Wall Street Journal*, August 17, 2021, at https://www.wsj.com/articles/ china-steps-up-direct-involvement-in-internet-contentfirms-11629209515.

[18] As observed, for example, by Wang (2020) and evidenced by our findings; see appendix C.

[19] Even stakes fairly close to our 10-percent threshold may denote control. For example, a 2021 article by Caixin, a fairly independent media outlet in China, reported the acquisition by Singaporean bank DBS of a 13 percent equity stake in Shenzhen Rural Commercial Bank under the headline "DBS Takes Control of Rural Lender." See https://www.caixinglobal.com/2021-04- 22/singapores-dbs-takes-control-of-rural-lender-in-push-into-bay-area-101694589.html.

[20] The "Big Fund" or National Integrated Circuit Industry Investment Fund is one typical example of China's industrial policy instruments known as government-guided funds; see Huang (2019) for a primer.

to exercise some influence over the company's governance. Other examples include Yunnan Baiyao, Bank of Communications, and China Merchants Bank; the latter's ownership is detailed among the examples below (subsection 1.3). The Industrial and Commercial Bank of China (ICBC) declares no actual controller even though it is majority-owned by the Chinese state. Conversely, we have not come across any company in which an actual controller, state or otherwise, is acknowledged with an ownership stake below 10 percent.

In terms of semantics, companies in which the state owns between 10 and 50 percent of equity are technically majority-owned by non-state shareholders, and we thus refrain from labelling them 'state-owned' even if the state exercises dominant influence in their corporate governance, as we reckon is typically the case. Because such companies are technically privately owned, we also refrain from reserving that label for the companies for which we presume little to no state influence, namely those in whose equity the state holds less than 10 percent. Instead, we label the latter 'non-public' to reflect the fact that they are outside of our expansive definition of the state sector[21]. For the intermediate category, of state equity ownership between 10 and 50 percent, we adopt a label of 'mixed ownership', which echoes China's so-called mixed-ownership reforms (Lardy, 2019, page 91) and is also a broader legacy of various mixed-economy concepts (eg Ikeda, 1996; Yergin and Stanislaw, 1998)[22].

The ownership taxonomy we adopt in the rest of this paper thus consists of three categories: **state-owned enterprises** (SOEs) are companies in which the Chinese state holds 50 percent or more equity ownership; **mixed-ownership enterprises** (MOEs) are those in which the Chinese state holds an equity ownership stake between 10 and 50 percent; and **non-public enterprises** (NPEs) are those in which the Chinese state holds less than 10 percent equity ownership. One can regard MOEs under our definition a part of the broader state sector, which of course also includes SOEs.

We take our definition of NPEs as a plausible approximation of what are colloquially referred to as private-sector companies, even though borderline cases exist (see, eg ZTE and Ping An of China among the examples detailed below in subsection 1.3). While MOEs can be seen as belonging to the state

[21] Our labelling choice is also in line with Chinese practice of sometimes referring to private-sector companies as *"nonpublicly owned enterprises."* See Richard McGregor, "How the West got Xi Jinping wrong on Business," *Australian Financial Review*, July 11, 2019, https://www.afr.com/world/asia/how-the-west-got-xi-jinping-wrong-on-business-20190709-p525n0.

[22] The corresponding semantics are not precisely harmonised, so that our definition of "mixed ownership" is not necessarily aligned with its use in other contexts. In Germany, a *Gemischtwirtschaftliches Unternehmen* may have a majority of public ownership, like Fraport AG, which operates Frankfurt Airport, or a minority stake as in our Chinese taxonomy, like Deutsche Telekom AG or Volkswagen AG (see eg https://www.juraforum.de/lexikon/gemischtwirtschaftliche-unternehmen). By contrast, in a *sociedade de economia mista* (Brazil) or *société d'économie mixte* (France), the state holds a majority stake, and in our taxonomy they would be SOEs; in France, a 2002 law caps that stake at 85 percent for the mixed-economy label to apply.

sector, we still believe the distinction between them and SOEs to be meaningful. In theory at least, the state's control is less contestable in SOEs, in which the state owns an absolute majority, than in MOEs, where the majority of shareholding is technically private.

Table 1 provides a summary comparison of our ownership-based taxonomy with that based on the actual controller concept in control-based Chinese statistics and mainland-listed company disclosures.

Table 1: Comparing taxonomies

<table>
<tr><th></th><th>Ownership-based (authors' taxonomy)</th><th>'Actual controller'-based (in Chinese statistics and company disclosures)</th></tr>
<tr><td>Government ownership above 50 percent</td><td>State-owned enterprise</td><td rowspan="2">State-owned enterprise</td></tr>
<tr><td>Minority government ownership (between 10 and 50 percent), government deemed 'actual controller'</td><td rowspan="2">Mixed-ownership enterprise</td></tr>
<tr><td>Minority government ownership (between 10 and 50 percent), government not deemed 'actual controller'</td><td rowspan="2">Non-state-owned enterprise</td></tr>
<tr><td>Government ownership under 10 percent</td><td>Nonpublic enterprise</td></tr>
</table>

Appendix A details our sources and methodologies for the subsequent categorisation. The overwhelming majority of cases are fairly straightforward. Listed companies are subject to disclosure requirements that allow reasonably granular and timely tracking of their shareholders, including state entities whose aggregate share of equity can be correspondingly computed. Conversely, the state holds majority stakes in most (though not all) large unlisted companies and satisfactorily discloses these majority equity stakes. The remainder of companies for which ownership is harder to observe are unlisted companies presumed or reported to be in the private sector. For many such cases, however, we found useful shareholder information from Wind Financial Terminal (hereafter Wind), a Chinese financial data provider, which in turn derived the information from China's corporate registry system and complemented it with what Wind refers to as its own data mining.

Government ownership is often intermediated through various holding or investment entities, or through SOEs. China has a unitary state, whose senior positions are subject to control by the Organisation Department of the CCP Central Committee; even so, the corresponding organisational setup is complex, with implications for corporate governance. Thus, as far as practical, we have documented individual equity stakes held by different state entities, even as we have aggregated these stakes to categorise companies as SOEs, MOEs, or NPEs. Box 2 provides an overview of the corresponding landscape.

Box 2 China's SASACs and other state holding entities

In the wake of the late-1990s SOE reform drive, China's State Council in 2003 established SASAC as a specialised agency under its direct supervision, with a mandate to manage its ownership stakes in about 200 most important SOEs in nonfinancial sectors under the jurisdiction of the central government (Lardy, 2014, page 50). The State Council's SASAC, headquartered in Beijing, is commonly referred to as Central SASAC, a name we also use in the rest of this paper. At the time of writing, there are 97 nonfinancial SOEs under the jurisdiction of Central SASAC, including some of the largest Chinese companies at the top of Fortune Global 500 rankings, such as State Grid, China National Petroleum Corporation (CNPC) and China State Construction Engineering Corporation (CSCEC). Central SASAC is, however, only one of a number of state entities that hold equity stakes in large Chinese companies[23].

At the central level, a separate entity called Central Huijin Company was formed, also in 2003, to manage equity stakes in the country's large banks following their restructuring and recapitalisation, also largely an indirect consequence of the late-1990s SOE reform drive. Whereas Central Huijin was initially owned by the State Administration of Foreign Exchange under the aegis of the People's Bank of China, it was acquired in 2007 by the newly created sovereign wealth fund, China Investment Corporation (CIC), which has held it since[24]. Central Huijin, sometimes nicknamed 'Financial SASAC' (Walter and Howie, 2011, page 19), holds large stakes in major banks and financial institutions and also has many other investments.

China Securities Finance Corporation (CSF) is another state entity that owns stakes in many of China's A-share companies. CSF was set up in 2011 as a specialised financial institution providing margin financing loan services to securities companies. It is now jointly owned by China's stock, futures, and commodity exchanges, all of which are themselves SOEs. During the Chinese stock market crash in mid-2015, the Chinese government used both Central Huijin and CSF as major conduits to inject government funds in its attempt to stabilise the market. A total of RMB1.8 trillion ($280 billion) of government rescue funding was channelled through Central Huijin and CSF between June and November 2015, according to an estimate by Goldman Sachs[25], resulting in the two entities owning non-controlling stakes in more than 1,000 firms listed in the A-share market[26]. As of end-2020, CSF

[23] Unless otherwise indicated, all ownership data presented in this box are retrieved from Wind Financial Terminal.
[24] See eg https://www.federalreserve.gov/supervisionreg/legalinterpretations/20080805.pdf for details.
[25] See Shen Hong, "The Quiet Side of China's Market Intervention," *Wall Street Journal*, January 13, 2021, available at https://www.wsj.com/articles/chinas-national-team-plays-defense-when-stocks-decline-1452686207.
[26] See a detailed account of the 2015 Chinese stock market crash and the government intervention in Allen *et al* (2020).

was still among the largest 10 shareholders of 290 A-share-listed companies, generally with an ownership stake below 5 percent. The total market value of equities owned by CSF was about RMB746 billion ($115 billion), according to Wind Financial Terminal, a Chinese financial data provider.

Other stakes in central government SOEs are held directly by ministries, or by universities (under the Ministry of Education), or by the National Social Security Fund (NSSF, 全国社会保障基金, directly under the State Council), or by other SOEs. For example, the Ministry of Finance holds a 90 percent direct equity stake in China Post Group and CITIC Group (see also subsection 1.3 below on examples), with the NSSF holding the remaining 10 percent in both. Another conglomerate, China Everbright Group, is held by Central Huijin (63.2 percent), the Ministry of Finance (33.4 percent), and the NSSF (3.4 percent).

At the subnational level, most local SOEs are owned by provincial and sub-provincial governments through entities also called SASAC, hereafter referred to as 'provincial SASAC' or 'municipal SASAC' (or more generically as 'local SASAC')[27]. In some cases, however, a subnational government may also hold an equity stake directly. For example, the government of Shaanxi Province directly holds 75 percent of JDC Molybdenum, and the provincial-level government of the Inner Mongolia Autonomous Region directly holds 38.9 percent of Northern Rare Earth; both are listed companies. Another example is China Southern Power Grid, the country's second-largest electricity transmission company, which as of end-2020 was held by the Guangdong provincial government (38.4 percent), the central finance ministry-held China Life Insurance Group (32 percent), Central SASAC (26.4 percent), and Hainan provincial government (3.2 percent). Based on Wind, the Guangdong and Hainan stakes are held directly by the respective governments, not by their provincial SASACs, for some reason. There are also still more local SOEs that haven't yet been corporatised than at the central level. In 2016, 92 percent of all central SOEs had already been corporatised (Lardy, 2019, page 82), and that share can only have increased in the half decade since.

Local SASACs are controlled by the respective local state and party structures. Central SASAC has repeatedly initiated efforts to oversee local SASACs and ensure convergence of some of their policies and practices[28], but this aspiration of policy coordination does not extend to individual decisions. The

[27] Xinjiang has two SASACs, one under the Xinjiang Uygur Autonomous Region (provincial-rank government) and the other under the Xinjiang Production and Construction Corps (XPCC), a special state-owned paramilitary organization that has a direct reporting line to the central government.
[28] See, for example, Zhang Yuzhe and Tang Ziyi, "China Has a Plan to Keep Local State Firms From Going Too Deeply Into Debt," *Caixin*, March 29, 2021, at https://www.caixinglobal.com/2021-03-29/china-has-a-plan-to-keep-local-state-firms-from-going-to-deep-into-debt-101682149.html.

leadership of local SASACs report to the local CCP committees that appoint them, eg the director of Shenzhen Municipal SASAC is appointed by the Shenzhen Municipal Party Committee. There is not necessarily complete and permanent alignment between the preferences of such local structures and those of the central authorities, even though the latter in principle have ultimate control. Similarly, institutional differences between Central SASAC and Central Huijin are well documented (eg Walter and Howie, 2011, page 171).

China's system of state holding entities may be uniquely developed and complex, but it is not without international equivalents. For example, France's State Investments Agency (APE—*Agence des Participations de l'État*, created in 2004 within the Finance Ministry), Italy's Industrial Reconstruction Institute (IRI—*Istituto per la Ricostruzione Industriale*, in activity from 1933 to 2002), and UK Government Investments (UKGI, created in 2016) may all be viewed as broad equivalents to Central SASAC. Germany's Special Financial Market Stabilisation Fund (SoFFin—*Sonderfonds Finanzmarktstabilisierung*, created in 2008 in the midst of the financial crisis) and UK Financial Investments (UKFI, also created in 2008 and merged into UKGI in 2018) can be compared with Central Huijin. In India, most SOEs are still held directly by ministries at the central (national) or local (state) government level, and some of them are still 'department undertakings', meaning that they have not (yet) been transformed into commercial enterprises. China is arguably ahead of India in terms of corporatisation, or in other words, moving away from organisational patterns inherited from Soviet-style central planning. A 2014 proposal by the Reserve Bank of India to create a Bank Investment Company to hold the central government's stakes in banks, similar to Central Huijin, has not yet been implemented (RBI, 2014)[29].

1.2 Listing status

Outside of China, most of the largest corporate entities are listed on a stock exchange[30], and the few large companies that are unlisted operate largely or entirely outside of the disciplines and requirements associated with stock market listings. For example, among the world's 100 largest companies by total revenue as ranked by Fortune in 2021 (based on 2020 revenue data)[31], 70 are

[29] We are grateful to Suman Bery for his insights on the Indian environment.
[30] In the rest of this paper we use "listed" as shorthand for "publicly listed on a regulated stock exchange."
[31] The Fortune Global 500 ranking is presented in more detail in section 2. Here we only pick the first 100 companies from Fortune's list of 500, for illustrative purposes.

non-Chinese. Of these, 68 (or 97 percent) are listed and only two are unlisted[32]. By contrast, among the 30 Chinese firms on that list, only 9 (or 30 percent) are listed and 21 are unlisted.

At first sight, it would thus appear that unlisted groups represent the vast majority of China's largest companies. This is not the full picture, however. In the specific context of Chinese SOEs, the distinction between listed and unlisted groups is less a dichotomy than a continuum. Indeed, among the above-mentioned 21 unlisted Chinese groups in Fortune's global top 100 in 2021, 18 are SOEs. Most of these have significant majority-owned listed subsidiaries, with aggregate revenue representing 57 percent of the groups' entire aggregate revenue[33]. By contrast, the three private unlisted groups have no significant listed subsidiaries[34]. Among the unlisted SOE groups with listed subsidiaries, a whole range of situations can be observed. Take the two largest groups on that list, respectively CNPC, an oil and gas conglomerate, and State Grid, which operates the majority of China's electricity transmission networks: For the year 2020, PetroChina, CNPC's main listed subsidiary, disclosed revenue amounting to 99 percent of the CNPC group revenue reported by Fortune, while, also in 2020, State Grid's largest majority-owned listed subsidiary that we identified, NARI Technology, represented only 1.5 percent of State Grid group revenue. Between these two extremes, the median point was China Post Group, whose listed subsidiary China Postal Savings Bank represented 70 percent of total group revenue.

The reason for the high number of unlisted SOEs with large listed subsidiaries may be found in the circumstances of the corresponding stock exchange listings, most of which happened in the late 1990s and 2000s. Landmark initial public offerings (IPOs) of that era included those of China Mobile (October 1997) in Hong Kong, PetroChina (April 2000) in the United States, China Unicom (June 2000) in Hong Kong and the United States[35], Sinopec (October 2000) in Hong Kong, China National Offshore Oil Corporation (CNOOC, February 2001) in Hong Kong and the United States, and China Telecom (November 2002) in the United States. In his book *Dealing with China*, Henry (Hank) Paulson described how, before becoming US Secretary of the Treasury, he led the Goldman Sachs advisory team that prepared the IPO of China Mobile[36], which, he noted, then-Premier Zhu Rongji *"meant to become the template for revamping other SOEs"*. As Paulson described it, *"in conventional terms, there was as yet no actual company to underwrite"*. A 'listable' company had to be built by assembling

[32] The two unlisted outliers are Trafigura, a trading firm with central corporate structures in Singapore and Switzerland, and Robert Bosch, a German car parts maker.
[33] More data on this split are presented in section 2, eg Table 2.
[34] These are Huawei, the electronics manufacturer; Hengli Group, a conglomerate whose core activities are in the textile industry; and Amer, a nonferrous metals producer.
[35] China Unicom was restructured in 2017 in a pilot project of mixed-ownership reform, as a result of which it is now listed at the parent-entity level.
[36] At that time the company was called China Telecom (Hong Kong) Ltd.; it was renamed China Mobile in June 2000.

various assets that previously resided directly within the Ministry of Posts and Telecommunications (Paulson 2015, pages 44 and 53-65). Similarly in other cases, the listed subsidiary included the most commercially marketable activities of a broader group under an unlisted entity. This is certainly a simplification of more complex histories of the separation of these companies from their ministry superstructures, but we believe it captures the gist of why so many nonfinancial SOEs are only partially listed. In many cases, it's not because the authorities did not want to list the entire group, but rather because they couldn't—or at least, not as quickly as the partial-listing option allowed for.

By contrast, most central SOEs or MOEs in financial services, whose IPOs happened in a later wave, were restructured first so that the entire group was listed at the parent-entity level: Bank of Communications (June 2005), China Construction Bank (October 2005), Bank of China (June 2006), ICBC (October 2006), Agricultural Bank of China (July 2010), and People's Insurance Company of China (PICC, December 2012)[37]. As a consequence, most SOEs and MOEs that are directly listed at the group parent level in Fortune's Global 500 list (14 out of 23 in the 2021 ranking) are financial services companies.

In the rest of this paper, we label as a **listed group** any whose parent entity (as appears in Fortune Global 500) is listed. For a group whose parent entity is unlisted but one or several majority-owned listed subsidiaries represent more than 80 percent of the group's revenue, we use the term **quasi-listed group**—eg CNPC/PetroChina. For a group whose parent entity is unlisted but one or several majority-owned listed subsidiaries represent between 20 and 80 percent of the group's revenue, we use the term **partially listed group**—eg China Post Group. We reserve the term **non-listed group** for those in which the share of group revenue made in majority-owned listed subsidiaries (as far as we could identify these) is less than 20 percent, eg State Grid as mentioned above. Since the listed subsidiaries' shares of group revenue naturally fluctuate over the years, we base the categorisation on their average across all years in which the group has been included in Fortune Global 500[38].

By only including revenue contributions from majority-owned listed subsidiaries, we underestimate the total share of revenue that comes from listed subsidiaries. In an unlisted group's consolidated revenue, the contribution from minority-owned listed subsidiaries is typically only accounted for in

[37] By contrast, China Life's IPO in December 2003 still followed the Zhu Rongji era model of partial listing, and the unlisted group-level entity remains to this day. Things were different for provincial- or local-level financial services SOEs and MOEs: For example, Shanghai Pudong Development Bank was listed at the parent-entity level as early as November 1999.

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proportion to the (minority) ownership stake, whereas the contribution from majority-owned subsidiaries is fully consolidated. Even so, that contribution can be significant if the minority-owned subsidiary is large: This is the case, for example, in groups such as Anhui Conch Group (37.2 percent-held subsidiary Anhui Conch Cement Company Ltd.), and Aluminum Corporation of China, known as Chinalco (30 percent-held subsidiary Aluminum Corporation of China Ltd., known as Chalco). Because we did not have the resources to consistently identify all minority-owned listed subsidiaries, such contributions are not included in our calculations, eg Figure 4 in Section 2 below. We also did not include the majority-owned listed subsidiaries of unlisted groups whose revenue accounts for less than 5 percent of the group revenue, because tallying them all would have been overly onerous.

The listing and trading of a listed company's shares may take place on one or several venues, inside and outside mainland China. We have chosen to ignore the corresponding complexities, and to refer to Chinese listed companies' market capitalisation without specific mention of the jurisdiction(s) where their shares are listed. Because of differences in respective market characteristics, prices of mainland-listed and Hong-Kong-listed shares of the same Chinese company are generally not identical. In general, A shares (listed on the mainland) have traded at a premium compared with the same companies' H shares (listed in Hong Kong) since 2014. The Hang Seng Stock Connect China A-H Premium Index, which was created by Hang Seng Indexes in July 2007 and measures the absolute price premium of A shares over H shares for the largest and most liquid 178 mainland Chinese companies with both A-share and H-share listings, has fluctuated between 110 and 140 percent since 2017[39]. In our calculations involving dual-listed Chinese companies, we have used the greater market capitalisation, usually that of the mainland-listed shares.

In the same vein, we have treated variable-interest-entity arrangements as if they were direct listings, an obvious oversimplification as recent developments have once again illustrated[40]. Despite our simplified treatment of this issue, it is extremely important to be aware of the idiosyncrasy of China's variable-interest entities, summarised in Box 3.

[39] For details, see https://www.hsi.com.hk/eng/indexes/all-indexes/ahpremium.

[40] See eg Noriyuki Doi and Takenori Miyamoto, "Crackdown on US listings: Will China close $1.6tn VIE loophole?" *Nikkei Asia*, July 14, 2021, available at https://asia.nikkei.com/Business/ Markets/Crackdown-on-US-listings-Will-China-close-1.6tn-VIE-loophole.

Box 3 China's variable-interest entities

A number of companies headquartered in mainland China are listed abroad through a type of arrangement known as a variable-interest entity (VIE) structure. This is designed to circumvent Chinese regulatory restrictions on foreign ownership that make it practically impossible for NPEs in many sectors, including internet services ('platforms'), media, and education, to directly list abroad.

Not all foreign-listed Chinese companies use VIE structures. In general, listed SOEs (or MOEs) get authorisations from the Chinese state to list abroad directly, and NPEs in some sectors are not subject to stringent restrictions on foreign ownership. For example, mainland-headquartered state-owned banks Bank of China and ICBC both listed in Hong Kong directly. China Mobile and China Unicom both transferred mainland assets to their subsidiaries incorporated in the British Virgin Islands, which were then listed in Hong Kong. The latter approach involving a foreign-incorporated entity acquiring or merging with a domestic Chinese operating entity also requires approval from mainland Chinese regulators, which might arguably be easier for state firms to obtain than for private ones.

In a typical VIE structure, the listed company is an entity incorporated and listed outside China that owns all the shares of a mainland wholly foreign-owned enterprise (WFOE, 外商独资企业), a specific legal form in China that usually operates under a restrictive business license. The WFOE, in turn, is contractually entitled to the profits (and must cover the losses) of the Chinese operating company, which has employees and operating assets and generates revenue from customers. This arrangement allows the activity of the operating company (also known as the VIE) to be consolidated into the non-Chinese listed parent's financial statements despite the latter's lack of ownership of the VIE's equity capital, which is typically held by the company's Chinese founder or business partner(s). To allow consolidation, a complex web of contracts creates specific obligations between the WFOE, the VIE, and the latter's shareholder(s)[41]. Strictly speaking, VIE is a term in American accounting and applies only to cases in which the parent offshore entity is listed in the United States. Similar structures, however, also exist for listings in other jurisdictions, eg Canada or Hong Kong.

For example, Alibaba's listing on the New York Stock Exchange is actually that of Alibaba Group Holding Ltd., a corporate entity incorporated in the Cayman Islands; in this more complex case, there are five main mainland Chinese operating companies, all of which were owned by founder Jack Ma and his

[41] The VIE structure was first designed in 2000 for the listing of two Chinese companies, Sina and Sohu, and accepted by the US Securities and Exchange Commission. In 2002, the US Financial Accounting Standards Board formally endorsed the VIE consolidation method in its reporting framework. See details in Gillis (2012).

partner Simon Xie until they relinquished control to a broader (and largely undisclosed) group of Chinese shareholders in 2018[42]. Like many others, we take a shortcut by referring to these entities collectively as Alibaba Group.

Even though VIE structures have been in place for more than two decades, they have always entailed massive regulatory, legal, and tax risks for their foreign investors. It is generally unclear to which extent the contracts are enforceable, or even if they are compliant with Chinese law. Case law is sparse and not sufficient to support confidence, especially as interpretations issued by the Chinese authorities can change over time. As the US-based Council of Institutional Investors has put it: *"As shareholders without equity ownership, foreign investors possess no meaningful right to participate in the profits or control over the operating company"* (CII, 2017). Moreover, VIE structures are often misunderstood and may lead to significant mismeasurement of China's official net foreign asset positions (Coppola *et al*, 2020). While the Chinese securities regulator made clear in December 2021 that Chinese companies with VIE structures are allowed to list in offshore markets but must register with regulators and meet compliance rules first, the US regulators are demanding New York-listed Chinese companies to provide more comprehensive disclosures on their use of VIE structures and the potential risks involved[43]. The fact that both American and Chinese regulators have signalled tighter oversight of VIEs must be considered in the broader context of an arrangement that has long been inherently problematic.

1.3 Examples

We chose the following examples to illustrate the diversity, and often the complexity, of ownership patterns and how they are labelled under our taxonomy. In the charts we have highlighted state entities in red, mainland private-sector companies in blue and foreign entities in green. All ownership information is retrieved from Wind and corresponds to the ownership situation as of end-2020, unless otherwise noted. In the last case (Ping An of China), we added a comparison point as of end-2014.

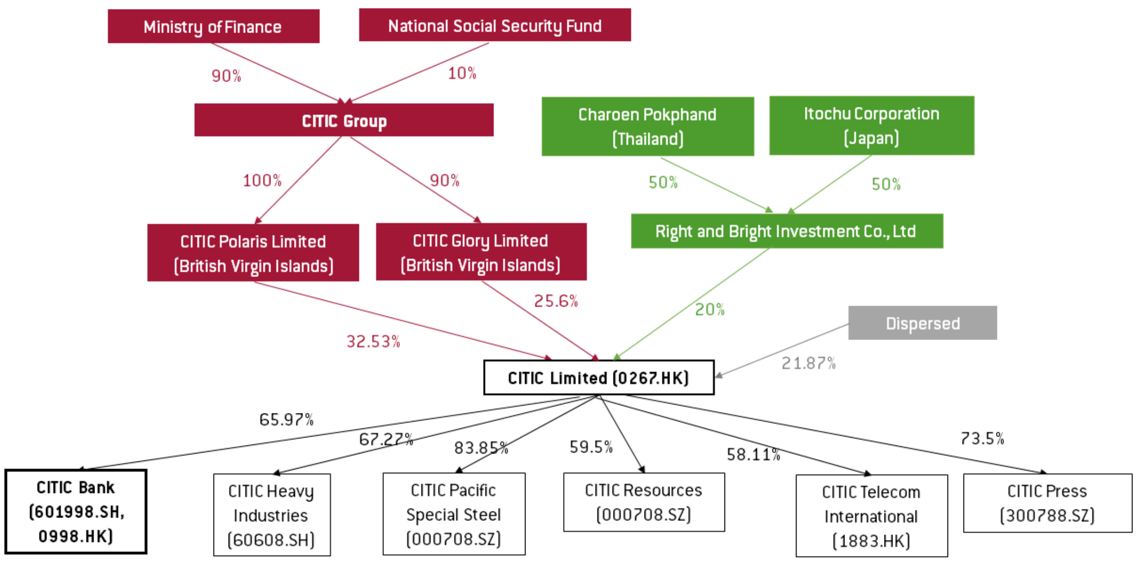
[42] See, for example, Shan Li, "Alibaba's Jack Ma Cedes Control of Key China Business Licenses," *Wall Street Journal*, October 1, 2018, available at https://www.wsj.com/articles/jack-ma-removes-himself-as-owner-of-alibaba-business-licenses-1538365628.
[43] See, for example, Ryan McMorrow, "China tightens rules for companies listing abroad after crackdown," *Financial Times*, December 25, 2021, at https://www.ft.com/content/50bf56d9- cf1b-43ae-8c92-f2e33b4fb52d; and William Langley and Ryan McMorrow, "SEC demands greater risk disclosure for New York listings of Chinese groups," *Financial Times*, December 22, 2021, at https://www.ft.com/content/552615e1-03e5-41f4-a8f5-26de4c3d52a6.

A central SOE conglomerate: CITIC Group

CITIC Group, created in 1979, is one of the largest state-controlled conglomerates in China, 90 percent owned by the Ministry of Finance (see Box 2). It is thus an SOE in our taxonomy.

Most of its activities are carried out by its majority-owned listed Hong Kong subsidiary CITIC Ltd., formerly known as CITIC Pacific from its creation in 1990 until adopting its current name in 2014. CITIC Group owns 58.1 percent of CITIC Ltd. through two entities incorporated in the British Virgin Islands, and an additional 20 percent is held by a 50-50 joint venture between the Thai conglomerate Charoen Pokphand and Japan's Itochu Corporation. The ownership of the remaining 22 percent of CITIC Ltd.'s equity is dispersed.

CITIC Group, as of end-2020



CITIC Group has been a Fortune Global 500 company for more than a decade. For reasons that we have not been able to identify, CITIC Ltd. reported a significantly larger revenue than the consolidated revenue of the (unlisted) group reported by Fortune from 2014 to 2020 (the only such case in our sample), while the reported revenue of CITIC Ltd. during the 2009-2013 period was exactly the same as the revenue of the group reported by Fortune. We label CITIC Group as quasi-listed.

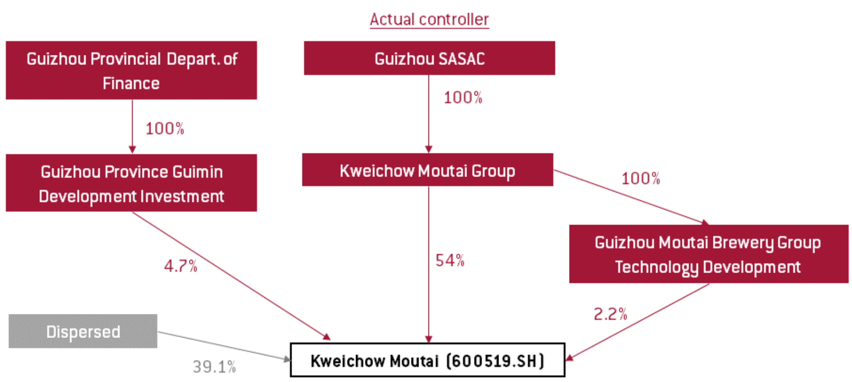
Among CITIC Ltd.'s numerous subsidiaries and investments, we identified six majority-owned listed companies in different industries, as shown in the chart above. Some other entities that carry the CITIC name, however, are not majority-owned by CITIC Group: For example, CITIC Ltd. owns only 15.5 percent of CITIC Securities, a listed securities firm, with the rest being dispersed. We thus consider CITIC

Securities as a separate, mixed-ownership company in our dataset, as shown in appendix C. Both Citic Ltd. and CITIC Bank also feature in appendix C. This is the only case in our dataset that a Top 100 listed company is majority-owned by another Top 100 listed company.

A high-market-capitalisation local SOE: Kweichow Moutai

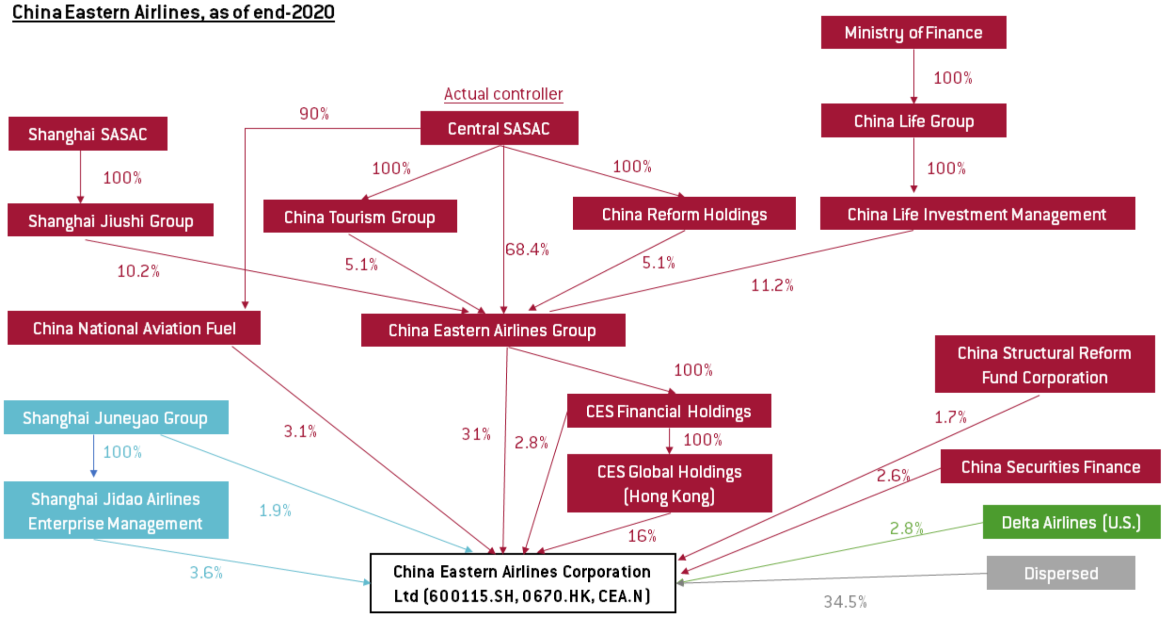
Kweichow Moutai, a major producer of a high-end *baijiu* liquor called *maotai*, highlights the fact that not all significant SOEs are central SOEs, ie owned by China's central government. At a market cap of $403.9 billion by end-2021, it was the second-largest Chinese company by market capitalisation (after Tencent) and the highest-market-capitalisation SOE, ahead of all listed central SOEs. As of end 2020, the Provincial SASAC of Guizhou Province (southwestern China, formerly transliterated as Kweichow) owned 54 percent of the listed company via a fully-owned mainland entity, Kweichow Moutai Group. Guizhou Province's department of finance owned an additional 4.7 percent via yet another mainland investment vehicle. Despite its high recent market value, however, Kweichow Moutai's revenue is not large enough for inclusion in Fortune Global 500.

Kweichow Moutai, as of end-2020



China Eastern Airlines, a major air travel company, illustrates the complexity of ownership structures of some of China's largest companies. Central SASAC owns a majority stake in the unlisted group entity China Eastern Airlines Group (CEAG), which is the largest shareholder of the listed company China Eastern Airlines Corporation (49.8 percent), while owning another 3.1 percent in the listed company through China National Aviation Fuel Group Corporation. Central SASAC therefore owns a majority of the listed company and is also disclosed by the listed company as its actual controller. The company's revenue is not large enough for inclusion in Fortune Global 500.

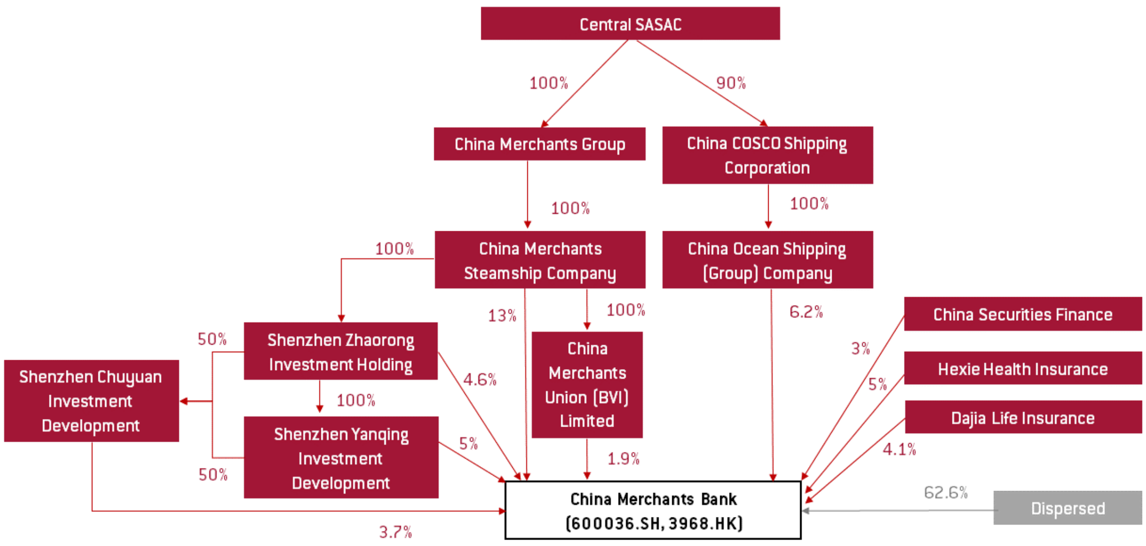
China Eastern Airlines, as of end-2020



An MOE without an acknowledged actual controller: China Merchants Bank

China Merchants Bank illustrates the point made above, namely that our definition of the state sector (SOEs and MOEs) represents a broader scope than China's actual controller concept. It is a major listed bank and has been included in Fortune Global 500 since 2012. As of end 2020, China Merchants Group, an unlisted conglomerate fully owned by Central SASAC, owned 28.2 percent of China Merchants Bank's listed equity via multiple subsidiaries, shipping group COSCO owned an additional 6.2 percent, and China Securities Finance owned another 3 percent. In total, Central SASAC owned 35.4 percent and was by far the largest shareholder. Even so, none of these entities was identified as the actual controller of China Merchants Bank in the company's disclosures.

China Merchants Bank, as of end-2020



A shift from MOE to NPE: ZTE

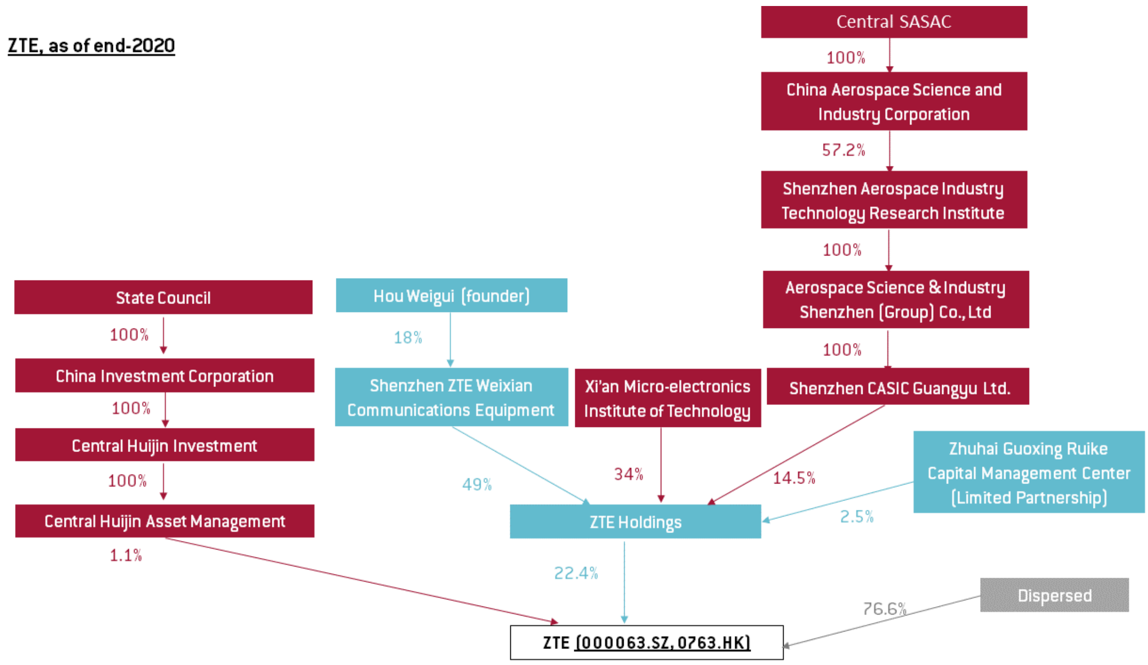
ZTE (for Zhongxing Telecommunications Equipment) is a telecommunications equipment company listed in Shanghai and Hong Kong. Its largest shareholder by far, ZTE Holdings, owned 22.4 percent by late 2020. As in the above case of China Merchants Bank, neither ZTE Holdings nor any of its shareholders was disclosed by ZTE as actual controller.

ZTE Holdings, in turn, has been owned by a near-balanced mix of state and private shareholders. In the early 2010s, its equity was shared between a privately held vehicle called Shenzhen ZTE Weixian Communications Equipment (49 percent); the Xi'an Microelectronics Institute of Technology, a state entity (34 percent); and Shenzhen CASIC Guangyu, a subsidiary of manufacturing SOE CASIC (17 percent). Shenzhen ZTE Weixian Communications Equipment, in turn, is owned by Hou Weigui, who founded ZTE in 1985 (18 percent) and by other individuals each holding at most 5 percent. The combined stake of 51 percent held by the Xi'an Institute and CASIC implied that ZTE Holdings was state-owned, which was acknowledged as such in ZTE's annual report (Milhaupt and Zheng 2015). During that period ZTE referred to itself as *"state-owned and private-run"*[44]. According to our criteria, ZTE was correspondingly an MOE.

[44] Huang Guo, "20 Years History of ZTE Corporation," ZTE website, March 2005, archived at https://web.archive.org/web/20130320023315/http://en.zte.com.cn/endata/magazine/ztecommunications/2005year/no2/articles/200506/t20050622_162340.html.

In April 2017, in a context of controversy about ZTE's past breach of US sanctions, Shenzhen CASIC Guangyu sold 2.5 percent of ZTE Holdings' equity to Zhuhai Guoxing Ruike, a limited partnership that is fully owned by Zhou Lili, who reportedly was an employee of ZTE serving as finance manager from 2004 to 2008. That relatively small equity transfer tilted the balance of ownership of ZTE Holdings, and by implication of ZTE, from MOE to NPE.

Direct state holdings of ZTE stock are less significant than the indirect interest through ZTE Holdings: The only one we were able to identify is Central Huijin's small equity stake of 1.1 percent via its asset management arm. ZTE's revenue is not large enough for inclusion in Fortune Global 500.



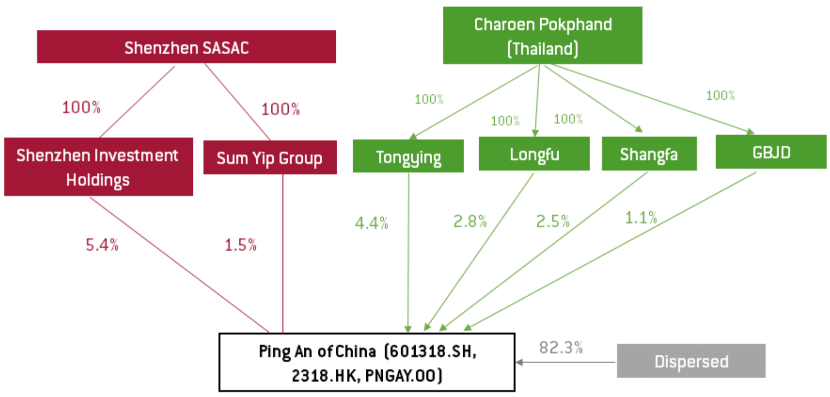
A shift from NPE to MOE: Ping An of China

Ping An of China (also known as Ping An Insurance), a financial group with assets in insurance, banking and asset management, was China's tenth-largest company by market cap as of end-2021. It illustrates the sensitivity of our taxonomy to incremental changes in ownership when one of our thresholds is crossed, in this case the one at 10 percent. At the end of 2014, Charoen Pokphand owned 10.8 percent and Shenzhen Municipal SASAC owned 6.9 percent, so that Ping An met our criteria for labeling as an NPE[45]. Since then, however, entities controlled by the central government have acquired an additional 5.4 percent, so that the local (Shenzhen) and central governments together hold more

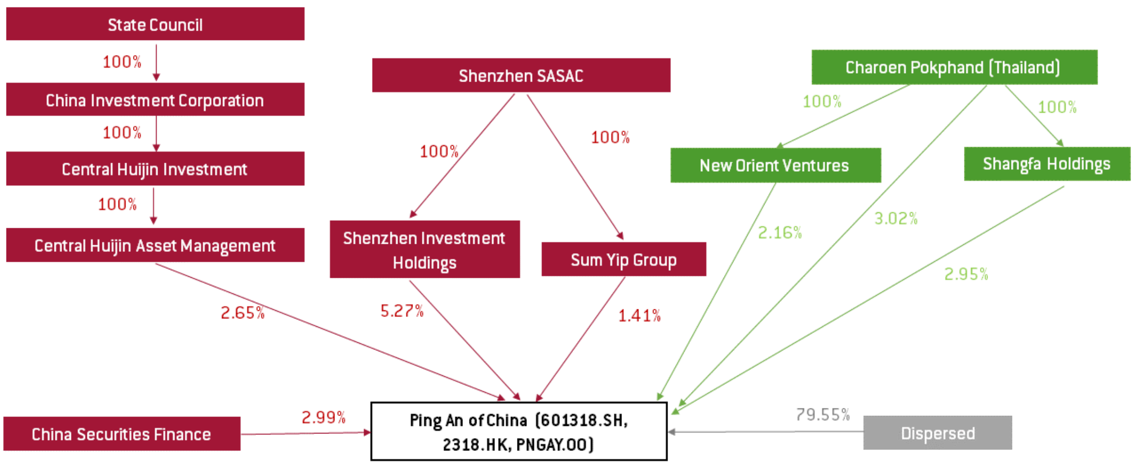
[45] Even at that time, the All-China Federation of Industry and Commerce did not include Ping An in its annual list of Chinese private-sector companies, implying a form of state control (Milhaupt and Zheng 2015).

than 10 percent of Ping An's equity. As a consequence, we have labelled Ping An as an MOE since 2015, even though it is often otherwise described as belonging to the private sector[46]. Ping An has been included in Fortune Global 500 since 2010, as a listed company.

Ping An of China, as of end-2014



Ping An of China, as of end-2020



[46] See eg Clay Chandler, "China's Biggest Private Sector Company Is Betting Its Future on Data," *Fortune*, July 22, 2019, at https://fortune.com/longform/ping-an-big-data/.

1.4 CCP influence in the private sector

Commentary outside China often conflates state ownership with CCP influence over business, but they are not at all the same thing. CCP influence is pervasive in China, and also affects private-sector business, even though the CCP has forms of direct control over SOEs that have no equivalent for private enterprises[47]. The leading role of the CCP in China's political and social system inevitably generates friction with corporate governance arrangements intended to bolster fiduciary duty to shareholders (Zhang, 2019).

Recent initiatives have garnered international attention and have been interpreted by some as an unprecedented assertion of CCP control over private-sector business (eg Livingston, 2020). For example, in September 2020, the General Office of the CCP Central Committee promulgated the *"Opinions on Strengthening United Front Work for the Private Sector in the New Era"*, which calls for efforts *"to better focus the wisdom and strength of the private businesspeople on the* [CCP's] *goal and mission to realise the great rejuvenation of the Chinese nation"*[48]. The extent to which this constitutes a consequential new development, however, is not entirely clear. The statistics released by the Organisation Department of the CCP Central Committee are not granular enough to show how many party members overall work in the private sector. In mid-2020, the CCP-controlled Xinhua News Agency reported a substantial increase in the number of new party members working in non-public entities in 2019 without giving any precise number[49].

Recruitment of entrepreneurs into the party began in the mid-1980s, but was suspended later in the decade out of concerns about conflicts of interest (Gilley 1998, page 107) and because private entrepreneurs were viewed as supporters of the student demonstrators in the 1989 Tiananmen Square episode (Lardy, 2014, page 119). The withdrawal of party cells from private enterprises, however, was reversed in 1997 (Gilley, 1998, page 319), and the party's openness to entrepreneurs was signalled in 2001 with a speech by CCP General Secretary Jiang Zemin celebrating the contributions of private-sector leaders and entrepreneurs to China's development under the party's leadership (Jiang, 2001).

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[47] For example, SOE senior executives are selected by the relevant CCP bodies. The top leadership of central SOEs are generally selected, depending on cases, by the Politburo Standing Committee of the CCP, the CCP Committee of Central SASAC, or the Organization Department of the CCP Central Committee and CCP committees of the relevant ministries and regulators. See eg a 2016 summary (in Chinese) in *The Paper* at https://www.thepaper.cn/ newsDetail_forward_1464250 and a 2018 update (in Chinese) at http://finance.china.com.cn/ industry/20180213/4544357.shtml.

[48] See "CCP announces plan to take control of China's private sector," *Asia TV Forum*, September 17, 2020, at https://www.asiafinancial.com/ccp-announces-plan-to-take-control-of-chinas-private-sector. "United front" in CCP jargon refers to joint work with non-CCP actors that aligns with the CCP's aims.

[49] See Xinhua News Agency report (in Chinese) at http://www.gov.cn/xinwen/2020-06/30/ content_5522999.htm. This seems to be a one-off observation, as we did not find any time series on party members working in the nonpublic share of the economy.

That speech paved the way for a renewed recruitment of private-sector leaders into the CCP, as illustrated by some private-sector leaders becoming delegates of the CCP National Congress, in theory the Party's highest body that convenes every five years. In 2002, for the first time ever, 7 out of 2,154 National Congress delegates were from the private sector. This number was 17 out of 2,270 in 2007, 34 out of 2,325 in 2012, and 27 out of 2,354 in 2017[50]. A detailed analysis of the All-China Federation of Industry and Commerce (ACFIC)'s 2013 annual report on the 100 largest private-sector companies by revenue found that 17 of their 100 individual founders or de facto controllers held formal party positions such as delegate to national or local CCP congresses (Milhaupt and Zheng, 2015, appendix I)[51]. Blanchette (2021) has argued that *"nearly all of China's most successful entrepreneurs are members of the CCP"*.

Meanwhile, a number of private and foreign enterprises have established internal CCP organisations, also known as party cells, over the last several decades. In theory, such cells have been required by the laws of China since the 1990s. Article 19 of the Company Law of China states that *"in companies, Communist Party organisations shall, in accordance with the provisions of the Constitution of the Communist Party of China, be set up to carry out activities of the Party"*[52]. In turn, Article 30 of the CCP Constitution requires any enterprises in which there are three or more full party members to form a primary-level party organisation[53]. In practice, however, it often appears as if companies themselves decide whether to establish party cells or not. For example, Alibaba first established a party branch as early as 2000 and later expanded it into a party committee with more party members joining as employees in 2008[54]. It was reported in March 2021 that the company has set up a CCP committee at its Beijing headquarters where more than 30 percent of the employees are party members[55]. Similarly, other tech giants including Baidu, JD.com, Meituan, Tencent, and Xiaomi have formed party

[50] The 2017 National Congress delegates even included Chinese managers in foreign companies, from KPMG's Shanghai office and Samsung's subsidiary in Suzhou. See "Understanding the Red Entrepreneurs: How did those entrepreneurs become the 18th Party Congress delegates" (in Chinese), *China Economic Weekly* via Huanqiu, November 6, 2012, at https://china.huanqiu. com/article/9CaKrnJxCKS; also see "What types of entrepreneurs can become the 19th Party Congress delegates" (in Chinese), *China Economic Weekly* via Sina, October 16, 2017, at http:// finance.sina.com.cn/roll/2017-10-16/doc-ifymvuyt1534259.shtml.
[51] ACFIC is the largest chamber of commerce in China. The same study found that the vast majority of these business leaders, 77 out of 100, held seats in local or national representative bodies, namely People's Congresses (legislative bodies) and/or People's Political Consultative Conferences (consultative bodies), which are open to non-CCP members.
[52] See Company Law of the People's Republic of China (2018 Revision) at http://www.npc.gov.cn/ zgrdw/npc/xinwen/2018-11/05/content_2065671.htm.
[53] See English translation of the CCP Constitution, revised and adopted at the 19th National Party Congress on October 24, 2017, at http://www.xinhuanet.com//english/download/Constitution_of_the_Communist_Party_of_China.pdf.
[54] The precise nature of the CCP organization within a company depends on how many party members work there. Usually, a party "branch" is formed if there are more than three party members; a "general branch" is formed if there are 50 to 100 party members; and a "committee" is formed if there are above 100 party members.
[55] See "Alibaba Beijing office sets up a CPC committee," *Global Times*, March 25, 2021, at https:// www.globaltimes.cn/page/202103/1219443.shtml.

organisations in recent years, as have leading companies in other sectors. Many foreign-invested companies in China have also formed party organisations, and the party cells within those foreign firms have been active platforms in attracting more applications for party memberships. For example, Samsung Electronics (Suzhou) Semiconductor set up a party organisation in 2007 when it had 39 employees who were party members. It was reported that the establishment of the party cell encouraged more employees to apply for party membership. The competition for party membership can be intense: In 2015 alone, more than 700 Samsung employees in Suzhou applied while only 5 seats were available[56]. Other foreign firms that have stablished party cells within their China operations include Carrefour, Hyundai, Standard Chartered, PricewaterhouseCoopers and Walmart[57].

The statistics produced by the Organisation Department of the CCP Central Committee track the number of non-public companies with party organisations in China, including mainland private-controlled, Hong Kong-, Macau- or Taiwan-controlled and foreign-controlled companies[58]. That total was stable around 1.6 million between 2013 and 2015, surged to nearly 1.9 million in 2017, and dropped back to 1.59 million by the end of 2018, the last year for which these data are available (the reasons for the 2017 spike are not clear). When measured as a share of all non-public companies, those with party organisations were more than 20 percent in 2013 and dropped to merely 8.5 percent in 2018. This is because the total number of China's non-public companies more than doubled during that period, while the number of those with party organisations remained stable.

In other words, the CCP's expansion efforts may well have been running behind the fast development of China's private businesses during the part of the Xi Jinping era for which such numbers are available[59]. Whether the movement has accelerated more recently will only be observable in the future as new data are released.

Whether party organisations are given a significant governance and decision-making role in NPEs appears to vary considerably from company to company. In most private-sector companies, party organisations appear to have mainly played a secondary role, including *"recruiting party members, organizing study sessions, providing welfare assistance to workers, and more broadly, focusing on*

[56] See "Why do private and foreign firms set up party committees?" (in Chinese), *Xinhuanet*, July 6, 2015, at http://www.xinhuanet.com/politics/2015-07/06/c_1115820681.htm.
[57] See a commentary by Lu Ning (in Chinese) on this published by Guancha.cn on April 29, 2015 at https://www.guancha.cn/LuNing/2015_04_29_317696.shtml.
[58] See the CCP Statistical Bulletins from 2012 through 2020 by the Organization Department of the CCP Central Committee at https://news.12371.cn/dzybmbdj/zzb/dntjgb/.
[59] Thomas (2020) presents an alternative picture of the gradual increase in the share of companies with CCP cells, based on survey data. We view the CCP's own statistics as a more reliable source.

business-friendly operations, such as training programs or social gatherings for employees" (Doyon, 2021). That said, there are also cases in which party organisations seem to play an important role in decision-making. For example, the privately owned Suzhou Zhongshe Construction Group was reported as a pioneer among private businesses in Jiangsu Province in inviting the party committee to play a major role in decision-making, and its experience has been praised by Xuexi Daily of the Party School of the CCP Central Committee[60]. Whether the new guidelines published in September 2020 will substantially enhance the role of party organisations in private-sector corporate decision-making remains to be seen.

The motives of entrepreneurs from private and foreign businesses in joining the party and establishing party organisations probably vary and are often about gaining benefits and political connections deemed useful for furthering their own business interests. Conversely, the CCP recruits entrepreneurs for the sake of its own legitimacy, as the private sector has become the primary source of growth, and to better align the interest of the private sector with the interest of the party-state (Lardy, 2014, page 120). Ultimately, it is hard to disentangle the CCP's efforts to bolster its presence in the private sector from its wider campaigns to enhance its role overall (Zhang, 2019). The goal appears to be not to *"infiltrate the private sector per se"*, but rather *"to have insight and input into all economic, civil and political activity within the country"* (Blanchette, 2019).

2. MAPPING THE LANDSCAPE OF CHINA'S LARGEST COMPANIES

On the basis of the categories introduced in section 1, we now analyse the ownership structures of China's largest companies and how they have evolved in the Xi Jinping era. We conduct our analysis on two levels, both of which we view as meaningful in the Chinese context[61].

First, we look at the largest among all Chinese companies, ranked by revenue. Revenue is a proxy for the size of a company's activity; compared with other financial metrics, it is stable over time and relatively difficult to falsify. For the sample of China's largest companies by revenue, we rely on the global ranking published every year by Fortune, or Fortune Global 500 (see appendix A for details, and appendix B for the latest list); hereinafter we refer to the subset of Chinese companies within these

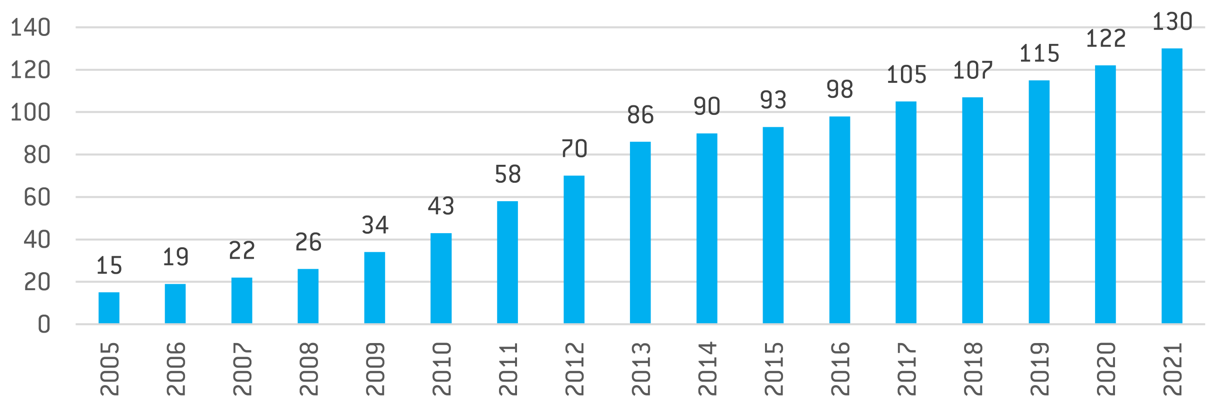
[60] See Xuexi Daily's stories (in Chinese) at http://www.rmlt.com.cn/2021/0528/615038.shtml and http://theory.workercn.cn/252/201909/25/190925094901108.shtml.

[61] Appendix A includes more discussion of our choice of revenue and market capitalization as main size metrics for this study.

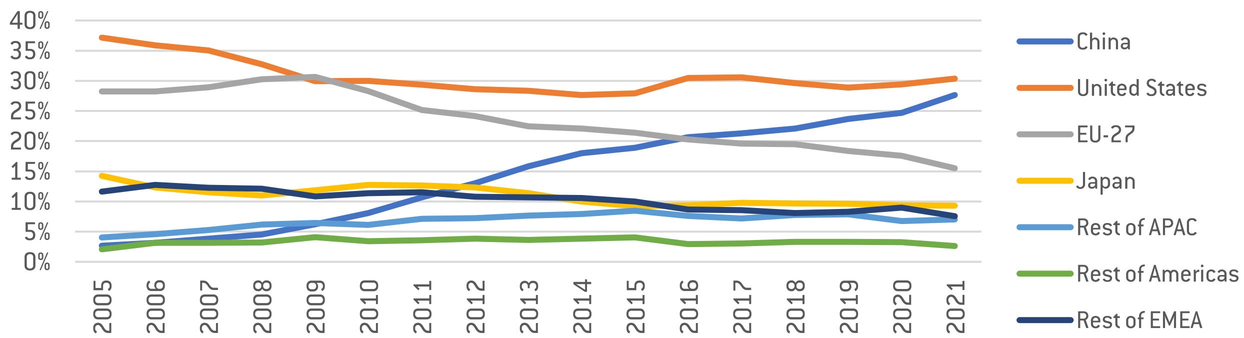
annual lists as the 'Chinese Fortune 500'. This choice has several advantages. First, thanks to Fortune's globally consistent methodology, it allows for an easy comparison of China's largest companies with their non-Chinese peers. Second, the subset of Chinese companies has been large enough in recent years (above 70 since 2012, above 100 since 2017) so that we can conduct meaningful statistical analysis within it. Third, it combines all types of company ownership, unlike, eg a ranking of top companies by revenue compiled every year by the ACFIC, which has reference status in China but only includes private-sector companies. Fourth, it is based on broad access to corporate financial data and high standards for verification[62]. Figure 1 illustrates both the rising number of Chinese Fortune 500 companies in recent years and their rising share of the global total in terms of aggregate revenue.

Figure 1: Subset of Chinese companies in the Fortune Global 500 rankings

a. Number of Chinese Fortune 500 companies, 2005-21



b. b. Share of Fortune Global 500 aggregate revenue, by country/region, 2005-21



Source: Fortune Global 500 rankings; authors' calculations. Note: Revenue data are from the prior year in panel b.

[62] A number of companies are willing to share audited financial data with Fortune even though they don't publicly disclose their full financial statements, because they desire to be included in Fortune's list.

Second, we look at the largest listed companies in China, ranked by market capitalisation (hereafter abbreviated as market cap). Market cap is the market's collective assessment of a company's equity value. It is proportional to the company's share price and, as such, is highly volatile but also very easy to observe and impossible to falsify unless the market itself is manipulated—and the volatility is partly filtered out when looking at relative values rather than absolute numbers. We created our own yearly rankings of Chinese companies by market cap, based on data from Wind and a consistent methodology, as developed in appendix A. We made those rankings at every year-end from 2010 to 2021. Our last such ranking of Chinese Listed Top 100 companies by market capitalisation, as of end-2021, is presented in appendix C.

We view market cap as a relevant and valuable metric for this analysis. First, it is a forward-looking indicator. All things equal, high market cap means that market investors are optimistic about future revenue and profits. Thus, assuming no massive market failure, the observation of market caps anticipates likely future patterns of activity. This is reflected in the fact that, for example, the platform giants Tencent and Alibaba have been prominent in our listed top 100 ranking by market cap throughout the 2010s (from its 2014 IPO in the case of Alibaba), whereas they both entered the Fortune Global 500 ranking only in 2017: In this case, market investors had correctly anticipated the future growth of their revenues and profits.

Second, we view the mechanism for stock price formation as good enough to carry useful information. China's stock markets have long had a poor reputation of being highly affected by short-term speculation and market abuse, implying that stock prices and market caps have been largely uncorrelated with an economic notion of equity value that would reflect, according to financial theory, the discounted value of the listed company's expected future cash flows minus its debt. But, even leaving aside the fact that many of the listed companies we include are listed outside of China, Chinese stock markets have also come a long way since their memorable dismissal in 2001 by reformer economist Wu Jinglian as *"worse than a casino"*[63]. Accounting and auditing practices have evolved rapidly since the profession was *"(re)created from scratch"* in the early reform-and-opening-up era (Deng and Macve, 2018). They have generally tended to improve, even though accounting manipulation and fraud are not unknown in contemporary China[64].

[63] Anthony Kuhn, "Chinese Markets 'Worse Than a Casino'," *Los Angeles Times*, March 29, 2001, at http://www.latimes.com/archives/la-xpm-2001-mar-29-fi-44137-story.html.
[64] Recent striking cases of accounting malpractice in China, and specifically of fraudulent revenue overreporting, include that of Luckin Coffee, which has been extensively reported. See He Xinye, Pu Juan, Shen Xinyue, and Han Wei, "Luckin

An in-depth academic study published in early 2015, reviewing the evolution of Chinese stock markets since their reopening in late 1990 after more than four decades of post-revolutionary shutdown, concluded that *"China's stock market no longer deserves its reputation as a casino"* and *"has become as informative about future corporate profits as in the US"* (Carpenter *et al*, 2015). Later in 2015, central government intervention to mitigate a stock price downturn cast renewed doubt on the quality of stock price formation on Chinese markets[65]. Even so, there is widespread though not universal consensus that China's stock markets have matured and that, while still idiosyncratic, stock prices carry economically relevant information, not least thanks to the gradual development of a professional investment industry[66].

Overall, and leaving aside the thorny questions raised by VIE structures (Box 3), we reckon that large Chinese listed companies' market caps derived from stock prices on mainland Chinese, Hong Kong, and US stock markets are a meaningful market-based determination of corporate value over our period of observation starting in 2010 through 2021. The market is not always right, of course, but that reality is by no means unique to the Chinese context.

2.1 Findings on China's largest companies by revenue

This subsection focuses on our analysis of the subset of Chinese companies in the Fortune Global 500 rankings, as briefly introduced above and detailed in appendix A.

The share of the private sector in the aggregate revenue of China's largest companies is rising fast, even though the state sector is still dominant

By 'private sector' here we mean NPEs, and by 'state sector' we mean SOEs and MOEs. Figure 2 shows their respective shares in the aggregate revenue of each year's Chinese Fortune 500[67]. The starting point in the mid-2000s was in line with the aforementioned late-1990s slogan *"grasp the large, let go*

Discloses It Overstated 2019 Revenue by $328 Million," *Caixin*, July 2, 2021, at https://www.caixinglobal.com/2021-07-02/luckin-discloses-it-overstated-2019-revenue-by-328-million-101734893.html.

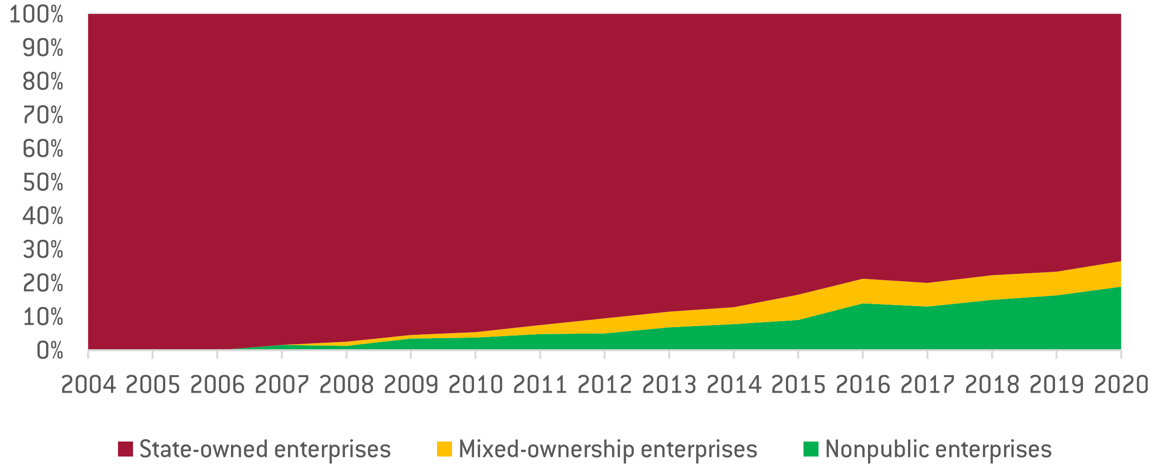
[65] See, for example, Charlotte Yang, "How a Stock Market Crash Created China's 'National Team'," *Caixin*, October 19, 2018, at http://www.caixinglobal.com/2018-10-19/caixin-explains-how-a-stock-market-crash-created-chinas-national-team-101337087.html.

[66] See, for example, "China's markets are shaking off their casino reputation," *The Economist*, March 18, 2021, at http://www..economist.com/finance-and-economics/2021/03/18/chinas-markets-are-shaking-off-their-casino-reputation.

[67] The data labels on the horizontal axis are the years of observed revenue. Almost all Chinese companies use the calendar year as their financial year, closing their accounts on December 31. Thus, for example, the Fortune Global 500 ranking published in 2021 (the latest one we use in this research) is based on 2020 revenue.

of the small", namely all the largest companies at that time were SOEs. In the more recent period, however, this has changed gradually, even though SOEs still dominate the landscape.

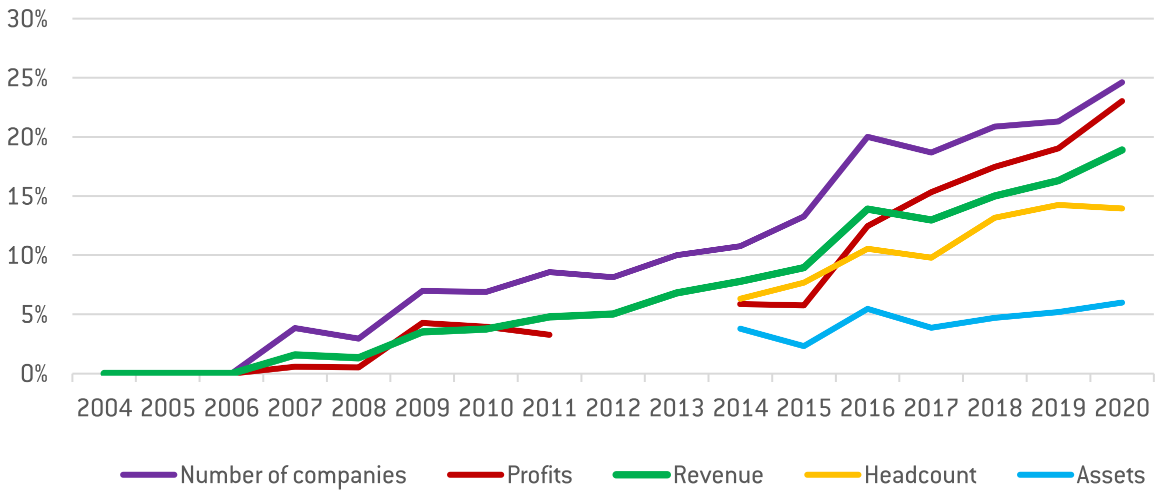
Figure 2: Aggregate revenue of Chinese Fortune 500 companies, by ownership category, 2004-20



Source: Fortune Global 500 rankings; authors' calculations.

As Figure 3 illustrates, this rising importance of the private sector among the Chinese Fortune 500 is observable across a wider range of indicators that are available in Fortune rankings for the most recent years since 2015 (based on 2014 data).

Figure 3: Share of the private sector (nonpublic enterprises) in subset of Chinese Fortune 500 companies across different metrics, 2004-20



Source: Fortune Global 500 rankings; authors' calculations. Note: Profit data are unavailable for 2012 and 2013; headcount and asset data are only from 2014.

Unsurprisingly, NPEs are asset-light in comparison to SOEs and MOEs, and generally on the lower end of the size distribution, which explains the relative positions of the different lines on Figure 3. But the main observation is that they are all trending upwards, especially in recent years.

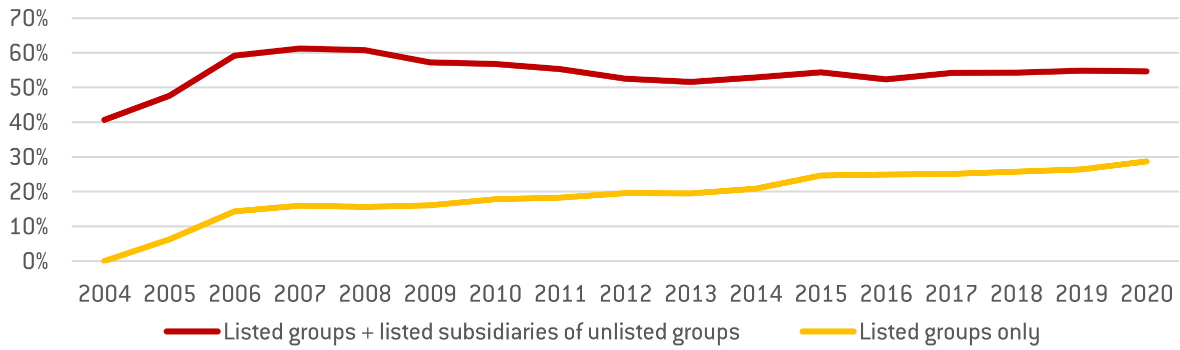
The shift has not been entirely linear. In 2015, Ping An of China, until then the largest NPE among the Chinese Fortune 500, became an MOE (see subsection 1.3); after 2017 the government cracked down on several unlisted private-sector groups whose debt-fuelled growth was deemed a systemic risk (the so-called grey rhinos such as Anbang Insurance Group, CEFC China Energy, HNA Group, and Tomorrow Group)[68]. These events are observable in Figures 2 and 3.

A majority of the Chinese Fortune 500's revenue is made in listed subsidiaries, even though only a minority of them are listed at the group parent level

Figure 4 shows the share of the Chinese Fortune 500's total revenue made in groups listed at the parent-entity level (lower line) and including majority-owned listed subsidiaries of unlisted groups whose revenue accounts for 5 percent or more of the group revenue (upper line). The upper line has been consistently higher than 50 percent since 2007, even though—as explained in section 1—it is actually an underestimate of the share of revenue coming from listed subsidiaries, since revenue coming from minority-owned (eg proportionally consolidated) listed subsidiaries and small majority-owned listed subsidiaries is not included.

[68] The corresponding sequence of events includes the February 2018 seizure of Anbang Insurance Group and prosecution of its chairman Xu Xiaohui; the March 2018 takeover by the Shanghai municipal government of CEFC China Energy and detention of its chairman Ye Jianming; the March 2020 takeover of HNA Group by the Hainan provincial government; and the July 2020 takeover by financial regulators of conglomerate Tomorrow Holdings and arrest of its chairman Xiao Jianhua by mainland authorities in Hong Kong. See also Keith Bradsher and Sui-Lee Wee, "In China, Herd of 'Gray Rhinos' Threatens Economy," *New York Times*, July 23, 2017, at https://www.nytimes.com/2017/07/23/business/china-economy-gray-rhinos.html.

Figure 4: Share of aggregate revenue of Chinese Fortune 500 companies accounted for by listed companies, 2004-20



Source: Fortune Global 500 rankings; Wind; Bloomberg; authors' calculations.

Table 2 shows the revenue of the Chinese companies in the 2021 Fortune 500 ranking (based on 2020 revenue) split among listed, quasi-listed, partially-listed, and non-listed groups as defined in section 1. As is clear from this table, the typologies are significantly different across ownership categories. Almost all quasi-listed or partially listed groups are SOEs; all MOEs are listed; and NPEs, with only one exception of a partially-listed firm, are polarised between a group of (fully) listed firms and another of non-listed ones.

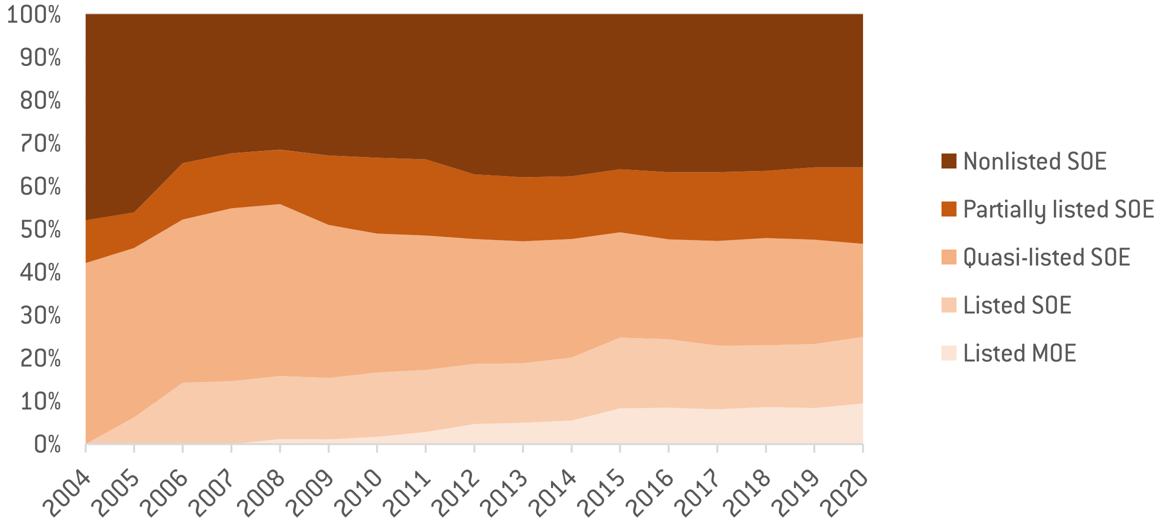
Table 2: Chinese companies in the 2021 Fortune Global 500 ranking, by ownership and listing status

Listing status	State-owned enterprises		Mixed-ownership enterprises		Nonpublic enterprises		Total	
	Number	***Revenue, 2020 (billions of dollars)***	***Number***	***Revenue, 2020 (billions of dollars)***	***Number***	***Revenue, 2020 (billions of dollars)***	***Number***	***Revenue, 2020 (billions of dollars)***
Listed	13	1,100	10	668	14	746	37	2,514
Quasi-listed	13	1,540 (1,523)	-	-	-	-	13	1,540 (1,523)
Partially listed	20	1,262 (589)	-	-	1	45 (16)	21	1,307 (605)
Nonlisted	42	2,530 (131)	-	-	17	864 (9)	59	3,394 (140)
Total	88	6,432 (3,344)	10	668	32	1,654 (771)	130	8,755 (4,782)

Note: Revenue numbers in parentheses are those of listed subsidiaries within non-listed groups and, in the last row, of all listed entities tallied. Sources: Fortune Global 500 rankings; Wind; Bloomberg; authors' calculations.

Figure 5 puts these typologies into perspective over time, highlighting the divide between the various listing categories of SOEs and MOEs. The respective shares have been strikingly stable even as the corresponding set has considerably expanded over time, from 15 SOE and MOE groups to 98 between the Fortune Global 500 rankings published in 2005 and 2021, respectively.

Figure 5: Revenue of state-owned enterprises (SOEs) and mixed-ownership enterprises (MOEs) among Chinese Fortune 500 companies, by listing status, 2004-20

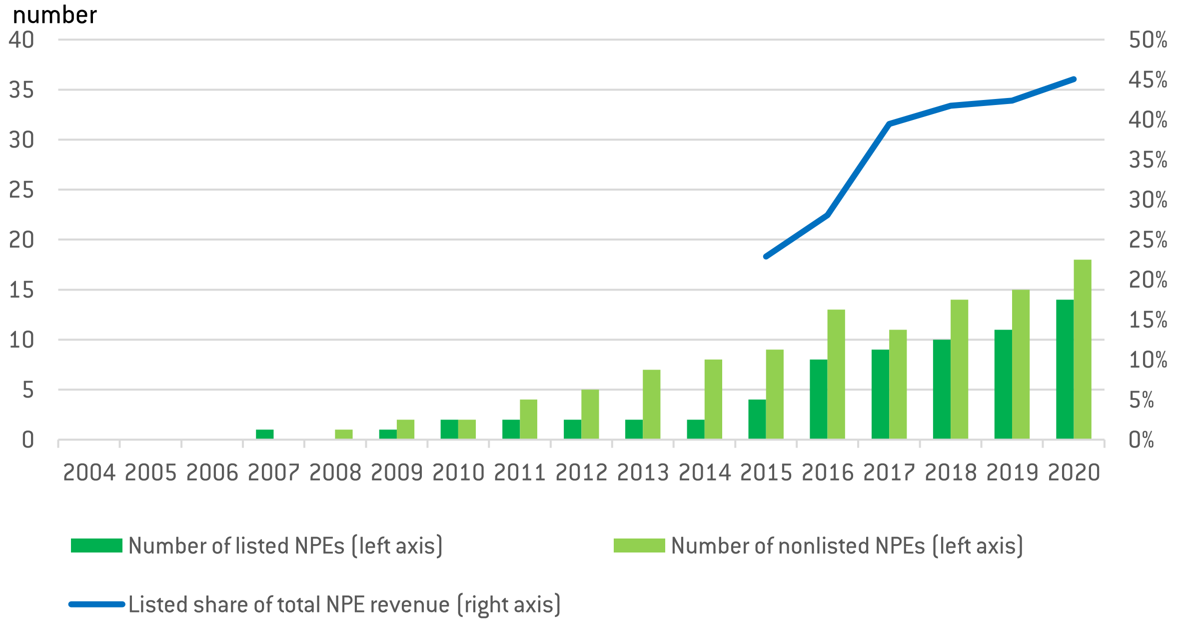


Sources: Fortune Global 500 rankings; Wind; Bloomberg; authors' calculations. Note: All MOEs in the successive Fortune Global 500 rankings have been listed companies.

Among China's largest private-sector companies by revenue, listed companies are increasingly significant

Figure 6 shows similar data for NPEs, highlighting the divide between listed and non-listed NPEs. In contrast to SOEs and MOEs, the share of revenue of listed companies among China's Fortune-ranked NPEs has increased significantly since the mid-2010s, even though it has not yet reached 50 percent. (We deemed the number of NPEs before 2015 too small for the corresponding trends to be viewed as significant.)

Figure 6: Listing status of nonpublic enterprises (NPEs) among Chinese Fortune 500 companies, 2004-20



Source: Fortune Global 500 rankings; authors' calculations. Note: Revenue share data prior to 2015 not shown because we deemed the number of NPEs before 2015 too small for the corresponding trends to be viewed as significant.

Table 3 illustrates that shift by listing the NPEs that were among the Chinese Fortune 500 in the 2015 ranking (excluding the above-described special case of Ping An), and those that have joined the list in the 2021 ranking. In those six years, the number of private-sector groups among the Chinese Fortune 500 more than tripled, from 9 to 32. The only NPEs that exited the Fortune list between these dates were CEFC China Energy and HNA Group, two of the ill-fated 'grey rhino' conglomerates (see above), and Huaxia Life Insurance, part of the grey rhino Tomorrow Group; 25 new private-sector groups joined the list. By contrast, the number of state-sector (SOE and MOE) companies among the Chinese Fortune 500 grew only incrementally during the same period, from 83 to 98. Among those NPEs that were in the 2015 list, eight out of nine were unlisted; among those that joined since, more than half are listed.

Table 3: Non-public enterprises among Chinese Fortune 500 companies, 2015 versus 2021

Name	Activity	Listing status	Fortune Global 500 rank	
			2015	2021
On the list in 2015 (based on 2014 revenue)				
China Pacific Construction Group	Construction and infrastructure	Unlisted	156	149
Huawei Investment & Holding	Electronic equipment	Unlisted	228	44
Lenovo Group	Computers	Listed	231	159
Shandong Weiqiao Pioneering Group	Textiles and apparel	Unlisted	234	282
Amer International Group	Nonferrous metals	Unlisted	247	68
Jiangsu Shagang Group	Steel	Unlisted	274	308
CEFC China Energy Company	Conglomerate	Unlisted	342	Liquidated
HNA Group	Conglomerate	Unlisted	464	Liquidated
Zhejiang Geely Holding Group	Automotive	Unlisted	477	239
Joined the list since 2015				
JD.com	Retail platform	Listed	-	59
Alibaba Group Holding	Retail platform	Listed	-	63
Hengli Group	Petrochemicals and fibers	Unlisted	-	67
Evergrande Group	Real estate	Listed	-	122
Tencent Holdings	Internet platform	Listed	-	132
Country Garden Holdings	Real estate	Listed	-	139
Zhejiang Rongsheng Holding Group	Chemicals-centered conglomerate	Unlisted	-	255
Tsingshan Holding Group	Steel	Unlisted	-	279
Midea Group	Appliances	Listed	-	288
Zhejiang Hengyi Group	Steel	Unlisted	-	309
Shenghong Holding Group	Petrochemicals and fibers	Unlisted	-	311
Suning.com Group	Retail platform	Listed	-	328
Yango Longking Group (Yango Financial)	Conglomerate	Unlisted	-	332
Xiaomi	Electronic equipment	Listed	-	338
Taikang Insurance Group	Insurance	Unlisted	-	343
Cedar Holdings Group	Conglomerate	Unlisted	-	359
Sunac China Holdings	Real estate	Listed	-	364
Jingye Group	Steel	Unlisted	-	375
New Hope Holding Group	Agricultural products	Listed	-	390
Haier Smart Home	Appliances	Listed	-	405
Hailiang Group	Conglomerate	Unlisted	-	428
Beijing Jianlong Heavy Industry Group	Iron and steel	Unlisted	-	431
Xinjiang Guanghui Industry Investment	Consumer products and services, energy development	Unlisted	-	444
Longfor Group Holdings	Real estate	Listed	-	456
Gree Electric Appliances	Appliances	Listed	-	488

Source: Fortune Global 500 rankings.

Further research might shed valuable light on what has driven the apparently more dynamic growth of large listed private-sector groups in recent years compared to unlisted ones. Table 3 suggests different sectoral patterns in the two populations, with listed Chinese Fortune 500 NPEs concentrated in the internet, electronics, and real estate sectors and unlisted ones more likely to be conglomerates and/or leaders in more traditional industries. The issue of differentiated political connections could also be examined in more depth, requiring much more granular analysis than we have been able to provide here[69].

Our finding that over half of the activity of China's largest groups by revenue is made in listed entities gives further relevance to a focus on listed companies, to which we turn in the next subsection.

2.2. Findings on China's largest listed companies by market cap

This subsection summarises our analysis of rankings by market cap, for which we established yearly lists, hereafter referred to as the 'Chinese Listed Top 100'.

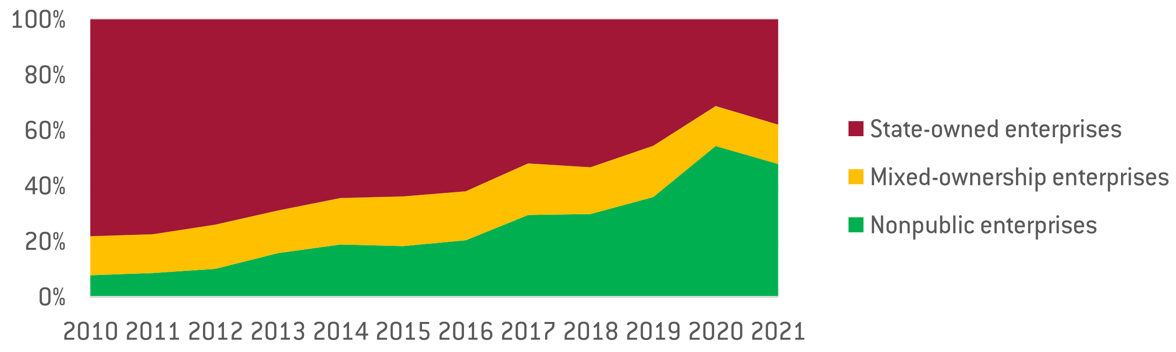
The share of the private sector among the companies with the largest market caps has risen significantly over the last decade

Figure 7 shows that the share of NPEs has increased rapidly among the Chinese Listed Top 100 over the last decade, reaching a level above half at end-2020 prior to dropping to slightly below half (48 percent) at end-2021. The decline as of end-2021 is thus directly correlated with the sweeping regulatory crackdown on several industries, including curbs on after-school tutoring and online gaming, in the summer of 2021. That flurry of initiatives caused the value of some of the best-known Chinese private companies, such as Didi Chuxing, to drop significantly. The perception of dramatically increased policy risk had led to a sharp decrease in Chinese stock prices, though they later rebounded[70]. Viewed against the rise of the private sector during our entire period of observation, however, the drop in 2021 appears limited in magnitude, and very far from going back to the point of departure. Viewed over the duration of the Xi Jinping era so far, therefore, the rise of the private sector

[69] For example, two of the unlisted NPEs in Table 3 are headquartered in the Xinjiang Uygur Autonomous Region (China Pacific Construction and Xinjiang Guanghui), and the founder of Taikang Insurance is the husband of one of the granddaughters of former Chairman Mao Zedong (see eg https://www.forbes.com/profile/chen-dongsheng/).
[70] See Juliet Chung, Justin Baer, and Dawn Lim, "Investors lost hundreds of billions on China in July," *Wall Street Journal*, July 30, 2021, available at https://www.wsj.com/articles/investors-rethink-china-bets-after-beijing-crackdown-triggers-stock-market-rout-11627669954; Jan- Patrick Barnert, Matt Turner, and Yiqin Shen, "US-Listed Chinese Stocks on Track for Best Month in a Year," Bloomberg, October 20, 2021, available at https://www.bloomberg.com/news/ articles/2021-10-20/u-s-listed-chinese-stocks-on-track-for-best-month-in-a-year.

in market caps is unmistakable, and even more pronounced than in revenue as previously described. The future trend, of course, is unknown.

Figure 7 Aggregate market capitalization of Chinese Listed Top 100 companies, by ownership category, 2010-21



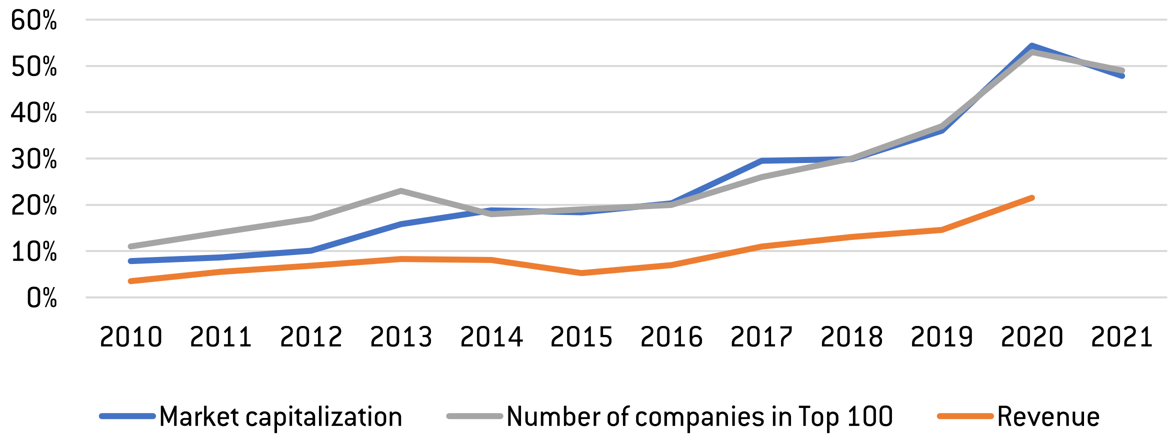
Source: Wind; authors' calculations.

Correspondingly, the share of SOEs has plummeted, from 78 percent at end- 2010 to 38 percent at end-2021. As late as end-2018, the SOE share of the total (not counting MOEs) was still above 50 percent. The 2021 rebound of the share of SOEs offset less than half of its precipitous decline in 2020, when it fell from 46 percent (at end-2019) to a low point of 31 percent.

Another noticeable trend is that the share of MOEs in the total has been fairly constant within a 14-19 percent range. Since the overall share of the state sector (SOEs and MOEs combined) has decreased sharply over the period, it implies that the relative share of MOEs within it (ie aggregate market cap of MOEs/aggregate market cap of MOEs and SOEs) has almost doubled, from 15 percent at end-2010 to 27 percent at end-2021.

As we did with the Fortune Global 500 dataset, we looked at other indicators aside from market cap, shown in Figure 8. They have moved upwards as well, even though NPEs are less prominent in terms of revenue than market cap within that group. This is unsurprising if one accepts that market cap is a generally leading indicator of expected future growth of revenue and profits.

Figure 8: Share of the private sector (nonpublic enterprises) in Chinese Listed Top 100 companies across different aggregates, 2010-21



Sources: Wind; Bloomberg; authors' calculations. Note: Revenue data as of end-2021 are not available yet at the time of writing and therefore not shown in the figure.

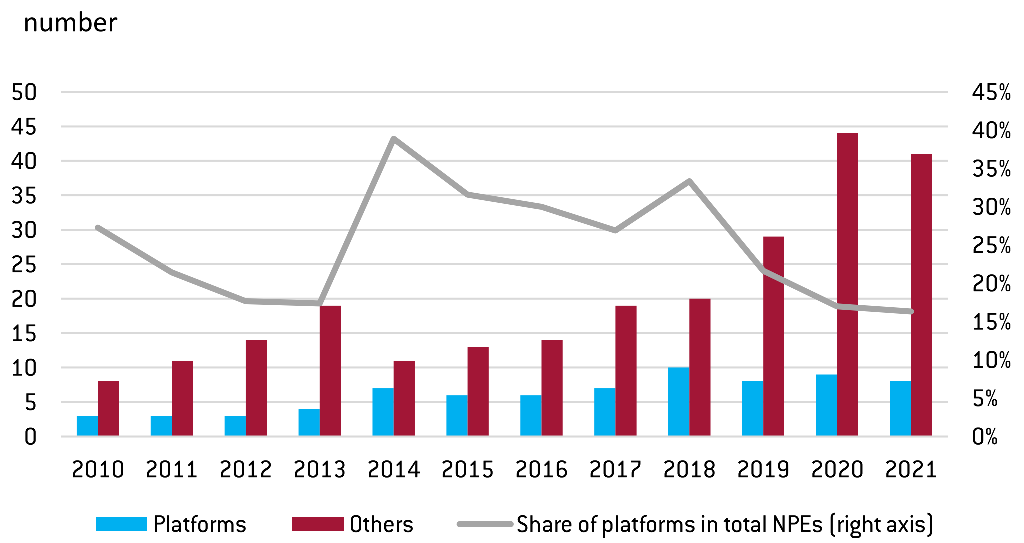
Large-cap private-sector listed companies are increasingly diverse

As in the United States with the likes of Alphabet, Apple, and Microsoft, 'platform' companies such as Alibaba and Tencent, which happen to all be NPEs, now represent some of the largest market caps in China, despite their share price slump in the summer of 2021[71]. While it is tempting to assume that our observed surge of NPEs among China's largest market caps is simply a reflection of platform frenzy, that is only a part of the story—even though that part is very substantial. Platforms accounted for 41 percent of the market cap of NPEs in the Listed Top 100 at end-2021, compared with 37 percent at end-2010. Figure 9 shows that their share peaked several years ago and has declined somewhat since: The moment when platforms represented the highest share of aggregate NPEs market cap was between end-2014 (shortly after the Alibaba IPO) and end-2018, with the highest observed share of 73 percent at end-2016.

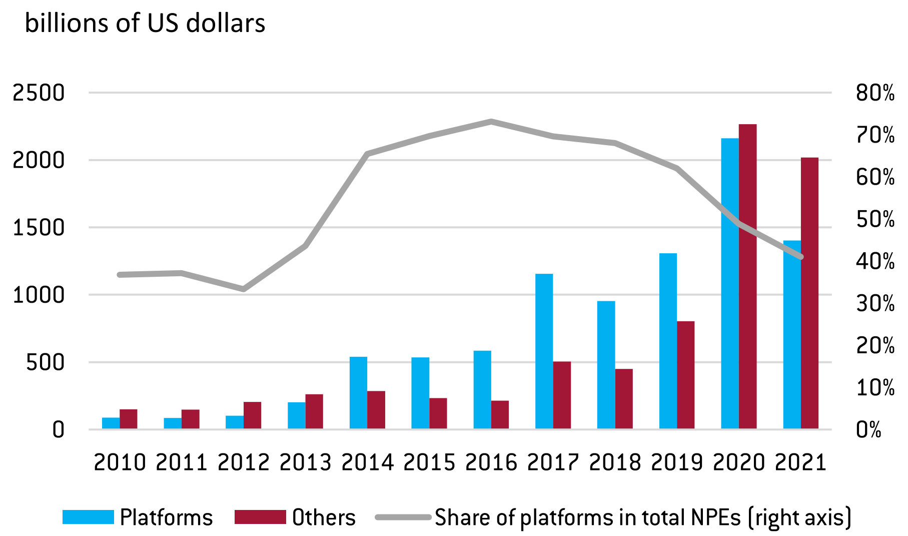
[71] Our definition of which Chinese companies count as platforms is derived from Chinese authorities' practice and detailed in appendix A.

Figure 9: Platform-services companies among nonpublic enterprises (NPEs) in Chinese Listed Top 100, 2010-21

a. Number of NPEs in Top 100



b. Market capitalisation of NPEs in Top 100



Source: Wind; authors' calculations.

A similar pattern emerges when looking at the marginal contribution of platforms to the expanding aggregate market cap of NPEs among the Chinese Listed Top 100. From 2013 to 2016, almost the entire increase in market cap of NPEs was accounted for by platforms. Instead, from end-2016 to end-2021, the market cap of platforms in the Top 100 more than doubled, but that of other NPEs increased more than nine fold. Table 4 lists the 25 highest-market-cap NPEs in the Chinese Listed Top 100 by end-2021, and illustrates the sectoral diversity of large-cap NPEs.

Table 4: Top 25 non-public enterprises by market capitalisation, end-2021

Name	Activity	Market capitalization (billions of dollars)	Rank in Chinese Listed Top 100
Tencent Holdings	Multi-services platform	563.0	1
Alibaba Group Holding	Multi-services platform	330.7	3
CATL (Ningde Era)	Batteries	215.0	5
Meituan	Multi-services platform	177.4	7
BYD	Automotive and electronics	113.8	15
JD.com	E-commerce platform	109.2	17
Midea Group	Electric appliances	80.9	19
Nongfu Spring	Bottled water	74.2	22
LONGi Green Energy Technology	Solar energy	73.2	23
Mindray	Medical instruments	72.6	24
NetEase	Multi-services platform	69.8	26
Haitian Flavouring & Food	Sauces and condiments	69.4	27
Pinduoduo	E-commerce platform	62.4	30
Xiaomi	Electronics	60.6	32
Eastmoney	Financial and stock information	60.3	34
Great Wall Motor	Automotive	57.4	36
Luxshare Precision	Electronics	54.6	38
Wuxi Apptec	Pharmaceuticals	54.5	39
SF Holding	Logistics and delivery services	53.0	40
Baidu	Search platform	51.6	41
Hengrui Medicine	Pharmaceuticals	50.9	42
Wuxi Biologics	Pharmaceuticals development	50.6	43
NIO	Automotive and batteries	50.2	44
Muyuan Foods	Hog production	44.0	50
XPeng Motors	Automotive and batteries	43.0	52

Source: Wind, authors' calculations.

There is increasing churn among the Listed Top 100 large-cap companies over time, especially in the private sector

The rise of the private sector within China's largest-cap companies is correlated with greater volatility in the rankings, as a simple turnover analysis makes clear. Overall, the survival rate between our oldest and most recent observation points, namely end-2010 and end-2021, is 38 percent. In other words, 38 listed companies that were among the Chinese Listed Top 100 at end-2010 were still there at end-2021. Of these 38, 22 are SOEs, 11 MOEs and 5 NPEs.

To get a sense of the evolution of turnover rates over time, we divided the decade 2010-2021 into two halves: the survival rate from end-2010 to end-2015 was 61 percent, and that from end-2015 to end-2021 dropped to 46 percent. On this blunt measure, churn seems to be accelerating.

This may relate to the rising share of the private sector in the Chinese Listed Top 100. Again using a blunt instrument, we compared the 2010-2021 survival rates among the top 10 SOEs, MOEs, and NPEs, respectively. As illustrated by Table 5, turnover of NPEs has been higher (30 percent survival rate, including Ping An, which became an MOE) than that of MOEs (40 percent, not counting Ping An), let alone SOEs (70 percent).

Table 5: Top 10 listed state-owned, mixed-ownership, and nonpublic enterprises by market capitalisation, 2010 versus 2021

State-owned enterprises		Mixed-ownership enterprises		Nonpublic enterprises	
2010	***2021***	***2010***	***2021***	***2010***	***2021***
PetroChina	Kweichow Moutai	BoCom	CMB	Ping An of China	Tencent
ICBC	ICBC	CMB	Ping An of China	Tencent	Alibaba
China Mobile	CCB	China Pacific Insurance	Hikvision	Baidu	CATL
CCB	ABC	Industrial Bank	Industrial Bank	Minsheng Bank	Meituan
Bank of China	Wuliangye	GF Securities	Ping An Bank	Sany Heavy Industries.	BYD
ABC	PetroChina	CITIC Securities	CITIC Securities	Belle International	JD.com
CNOOC	Bank of China	Jiangxi Copper	Wanhua Chemical	Suning.com	Midea Group
Sinopec	China Mobile	Chalco	BoCom	BYD	Nongfu Spring
China Life Insurance	China Life Insurance	Zijin Mining	Yili	ZTE	Shandong Longji
China Shenhua	Yangtze Power	Anhui Conch	Bank of Ningbo	Hengan	Mindray

ABC=Agricultural Bank of China; BoCom=Bank of Communications; CCB=China Construction Bank; CMB=China Merchants Bank; ICBC=Industrial & Commercial Bank of China
Note: Companies in shaded cells do not appear in both 2010 and 2021 rankings. Ping An of China turned from an NPE to an MOE in 2015.
Source: Wind, authors' calculations.

2.3. Drivers

In this subsection, we test various possible reasons for the advance of the private sector, as we observed above, among China's largest companies and especially among listed ones. We assume that the main underlying dynamic is that private companies generally outperform those in the state sector (eg Lardy, 2019, pages 56-59). The average return on assets of private firms is much higher than that of state firms, and that performance gap has widened substantially (as observed among industrial companies for which statistics are available) since the onset of the great financial crisis in 2008. In general, China's NPEs are simply better than SOEs at converting their investments into profits and thus they grow faster. That they were not among China's largest companies before the start of the Xi Jinping era is essentially a time coincidence, in our view: Xi Jinping happened to rise to the top around the moment when the groundswell of China's private-sector expansion, which started in the 1980s from the very bottom up, finally reached the highest echelons of China's business world.

Beyond this basic difference, and in order to reach a more granular understanding of what has happened, we examine three possible other drivers of the observed trend, respectively related to privatisation, new listings, and sectoral mix. We find that there have been few ownership changes, and therefore the trend is not a result of privatisation. New listings since 2010 by definition do not play any role in the rankings by revenue, which are not dependent on listing status, but they have played a substantial, though far from exclusive, role in the advance of the private sector among the largest listed companies by market cap. Sectoral factors have also been at play, as NPEs have been allowed more into industries that have experienced high growth than in other industries that have been more stagnant during the last decade; on this last point, however, we observe only correlation and have not developed a causality analysis.

Neither nationalisation nor privatisation

A first hypothesis would be that what we observe is a consequence of gradual privatisation, namely large companies changing category from SOE or MOE to NPE through modification of the balance of their equity ownership. This would echo the way many smaller SOEs were handled during the Zhu Rongji era of the late 1990s and early 2000s, in line with the mantra *"let go of the small"* cited in this paper's introduction.

In a nutshell, however, that is not the case. Nor is the opposite movement, of NPEs becoming MOEs or SOEs, of any material significance. The latter observation is worth making given the emphasis on the other mantra of *"the state advances and the private sector retreats"* in non-Chinese commentary about China since the start of the Xi Jinping era.

To examine this hypothesis, we tracked all category changes of companies within our scope of observation during the period in which we observe them, ie Chinese Fortune 500 since the 2005 ranking (based on 2004 revenue) and Listed Top 100 since end-2010. There are remarkably few such changes from one ownership category to another, as summarised in Table 6. In most cases, the transaction that triggered the change only involved only a small ownership stake, presumably not representing a significant modification of the company's governance.

Table 6: Changes in ownership category

Name	Date of change	Market capitalization in billions of dollars (rank in Chinese Listed Top 100 in parentheses)		Category change	Trigger for change
		At year-end after change	*At end-2021*		
Xugong Machinery	2011	7 (#140)	7 (#525)	SOE to MOE	Xuzhou City SASAC of Jiangsu Province sold at least a 0.86 percent stake, which led to a drop in Xuzhou SASAC's stake to below 50 percent
Shanghai Oriental Pearl Media	2011	3 (#281)	5 (#775)	MOE to SOE	Shanghai Municipal SASAC acquired an additional 2.73 percent stake, while Central SASAC acquired a 5.7 percent of stake
Dongfang Electric	2011	7 (#85)	10 (#378)	MOE to SOE	Central SASAC acquired an additional 0.26 percent stake and became the majority shareholder
Chalco*	2014	12 (#92)	9 (#409)	SOE to MOE	China Cinda Asset Management (majority owned by Ministry of Finance) sold a 2.6 percent stake, while China Construction Bank sold a 3.57 percent stake
Sanan Optoelectronics	2015	10 (#153)	26 (#105)	NPE to MOE	China Integrated Circuit Industry Investment Fund (also known as the "Big Fund") acquired a 11.3 percent stake
Ping An of China*	2015	101 (#10)	139 (#10)	NPE to MOE	Combined stakes of state shareholders increased above 10 percent threshold (see subsection 1.3)
Huatai Securities	2015	21 (#60)	23 (#128)	SOE to MOE	Jiangsu Provincial Government sold a 11.9 percent stake
New China Life Insurance*	2015	21 (#56)	16 (#250)	MOE to SOE	China Securities Finance acquired a 2.7 percent stake, while Central Huijin acquired an additional 0.91 percent stake
Shanghai Pudong Development Bank*	2015	52 (#15)	39 (#59)	MOE to SOE	State Administration of Foreign Exchange acquired a 3.3 percent stake, Central Huijin acquired a 1.49 percent stake, and China Securities Finance acquired an additional 1.81 percent stake
Hua Xia Bank	2016	17 (#62)	16 (#290)	MOE to SOE	PICC Insurance (majority owned by the Ministry of Finance) acquired a 20 percent stake, which led to an increase in the combined Central SASAC and Ministry of Finance stakes to more than 67 percent
NARI Technology	2016	6 (#362)	35 (#69)	MOE to SOE	State Grid (wholly-owned by Central SASAC) acquired an additional 19.9 percent and became the majority shareholder
Orient Securities	2016	13 (#87)	15 (#268)	SOE to MOE	Shanghai Municipal SASAC sold a 7.93 percent stake
New China Life Insurance*	2017	29 (#48)	16 (#250)	SOE to MOE	Central Huijin sold a 3 percent stake
Wanhua Chemical	2017	16 (#97)	50 (#47)	SOE to MOE	Yantai Municipal SASAC sold a 2.58 percent stake
ZTE	2017	22 (#68)	23 (#134)	MOE to NPE	Transfer of 2.5 percent stake in ZTE's largest minority shareholder from an SOE to a private-sector entity (see subsection 1.3)
Shandong Gold	2018	9 (#162)	12 (#316)	SOE to MOE	Shandong Provincial SASAC sold almost a third of its 55 percent stake
China National Building Materials Company	2018	6 (#275)	10 (#370)	MOE to SOE	Tai'an City Government of Shandong Province acquired a 3.12 percent stake
Gree Electric Appliances*	2019	57 (#22)	34 (#72)	MOE to NPE	Zhuhai Municipal SASAC sold 15 percent stake to private-sector Zhuhai Mingjun Investment
Yunnan Baiyao	2019	16 (#116)	21 (#154)	SOE to MOE	Yunnan Provincial SASAC sold 16 percent stake to private-sector Newhuadu Industrial Group
Everbright Securities	2020	12 (#288)	10 (#393)	SOE to MOE	China Everbright Group (majority-owned by Central Huijin) sold a 0.47 percent stake and China Great Wall Asset Management Corporation (majority-owned by Ministry of Finance) sold a 0.79 percent stake

* = Companies that also feature in the Fortune Global 500 rankings
SOE = state-owned enterprise; MOE = mixed-ownership enterprise; NPE = nonpublic enterprise
Note: Intermediate holding entities, e.g., Chinalco in the case of Chalco, are generally omitted in the last column "Trigger for change" for the sake of brevity.
Source: Fortune Global 500 rankings; Wind; media reports; authors' calculations.

As Table 6 also illustrates, most of these category changes involved comparatively small companies, with the main exception of Ping An of China (detailed in subsection 1.3). In the case of New China Insurance, the category change was reversed after less than two years. Most changes involved an incremental dilution of the state's ownership stake (SOE to MOE, or MOE to NPE).

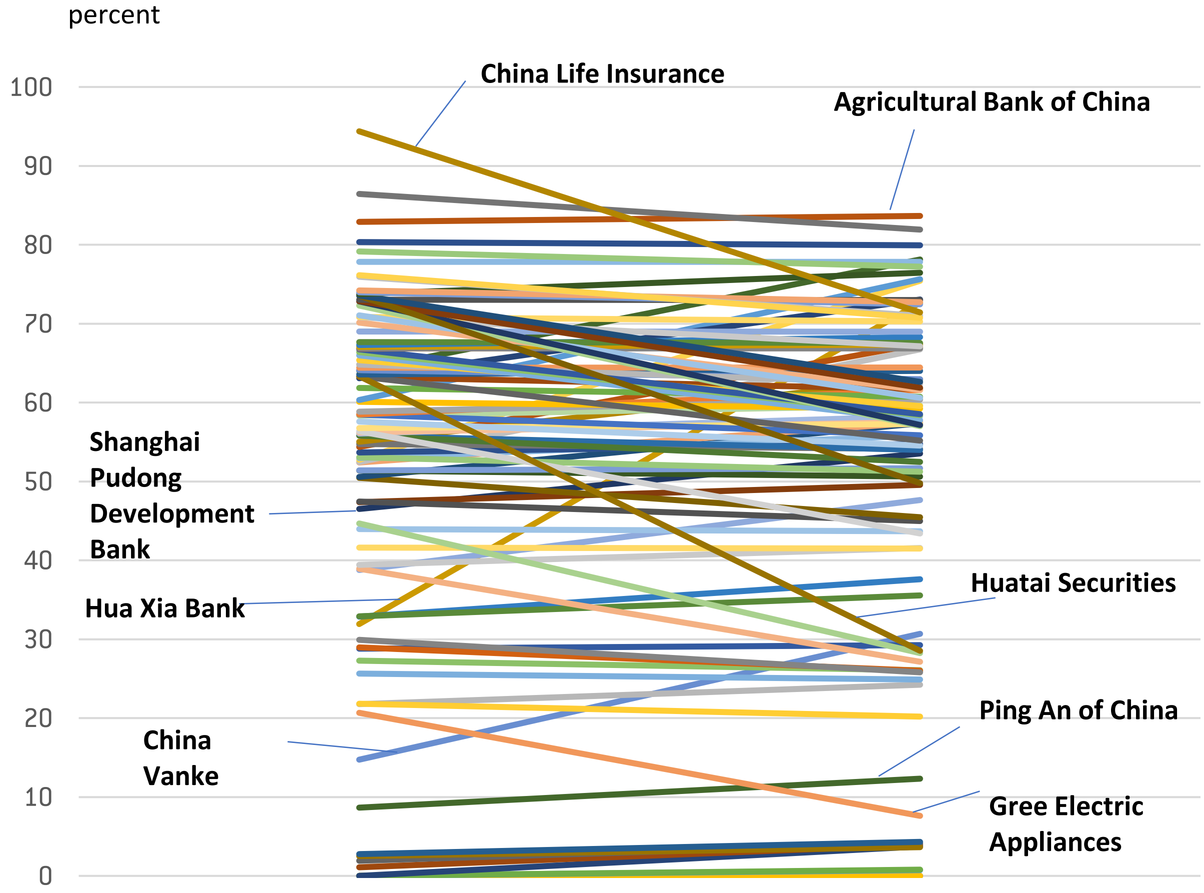
We also looked in a more granular manner at the evolution over time of the total ownership stake of the state, even if no threshold is triggered and thus there is no change of ownership category. The Chinese state has long heralded a policy to reform the state sector that it calls *"mixed-ownership reform"*, aiming at encouraging more non-state shareholders to own stakes in state firms in the hope of making them more competitive (eg Lardy, 2019, page 91). But as we looked at the change in the total state stake in all individual Chinese Listed Top 100 companies as of end-2010, the starting point of our listed-company sample, we did not find a general trend. The changes in average and median between 2010 and 2020 are fairly immaterial, as shown in Table 7; and most aggregate state stakes are fairly stable throughout the period, as illustrated by Figure 10, which is based on the same sample as Table 7 with some of the more significant changes highlighted by name. At the bottom end of Figure 10, one observes a slight increase in the state stake in several NPEs, including (but not limited to) the impact of the 2015 market rescue as described in Box 2. We do not, however, view that development of state-owned institutional investors as a form of creeping nationalisation.

Table 7: Average and median state ownership stake in Chinese Listed Top 100 companies at end-2010 and end-2020 (percent)

	2010	**2020**
Median	56.3	57.3
Average (unweighted)	50.6	49.8

Source: Wind, authors' calculations.

Figure 10: State ownership in 2010 versus 2020 among Chinese Listed Top 100 by market capitalisation at end-2010



Source: Wind; authors' calculations.

Linked to the general stability of state ownership stakes is the very limited extent of merger and acquisition (M&A) activity in China, which has been long identified in the literature and is linked to the absence of dispersed ownership structures among listed firms (eg Wang, 2020, page 327). In fact, there is more M&A activity among SOEs, directed from the top down, than market-driven M&A among large listed companies and particularly among large NPEs. Taking the sample of Chinese Fortune 500 companies as an example, eight companies left the rankings because they were targets in M&A transactions, all of which were unlisted SOEs taken over by (or merged with) other unlisted SOEs[72].

[72] These were China Metallurgical Group (MCC), merged into China Minmetals in 2015; Wuhan Iron & Steel (WISCO), merged in 2016 with Baosteel to form Baowu Steel; China Guodian, merged in 2018 with Shenhua Group to form CHN Energy; China Shipbuilding Industry (CSIC), merged in 2019 into China State Shipbuilding (CSSC); Datong Coal Mine, Shanxi Jincheng Anthracite Coal Mining Group, and Shanxi Lu'An Mining Group, merged in 2020 into Jinneng Group; and Yankuang Group, merged in 2020 into Shandong Energy Group.

(Other companies left the rankings because their revenue did not grow fast enough to keep them in[73], or because they collapsed and were liquidated[74]).

Just as the general absence of state stake dilution is at odds with the stated ambition of *"mixed-ownership reform"*, our observation of the absence of a general trend of state stake increase is at odds with an opposite narrative of creeping nationalisation of Chinese private-sector companies in line with a *"state advances, private sector retreats"* stance. For example, in an in-depth investigative article in late 2020, experienced journalist Lingling Wei of the *Wall Street Journal* featured several examples of troubled private-sector companies being purchased by larger SOEs and suggested they were part of a wider trend, writing: *"In one of the clearest signs of China's direction, more state firms are gobbling up private companies* (…) *Beijing now directly supervises 128 state firms. Although that is down from about 140 in 2012, the enterprises have grown larger, encroaching more on the private sector, amid government-led consolidations aimed at creating national corporations"* (Wei 2020). State takeovers of troubled private-sector companies happen in China, as was the case with the grey rhino conglomerates; these may in at least some cases be preferable to the alternative of 'zombification' through unsustainable credit extension, and similar cases can be observed in other countries: The US government acquired majority ownership of General Motors during the company's restructuring in 2009, even though GM reverted to private-sector ownership the next year. But our scope of observation does not provide examples of SOEs gobbling up large healthy NPEs in recent years[75].

New listings have contributed to the advance of the private sector among listed firms

In contrast to ownership category changes, new listings have played a significant role in the observed advance of the private sector among listed companies (though not in the Fortune rankings by revenue, which in principle do not depend on listing status[76]). Nearly a third of the Chinese Listed Top 100 as of end-2021, also representing a third of that group's aggregate market cap, were not yet listed (if they existed at all) by end-2010. Even though such new listings were observed in two out of three

[73] We presume this was the reason for the disappearance from the Fortune list of Sinosteel (last ranked in 2011), Bailian Group (2013), Henan Coal & Chemical Industry (2013), Shanxi Coal Transportation and Sales Group (2013), Kailuan Group (2015), China Nonferrous Metal Mining (2016), China Power Investment Corp. (2016), Dalian Wanda (2017), Xinxing Cathay International (2019), China National Aviation Fuel (2020), Henan Energy & Chemical (2020), Jizhong Energy Group (2020), and Yangquan Coal Industry Group (2020). It is also possible, however, that some of these ceased to meet Fortune's inclusion criteria for other reasons.
[74] These include China Railway Materials (last ranked by Fortune in 2014), Bohai Steel Group (2015), CEFC China Energy (2017), HNA Group (2017), Tewoo Group (2018), and Huaxia Life Insurance (2020). Both Bohai Steel and Tewoo were local SOEs controlled by Tianjin Municipality. Huaxia Life was affiliated with the Tomorrow group.
[75] Leaving aside the above-mentioned issue of special management shares (see footnote 17).
[76] See appendix A for a brief discussion of possible observation bias in the Fortune rankings.

ownership categories between 2011 and 2021, they have been overwhelmingly of NPEs. Table 8 summarises this effect.

Table 8: Impact of new listings during 2011-21 on the 2021 Chinese Listed Top 100

Category	Number of new listings	New listings' share of number of companies in category (percent)	New listings' share of aggregate category market capitalization (percent)	New listings' share of aggregate category revenue (percent)
State-owned enterprises	5	15	7	7
Mixed-ownership enterprises	0	0	0	0
Nonpublic enterprises	24	49	53	53
Total	29	29	28	14

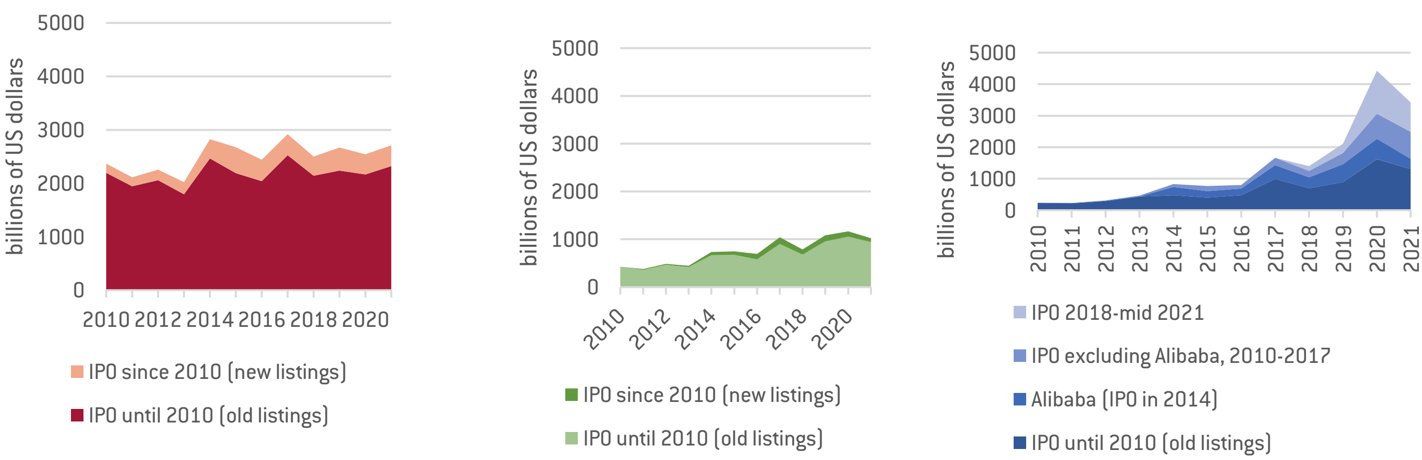
Note: "New listings" here refer to any company that first listed (through either an initial public offering [IPO] or a "backdoor listing"—see appendix A) in or after 2011. Market capitalization is as of December 31, 2021, and revenue is as of December 31, 2020.

Sources: Wind, Bloomberg, authors' calculations.

Figure 11 shows the development of this driver over time. It is based on the full sample of all listed companies that made it to the Top 100 by market cap at any of our observation points from end-2010 to end-2021. As is clear from this figure, new IPOs since 2010, including that of Alibaba in 2014, account for much of the surge in NPE market cap during the period. That said, even without those new IPOs, the share of NPEs in aggregate market cap would have grown rapidly. Thus, new IPOs are a substantial driver of the observed trend, but far from the only one.

Figure 11: "New" vs "old" listings among Chinese Listed Top 100, aggregate market capitalisation, by ownership category, 2010-21

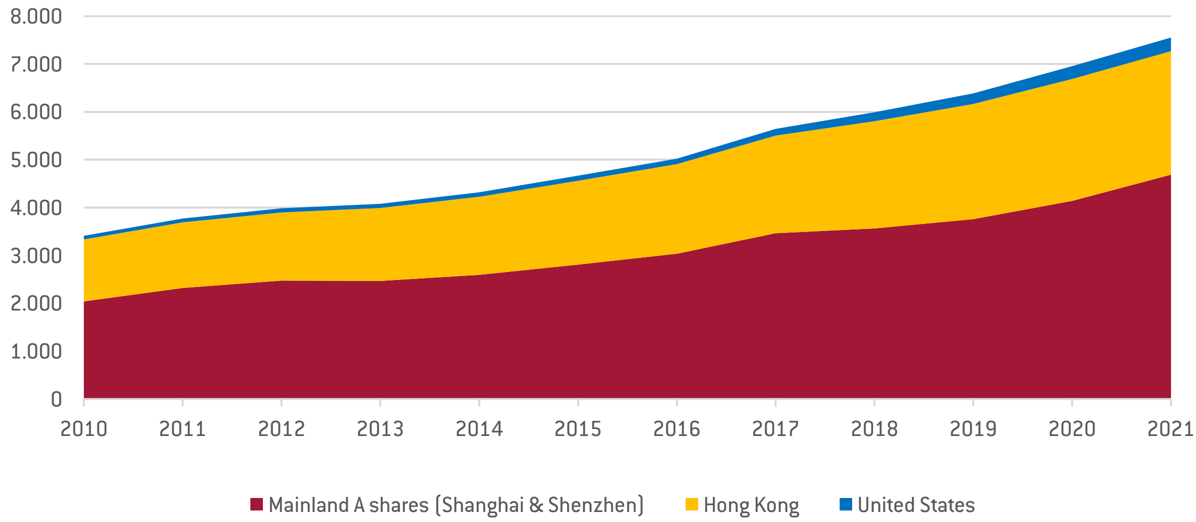
a. State-owned enterprises **b. Mixed-ownership enterprises** **c. Nonpublic enterprises**



Source: Wind; authors' calculations.

The prominence of new listings among China's Top 100 by market cap is partly a reflection of their importance among Chinese listed companies more generally. As Figure 12 illustrates, the number of Chinese listed companies, as tracked by Wind, roughly doubled during our period of observation since late 2010[77]. US-listed companies represent a small share of that number but a significantly larger share of market cap, because they include highly valuable internet platforms listed under a VIE arrangement (Box 3).

Figure 12: Number of Chinese listed companies, by listing jurisdiction, 2010-21



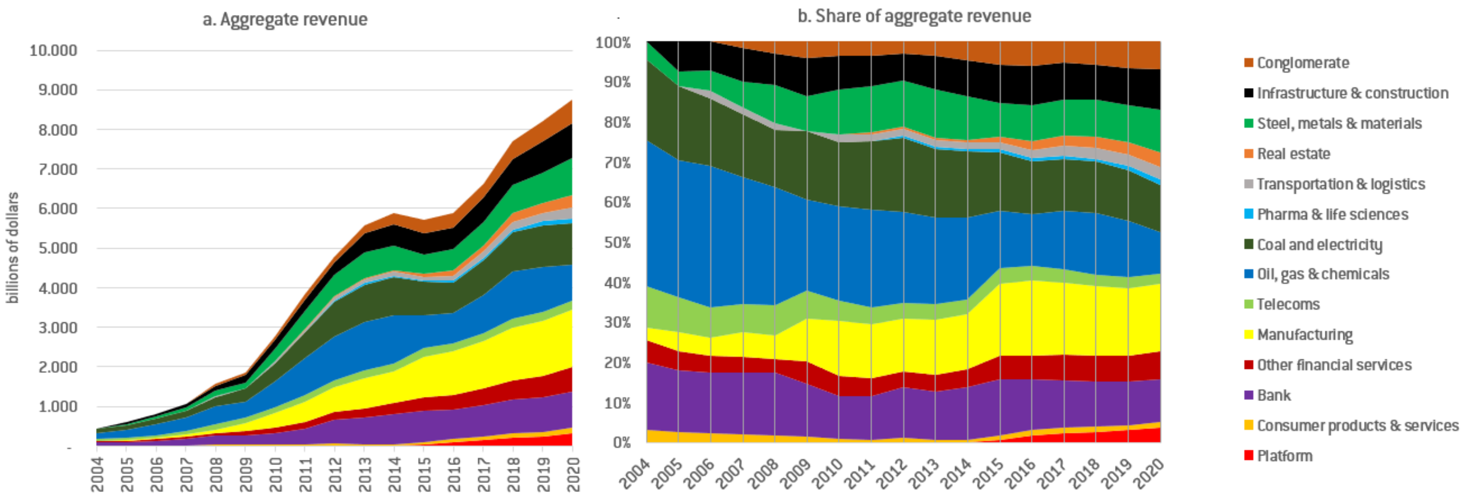
Source: Wind; authors' calculations.

Patterns vary widely across industries

Finally, we observe the dynamics of Chinese Fortune 500 and Listed Top 100 based on their categorisation into 14 different sectors[78]. Viewed through this lens, the sectoral mix of China's largest companies has changed quite significantly over our period of observation, as illustrated by Figures 13 and 14. These figures illustrate the growing sectoral diversity of China's largest companies, and the decreasing presence in the mix of 'basic' sectors such as energy, steel, and telecoms.

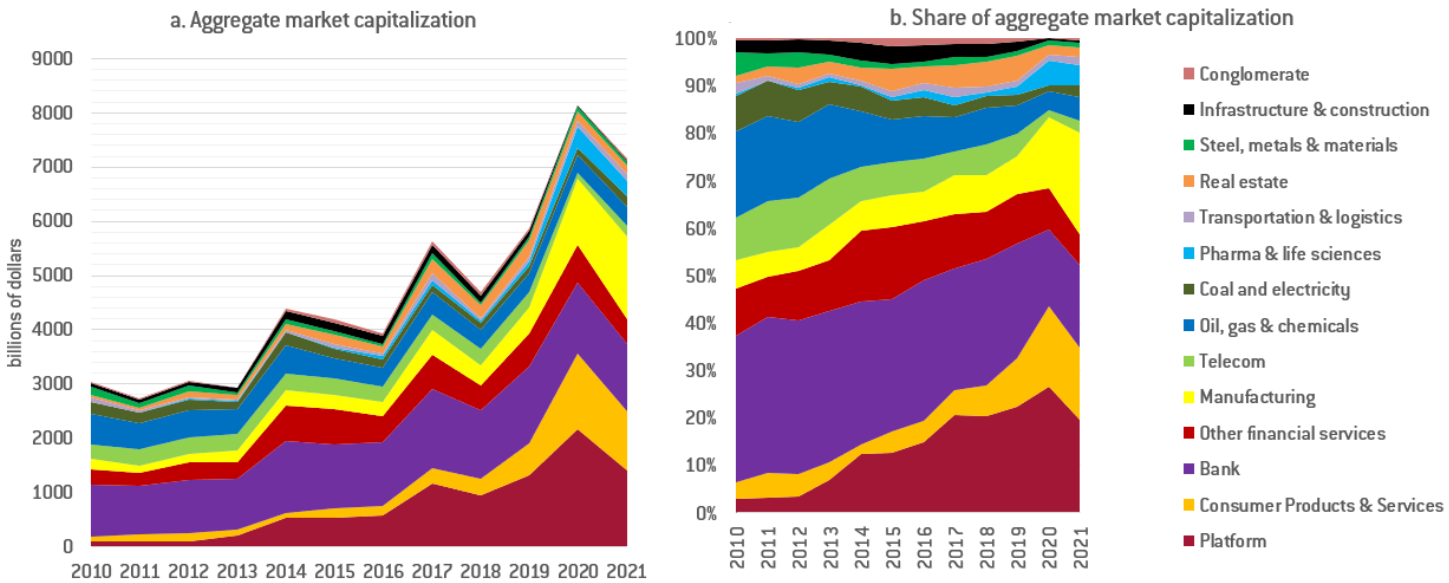
[77] The numbers in Figure 12 are not adjusted for multiple listings, implying that some companies are counted two or more times. Also, "China concepts stocks" (see appendix A) listed outside of either Hong Kong or the United States are omitted, since some large companies listed in London and Singapore are already listed in mainland China, Hong Kong, and/or the United States, and the rest are comparably small in size.
[78] Since there is no universally used sectoral breakdown, we defined 13 no-nonsense industry categories that we felt were suited to the Chinese corporate landscape, plus the "platform" category as defined in 2021 by the Chinese authorities; see details in appendix A.

Figure 13: Sectoral mix of Chinese Fortune 500 companies, by aggregate revenue, 2004-20



Source: Fortune Global 500 rankings; authors' calculations.

Figure 14: Sectoral mix of Chinese Listed Top 100 companies, by aggregate market capitalisation, 2010-21

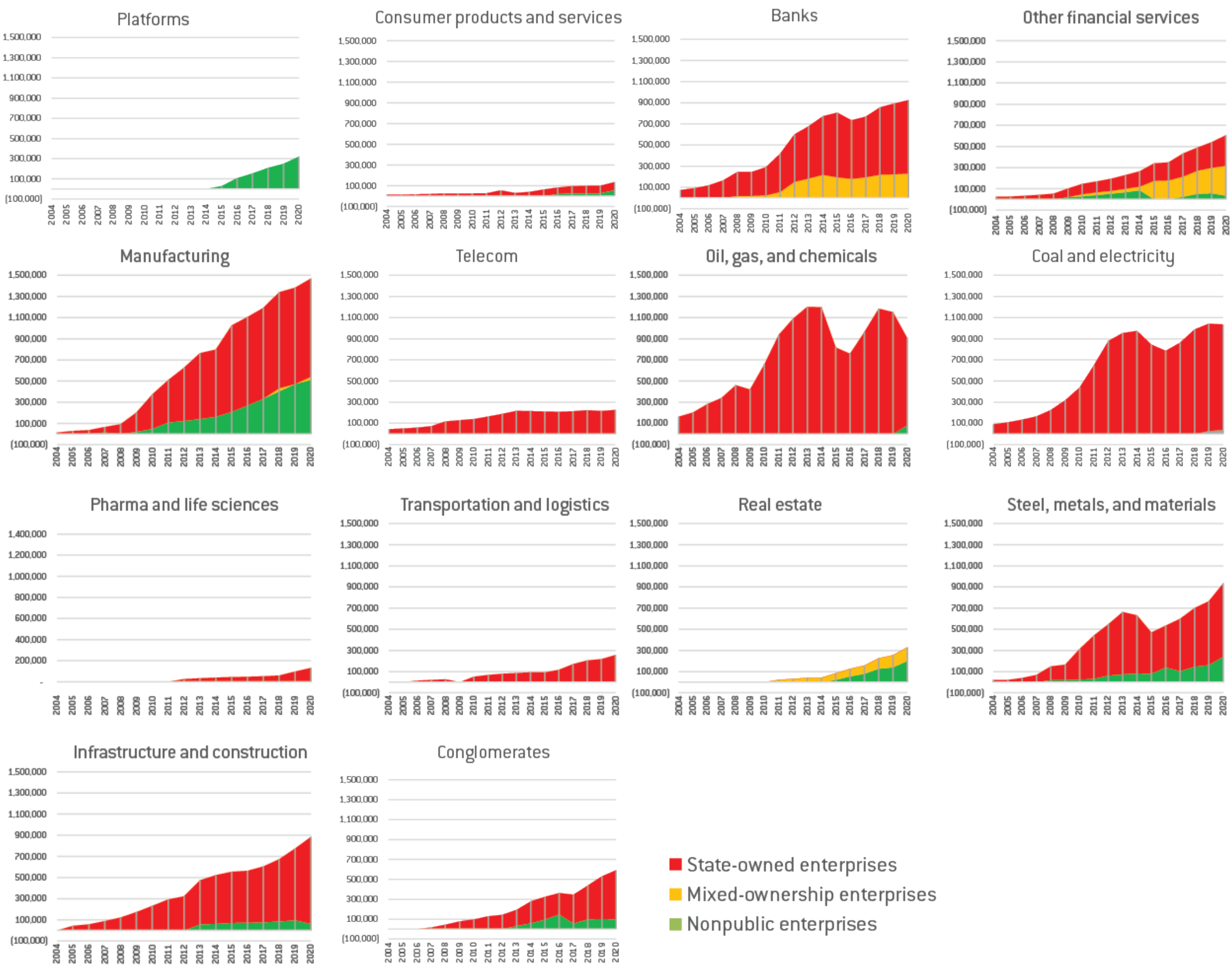


Source: Wind; authors' calculations.

Figures 15 and 16 show the breakdown of SOEs, MOEs, and NPEs in each of our industry categories, respectively, by revenue among Chinese Fortune 500 and by market cap among Chinese Listed Top 100 companies. Plainly, some sectors, including banking, telecoms, oil, gas and chemicals are dominated by SOEs (and MOEs), while others including platform services are dominated by NPEs. Others still, such as manufacturing and real estate, are an evolving mix.

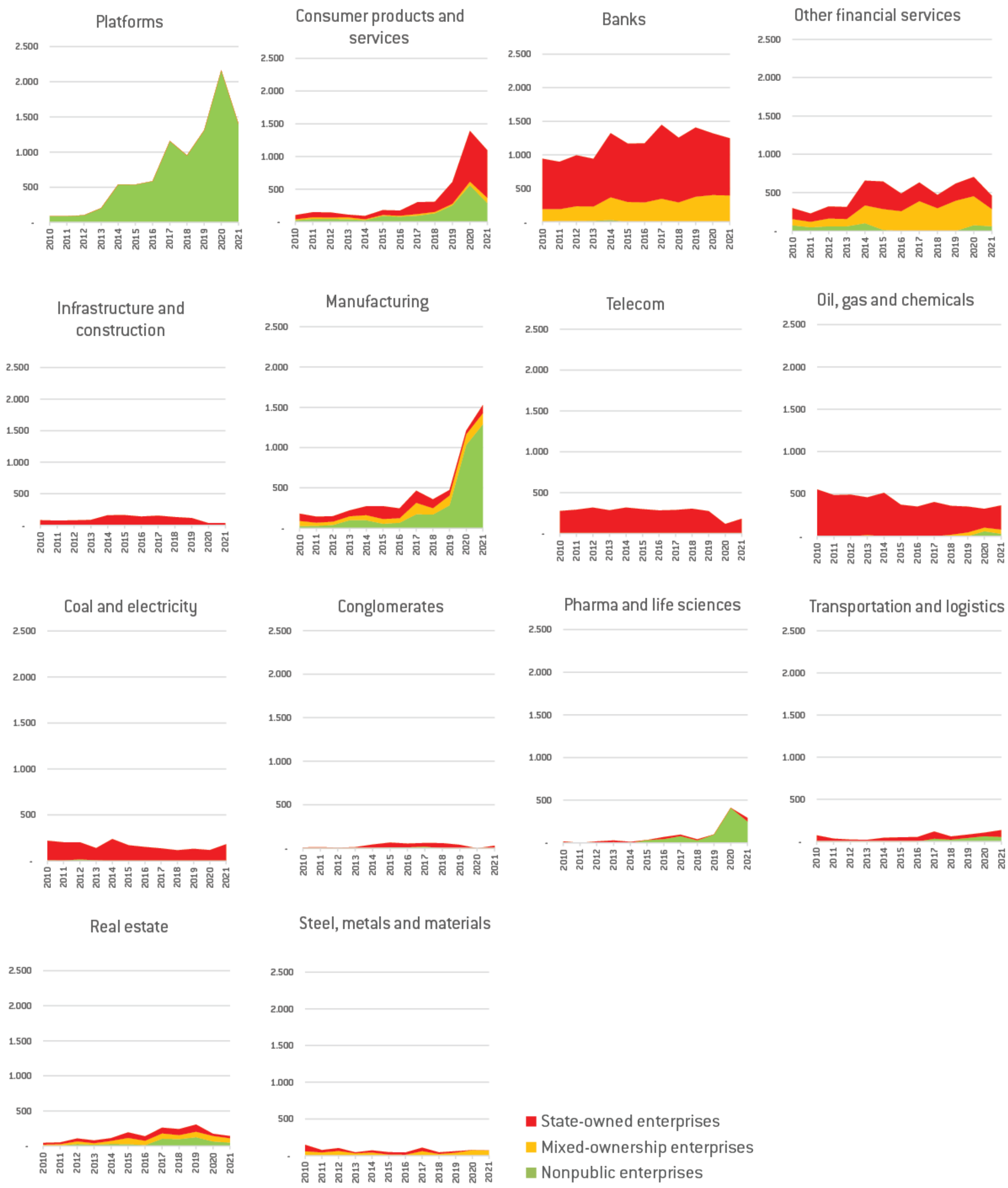
These sharply differentiated industry-specific configurations appear to drive much of the observed overall trend of private-sector advance. By and large, and without attribution of causality, the NPE-dominated sectors tend to be those in which the market sees increasing value—with some exceptions, such as the local-SOE liquor companies that account for most of the SOE value surge in the 'consumer products' category in Figure 16. In the Fortune dataset (Figure 15), the presence of a number of unlisted NPEs in SOE-dominated sector categories, such as steel, infrastructure or conglomerates, results in a somewhat less clear-cut picture.

Figure 15: Revenue of Chinese Fortune 500 companies, by sector and ownership category, 2004-20 (millions of dollars)



Source: Fortune Global 500 rankings; authors' calculations.

Figure 16: Market capitalisation of Chinese Listed Top 100 companies, by sector and ownership category, 2010-21 (billions of dollars)



Source: Wind; authors' calculations.

CONCLUSION

When Xi Jinping entered the Standing Committee of the CCP's Politburo in 2007, the Fortune Global 500 list of the world's largest companies by revenue included only 22 Chinese companies, all of which were SOEs. When he became China's top leader in late 2012, there were 70 Chinese companies in the Fortune 500 ranking, of which only 6 were from the private sector (NPEs in our taxonomy). In the latest (2021) ranking, there are 130 Chinese companies in the Fortune Global 500, of which 32 are NPEs. Meanwhile, the share of NPEs in the market cap of China's Listed Top 100 companies has risen from single digits to about half of the total. SOEs are gradually losing their previously uncontested hold on China's top corporate slots, echoing Nicholas R. Lardy's characterisation of a *"displacement of SOEs"* as China's alternative to privatisation. Using granular data, our research identifies a clear and significant trend of advance of the private sector among China's largest companies during that period, even allowing for the recent hammering of many private sector stock prices, in contrast to analysis that purports to identify a rising or stable relative role of state companies[79].

To be sure, correlation is not causation. On the contrary, a significant body of literature suggests that, irrespective of rhetoric, China's policy choices in the Xi Jinping era have tended to favour SOEs over the private sector (Lardy, 2019; Harrison *et al*, 2019; Garcia-Herrero and Ng, 2021). Thus, the trend we have observed may well have happened despite China's official policies, not because of them. It might indeed have surprised Deng Xiaoping, who in a 1980 interview noted that *"whatever the proportion of the private investment will be, this will cover only a small percentage of the Chinese economy. It will by no means affect the socialist public ownership of the means of production"*[80].

It matters that Chinese policies in favour of SOEs have not prevented or stopped the private sector's advance, at least until the summer of 2021. This is despite several earlier episodes of high-profile crackdown on large private-sector companies, such as the reining in of so-called grey rhino private conglomerates since 2017 and the 'rectification' of Ant Group in late 2020. The regulatory crackdown in the second half of 2021 has been broader but is also too recent to be assessed in a medium-term perspective.

[79] For example, Batson (2020) estimated the SOEs' share of Chinese GDP as broadly constant since the late 1990s, using various assumptions given the gaps in his statistical data sources. China's largest companies, as earlier emphasized, cannot be taken as a proxy for its broader economy, and similarly the ratio of revenue of large SOEs to all SOEs may vary over time. How exactly is hard to assess, however, given the gaps in Chinese statistics.
[80] Interview by Oriana Fallaci in the *Washington Post*, at https://www.washingtonpost.com/archive/politics/1980/09/01/deng-a-third-world-war-is-inevitable/a7222afa-3dfd-4169-b288- bdf34f942bfe/.

Our findings are robust as facts, thanks to the comparative transparency and reliability of the sources we use, and in view of our methodology choices that err on the side of caution in labelling companies as private-sector (Table 1). From an analytical standpoint, however, we view them as raising more questions than answering. In subsection 2.3, we have only scratched the surface in terms of identifying causal drivers for the trend we observe[81].

We suspect that many readers in China will view our findings as uncontroversial, perhaps even insignificant. Seen from the mainland Chinese ground, the dynamism of the private sector is an everyday reality and it is unsurprising to find it reflected in the kind of numbers we collected[82]. By contrast, in the United States and much of Europe, the perception has taken hold that the Xi Jinping era has been one of effective rollback of the previous advance of the private sector. Our findings suggest that even if such policies have constrained the growth of the private sector, they have not prevented its advance among China's largest companies as a group[83].

It is conceivable that the 2021 decline we observed in private-sector market caps could mark the start of a more long-lasting trend reversal. Taking that as a baseline scenario would be adventurous, however, given the longstanding vigour of China's private sector despite a policy environment that has not been tilted in its favour. As we have documented, the Xi Jinping era so far, taken as a whole, has been a time of unprecedented displacement of state firms away from the top ranks of China's corporate world. We would not advise betting against further displacement in the next few years.

[81] Among many questions we have not investigated is whether appointment and compensation policies for MOE executives resemble more SOE practices (ie low remuneration and a decisive role for the relevant CCP organization departments) or those of NPEs (with no formal CCP involvement and comparatively higher remuneration). Nor have we explored how the increasing emergence of clusters of NPEs linked by patterns of common ownership, driven in particular by minority equity stakes by the likes of Alibaba or Tencent, may become a defining feature of the Chinese corporate landscape. We are grateful to Reinhilde Veugelers for the latter research suggestion.

[82] This perspective is at least partly reflected in reports by a sadly dwindling corps of Western journalists on the ground. See "A decade of Chinese lessons," *The Economist*, July 3, 2021, available at https://www.economist.com/finance-and-economics/2021/07/03/stubborn-optimism-about-chinas-economy-after-a-decade-on-the-ground.

[83] As emphasized earlier in this paper, the issue of CCP influence over companies is different from that of the balance between state-sector and private-sector companies, which is what we refer to here.

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APPENDIX A

METHODOLOGICAL CHOICES ON METRICS, DATA, SAMPLING, AND CODING

Metrics: Revenue and Market Capitalisation

As explained in section 2, we use revenue and (for listed entities) market cap as the two main metrics for our analysis. There are other possible metrics of corporate size, of course.

- *Company headcount* is the most straightforward measure of size if the concern is to observe the company as a human organisation. But it is not necessarily strongly correlated with notions of economic significance. On a more practical level, company headcount can be less easy to observe and/or less reliably defined in disclosure standards, even for listed companies, as it is not included in a company's core financial statements. In any case, we have not come across a ranking of Chinese companies by headcount that would compare to Fortune's ranking by revenue in terms of reliability and time consistency.
- *Consolidated assets* offer the advantage of being tracked in a number of Chinese official statistical indicators—including disaggregation between SOE and private-sector companies, using the official definition thereof as detailed in section 2. But assets are not well correlated with broader notions of corporate activity and/or value, and their meaning varies a lot more across different sectors than is the case for revenue and market cap—especially as intangible assets are typically underestimated and hard to evaluate in corporate accounting.
- *Consolidated net income* (or profit/loss) indicates a company's capacity for distributing financial income to its shareholders. But it is also highly prone to accounting manipulation and volatility. For listed companies, market cap is a more directly observable and significant indicator of corporate value, even though it is subject to the ups and downs of market sentiment.

Revenue is a convenient, though imperfect, measure of the size of a company's activity. By and large, big companies have big sales numbers. Three caveats are important to keep in mind, however.

- First, revenue is not to be confused with value added. Some companies, eg in retail or wholesale commerce, have very thin margins and sell products at a price close to the price at which they purchase them. Value added is a national accounting (and, in some jurisdictions, tax) concept that is not typically observable directly from a company's financial statements or other mandatory disclosures.

- Second, the concept of revenue is somewhat elusive in some areas of finance and specifically in banking, given the complexities of financial intermediation. Still, banks do disclose revenue numbers and we incorporate them in our analysis, with awareness of the limitations.
- Third, revenue depends not only on the company's activity but also on financial reporting (or accounting) standards and on the quality and integrity of the reporting process, including matters of internal control, external audit, and for listed companies, securities law enforcement. Accounting misrepresentation is a risk in any jurisdiction, and—to say the least—China is no exception. Accounting manipulation, however, is comparatively more difficult for revenue than for profits or assets. Even differences in accounting standards, for example, between China (whose standards are substantially converged with International Financial Reporting Standards, or IFRS[84]) and the United States (whose standards are not converged with IFRS) tend to have only modest impact in terms of "top-line" revenue numbers, with again the exception of some financial institutions.

Unless otherwise indicated, our observations of revenue are always consolidated at the group or listed-company level, as opposed to disaggregated at the level of an individual legal entity. They are also aggregated at the global level, that is, we do not observe revenue breakdown by geography (inside versus outside China). It may be recalled that, with some notable exceptions such as Huawei, ZTE and Lenovo, most of China's largest companies make the vast majority of their revenue on their home turf.

Market cap is significant as a forward-looking indicator of a company's future cash flow generation and also as a practical indicator of its financial firepower: Listed companies can raise capital from the markets and use it, for example, for acquisitions; the higher their market cap, the more capital they can thus raise. Even though stock markets are subject to notorious dynamics of boom, bust, and general irrationality, they are generally superior to any alternative measure of corporate value (see also section 2).

Extraction of Chinese companies from Fortune Global 500 rankings

We extracted from the yearly Fortune Global 500 rankings the subset of all Chinese companies (Chinese Fortune 500) based on Fortune's assignation of home jurisdiction, which in the case of Chinese companies we have found to be unambiguous. We removed three Chinese entities from the

[84] See China's profile as established by the IFRS Foundation, at https://www.ifrs.org/content/ dam/ifrs/around-the-world/jurisdiction-profiles/china-ifrs-profile.pdf.

sample. Two are policy banks that may or may not be considered “companies” (as opposed to state agencies) depending on judgmental considerations: Agricultural Development Bank of China (ADBC) and China Development Bank (CDB). ADBC appears only in the 2020 Fortune Global 500 ranking. CDB was included in some yearly rankings (namely 2014, 2015, and 2019) but not the others. The third is China Resources Land, which was included in the 2021 ranking despite the company being majority-owned by China Resources Group (which was also included), we presume by mistake. We also added China State Shipbuilding Corporation (CSSC) in the 2020 ranking (based on 2019 revenue) from which it had been missing. Our understanding is that the absence was due to the lack of audited revenue disclosure, which was corrected the next year[85]. Other than these cases, we found Fortune’s methodology of including Chinese companies to be satisfyingly consistent over time.

We have found the rankings for several years as displayed on Fortune’s website to be incomplete and have complemented them with copies of these rankings archived on https://topforeignstocks.com/downloads/. Specifically for the 2016 ranking, we did not find revenue numbers on Fortune’s website, but each company’s revenue growth rate from the previous year was displayed, as is also the case for the 2017 ranking: That has allowed us to infer the corresponding revenue in dollars with amply sufficient precision for the purpose of our analysis.

The rankings only include companies that disclose audited financial statements, either publicly or bilaterally to Fortune. In general, once a company has been included in the Fortune ranking, it keeps its disclosures at a level that enables its continued inclusion in following years, assuming of course its revenue remains large enough (CSSC in the 2020 ranking being one exception, as just mentioned).

It is plausible that some large unlisted companies could be missed under this methodology. We suspect that such missing companies are generally more likely to be NPEs than SOEs (or MOEs), given that large SOEs are easier to spot in China’s corporate landscape. As a consequence, we reckon that our analysis of China’s largest companies by revenue based on the Fortune Global 500 rankings is likely to underestimate the share of NPEs in the total. The magnitude of this underestimation, and how it may have varied over time, are hard to assess, even though the increasing share of listed NPEs in all NPEs in the Fortune rankings (see section 2) may suggest any such gap is probably narrowing[86].

[85] The 2021 ranking includes both the revenue in 2020 and the rate of revenue change from 2019, from which we inferred CSSC’s revenue in 2019.

[86] We compared the Fortune Global 500 list in 2021 (based on 2020 revenue) with ACFIC’s yearly ranking of China’s top 100 private-sector companies based on 2020 revenue, and found that the ACFIC sample included four NPEs that weren’t ranked by Fortune: Zhongnan Holding Group (which would have ranked around #200 in the Fortune list), Gome Holding Group (around #250), Chongqing Jinke Holdings (around #380), and Duofu Group (around #440). The reason Fortune excluded

Dataset of listed Chinese companies

We constructed a full dataset of Chinese mainland-listed companies and those listed in Hong Kong and the United States, sometimes referred to as *"China concepts stocks"* (中概股)[87], by retrieving data from the Wind database as of December 31 of each year from 2010 to 2021. For each company we included what we found to be the generally used name in English and Chinese, stock listing ('ticker') code(s) in the mainland and/or Hong Kong and/or United States, date of listings (IPO or 'backdoor listing'[88]) on each relevant market, market capitalisation at year-end, and full-year revenue as recorded in Bloomberg[89].

We excluded from our dataset majority foreign-owned companies, including those controlled from Hong Kong, Macau, or Taiwan[90]. For example, Tingyi Master Kong, China's largest instant noodle producer, is a mainland-headquartered listed company that has most of its activity in China. But it is majority-owned by Japanese and Taiwanese shareholders and is thus not included in our sample.

Market capitalisation data of companies listed in China, Hong Kong, and the United States are reported, respectively, in Chinese yuan or renminbi (CNY), Hong Kong dollars (HKD), and US dollars (USD). We converted the CNY and HKD market cap values to USD using the exchange rates at the end of each reporting period. We used the USD/CNY central parity rate reported by the China Foreign Exchange Trade System, and the HKD/USD rate provided by Wind, respectively. For revenue data, we used USD numbers as reported by Bloomberg. We retrieved market cap data from Wind and revenue data from Bloomberg. For companies that are simultaneously listed in several jurisdictions, we carefully

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these companies may have to do with their level of transparency in financial disclosures. In any case, they are not numerous enough to materially change the overall picture. It may be, however, that ACFIC is also missing some large Chinese NPEs in their coverage.

[87] We did not systematically include China concepts stocks listed in other financial centers such as London or Singapore, but we verified that none of them would have made it to the Top 100 by market cap in 2020, unless they were also listed in China, Hong Kong, or the United States, in which case they are included in our dataset. On this basis, we estimate that our yearly rankings of Top 100 market capitalizations are valid for the entire universe of China concepts stocks as collected by Wind.

[88] "Backdoor listing" refers to the process by which an enterprise gets onto a stock exchange without an initial public offering, either through merging with or acquiring an already listed company. An example in our sample of China's largest listed companies is Guangdong Investment Ltd., listed in Hong Kong and majority-owned by Guangdong provincial government. The company obtained its listing status on the Stock Exchange of Hong Kong in 1987 through acquiring a majority stake in Union Globe Development Ltd., which got listed in Hong Kong over a decade earlier in 1973.

[89] We used Bloomberg's revenue data in preference to Wind as they are more consistent with the accounting conventions used for the Fortune Global 500 rankings. Revenue data for 2021 are not available yet at the time of writing and therefore not shown in Figure 8.

[90] We did not come across cases where foreign companies or individuals were listed as "actual controller" or "controlling shareholder" without owning a majority stake. A special case is Changyu Wine, which disclosed three "actual controllers," including two foreign ones (the International Finance Corporation, part of the World Bank Group, and Italy-based Illva-Saronno); but the Chinese one (Yantai Changyu Group) owns an absolute majority of Changyu's shares, and therefore we have retained Changyu Wine within our scope.

removed all duplicates so that they appear only once in our dataset. In such cases, we used the higher market cap numbers, which generally correspond to the jurisdictions where most shares are traded (in our observation period, discrepancies between market caps in different jurisdictions did not have a material impact on a company's ranking). We took that basis to compose our Listed Top 100 rankings for each year-end between 2010 and 2021, which are thus blind to the companies' choice of listing venue(s).

For each company, we identified the top shareholders as listed by Wind on the basis of company disclosures mostly by the end of 2020. On that basis, we correspondingly coded each company into one of our three ownership categories (SOE, MOE, NPE) as presented in section 1. While we did not document ownership structures in detail at each year-end, we systematically investigated if there had been changes of ownership from end-2010 to end-2021 that would change the ownership category, so that each company is coded in each year in its correct category at the time. For those listed companies that formed the Top 100 by market cap in 2010, we also calculated the Chinese state's equity stake at that time to compare it with its stake as of end-2020 (Table 7 and Figure 10)[91].

Because the production of our listed companies dataset turned out to be time-consuming, we decided not to go farther back in time than 2010. We were able to use an earlier starting date, namely 2005 (based on 2004 financials), for the Chinese Fortune 500 companies, thanks to prior research work done by Fortune to produce their rankings.

Overall, we counted 253 listed Chinese companies that have made it to the Listed Top 100 at any of our twelve year-ends of observation (year-end for each year from 2010 to 2021).

Ownership analysis

For listed companies, our analysis of ownership is based on corporate disclosures in line with the applicable regulations, as compiled by Wind. In principle, all individual ownership stakes of 5 percent or more are observable:

- In mainland China, China Securities Regulatory Commission (CSRC) regulations of March 2021 stipulate that listed companies disclose in their annual report the individual ownership stakes of

[91] The shareholder information as of end-2021 is not available yet at the time of writing and therefore end-2020 information was used instead.

their 10 biggest shareholders, as well as any stake of 5 percent or more, in addition to any controlling shareholders and/or actual controllers (see Box 1)[92].

- In Hong Kong, applicable legislation mandates that shareholders who are interested in 5 percent or more of any class of voting shares in a listed corporation in Hong Kong must disclose their interests (as well as short positions), in voting shares of the listed corporation[93].
- In the United States, when a person or group of persons acquires beneficial ownership of more than 5 percent of a voting class of a company's equity securities registered under the Securities Exchange Act, they are required to file what is known as a "beneficial ownership report" with the Securities and Exchange Commission (SEC)[94].

Wind also has many stakes under 5 percent. In practice, and leaving aside any cases of noncompliance and ineffective enforcement, we may miss ownership concentrations that are channelled through multiple investment vehicles, each of which is too small to feature in our observation of significant ownership stakes. We assume that such hidden concentrations of ownership are not widespread enough to materially impact the trend we observe, and we are not aware of any indications that such might be the case[95].

To the extent needed and practical, in some cases, we have relied on complementary sources such as media reports and corporate communications. For unlisted companies, Wind provides information on shareholders, which is typically complete and reliable for SOEs, though much less generally so for NPEs. Reliable ownership information on unlisted Chinese NPEs is notoriously difficult to find, as has been widely commented in the media in cases such as Huawei[96]. For that reason, we cannot rule out that some of the unlisted groups (in Fortune 500 rankings) that we have labelled NPEs may be in fact MOEs or even SOEs. For listed companies, we believe the scope for such miscoding is altogether limited, even though in some special cases it is hard to be certain.

A case that is both representative and highly idiosyncratic is that of Haier Smart Home (known until 2020 as Qingdao Haier), one of the world's leading appliance makers, which is controlled by Haier

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[92] See Article 14 of the Administrative Measures for the Disclosures of Information of Listed Companies promulgated by the CSRC in March 2021, at http://www.csrc.gov.cn/pub/zjhpublic/ zjh/202103/t20210319_394491.htm.
[93] See https://www.sfc.hk/en/Regulatory-functions/Corporates/Disclosure-of-Interests.
[94] See https://www.investor.gov/introduction-investing/investing-basics/glossary/schedules-13d-and-13g.
[95] Even high-profile media revelations of concealed holdings of large-company shares by politically exposed Chinese individuals have typically been about small equity ownership stakes. See, for example, David Barboza, "Billions in Hidden Riches for Family of Chinese Leader," *New York Times*, October 25, 2012, at https://www.nytimes.com/2012/10/26/business/ global/family-of-wen-jiabao-holds-a-hidden-fortune-in-china.html, which refers to a 3 percent stake in Ping An of China in 2002 and is thus before our observation period.
[96] See Raymond Zhong, "Who Owns Huawei? The Company Tried to Explain. It Got Complicated," *New York Times*, April 25, 2019, at https://www.nytimes.com/2019/04/25/technology/who-owns-huawei.html.

Group, a Qingdao-headquartered entity. Haier's disclosures include puzzling language such as *"According to the statement issued by the State-owned Assets Management Office of Qingdao on 1 June 2002, it is believed that the enterprise nature of Haier Group Company is a collective owned enterprise"*[97]. In the absence of tangible evidence of any state ownership of Haier Group, we have labelled it an NPE, but without a high level of confidence. A 2012 article stated without referencing a source that *"largely through the Haier Group that goes back to the state-owned factory, government entities own 46.5% of Qingdao Haier"*[98].

Sector classifications

We coded each company, in both our datasets of Listed Top 100 companies and Chinese Fortune 500, into one of fourteen sectors (or industries), based on our understanding of the company's business as of late 2021. We composed the list of sectors on the basis of broadly accepted market practices, with adaptation as best we could to the Chinese context—there is no single reference taxonomy for such matters. For simplicity, we have kept the sector code constant for each company over the entire period of analysis, ie by construction there are no cases of companies changing sector over time in our classification. Cases of change of sector category are rare among China's largest companies.

For coding the sector that we call 'platforms', we relied on a formal source instead of our judgment. Platform companies can be viewed as a subset of the sector we call 'Consumer products and services', but we reckon that their exceptional recent growth, especially in terms of market cap, justifies a separate sector category. The criterion we used for labelling a company as platform is from an administrative guidance meeting convened in April 2021 jointly by China's State Administration for Market Regulation, Cyberspace Administration of China, and State Taxation Administration, in which the 34 companies invited were specifically referred to as 'platform companies'[99].

We used that list as our definition of platforms, which may be viewed as erring on the side of excessive inclusiveness: For example, Suning.com, which is on the meeting's list, was a brick-and-mortar retail company before entering the e-commerce space and has not been spectacularly successful at the latter. Fourteen of these 34 companies are included in our dataset, of which 8 were in the end-2021

97 See Haier Smart Home Co. Ltd. 2019 Annual Report, English-language version consulted at http://smart-home.haier.com/en/yjbg/P020200604564589608928.pdf.
98 Ron Gluckman, "Appliances for Everyone," *Forbes*, April 25, 2012, at https://www. forbes.com/global/2012/0507/global-2000-12-feature-haier-zhang-ruimin-appliances. html?sh=186108591c6a.
99 The list (in Chinese) is available at http://www.gov.cn/xinwen/2021-04/13/content_5599323. htm.

Listed Top 100 ranking (appendix C); the others are either unlisted or their market cap has been too small to be included in a Listed Top 100 ranking at any point during the 2010-2021 period.

APPENDIX B

CHINESE COMPANIES IN 2021 FORTUNE GLOBAL 500 RANKING

See notes at the end of the table for explanation of acronyms.

Group name	Chinese name	Ranking in Fortune Global 500 (2021)	Parent entity listing status (Fortune)	Group listing category	Ownership category	Ownership	Group revenue, 2020 (millions of dollars)	% revenue from listed subsidiary	Industry
State Grid	国家电网	2	Unlisted	Nonlisted	SOE	Central SASAC 100%	$386.618	0%	Coal and electricity
CNPC/China National Petroleum Corp. (PetroChina)	中国石油	4	Unlisted	Quasi-listed	SOE	Central SASAC 100%	$283.958	99%	Oil, gas & chemicals
Sinopec Group - China Petrochemical Corporation	中国石化	5	Unlisted	Quasi-listed	SOE	Central SASAC 100%	$283.728	105%	Oil, gas & chemicals
CSCEC - China State Construction Engineering Corp.	中国建筑集团	13	Unlisted	Quasi-listed	SOE	Central SASAC 100%	$234.425	100%	Infrastructure & construction
Ping An of China	中国平安	16	Listed	Listed	MOE	Charoen Pokphand 8.1%, Shenzhen SASAC 6.7%, UBS 5.3%, JP Morgan Chase 4.5%, CSF 3%, Huijin 2.7%	$191.509	100%	Other financial services
ICBC - Industrial & Commercial Bank of China	中国工商银行	20	Listed	Listed	SOE	Central Huijin 35.2%, PRC MoF 31.6%	$182.794	100%	Bank
CCB - China Construction Bank	中国建设银行	25	Listed	Listed	SOE	Central Huijin 57%	$172.000	100%	Bank
ABC - Agricultural Bank of China	中国农业银行	29	Listed	Listed	SOE	Central Huijin 40%, MoF 35.3%, NSSF 6.7%, China Life Insurance 1.6%	$153.885	100%	Bank
China Life Insurance Group	中国人寿	32	Unlisted	Partially listed	SOE	PRC State Council 100%	$144.589	81%	Other financial services
CRECG - China Railway Engineering Group	中国中铁	35	Unlisted	Nonlisted	SOE	Central SASAC 100%	$141.384	0%	Infrastructure & construction
Bank of China	中国银行	39	Listed	Listed	SOE	Central Huijin 64.6%, CSF 2.9%, NSSF 2.3%, BlackRock 1.7%	$134.046	100%	Bank
CRCC - China Railway Construction Corp.	中国铁建	42	Unlisted	Quasi-listed	SOE	Central SASAC 100%	$131.992	100%	Infrastructure & construction

Huawei Investment & Holding	华为	44	Unlisted	Nonlisted	NPE	Labor Union of Huawei Inv. Holdings (reportedly owned by founders and staff) 99.3%	$129.184	0%	Manufacturing
China Mobile Communications Group Ltd	中国移动	56	Unlisted	Quasi-listed	SOE	Central SASAC 100%	$111.826	100%	Telecoms
JD.com	京东集团	59	Listed	Listed	NPE	Tencent 17.8%, Richard Qiangdong Liu 16.2%, Walmart 9.8%	$108.087	100%	Platform
SAIC Motor	上汽集团	60	Listed	Listed	SOE	Shanghai Municipal SASAC 71.2%, Nanjing Municipal SASAC 3.5%, CSF 3%	$107.555	100%	Manufacturing
China Communications Construction	中国交建	61	Unlisted	Quasi-listed	SOE	Central SASAC 100%	$106.868	85%	Infrastructure & construction
Alibaba Group Holding	阿里巴巴	63	Listed	Listed	NPE	SoftBank 24.9%, Jack Ma 4.8%	$105.866	100%	Platform
China Minmetals	中国五矿	65	Unlisted	Partially listed	SOE	Central SASAC 100%	$102.015	10%	Steel, metals & materials
FAW Group	一汽集团	66	Unlisted	Nonlisted	SOE	Central SASAC 100%	$101.076	16%	Manufacturing
Hengli Group	恒力集团	67	Unlisted	Nonlisted	NPE	Chen Jianhua 98%, Fan Weihong 2%	$100.773	0%	Manufacturing
Amer International Group	深圳正威	68	Unlisted	Nonlisted	NPE	Wang Wenyin 90%, Wang Wenzhuan 10%	$100.281	0%	Steel, metals & materials
China Resources	华润集团	69	Unlisted	Partially listed	SOE	Central SASAC 100%	$99.438	78%	Conglomerate
Shandong Energy Group	山东能源集团	70	Unlisted	Nonlisted	SOE	Shandong Provincial SASAC 90%, Shandong Provincial DoF 10%	$97.861	0%	Coal and electricity
Baowu - China Baowu Steel Group	中国宝武钢铁集团	72	Unlisted	Partially listed	SOE	Central SASAC 90%, NSSF 10%	$97.643	42%	Steel, metals & materials
China Post Group Corp.	中国邮政	74	Unlisted	Partially listed	SOE	PRC MoF 90%, NSSF 10%	$96.304	70%	Transportation & logistics
Dongfeng Motor Corporation	东风集团	85	Unlisted	Partially listed	SOE	Central SASAC 100%	$86.856	18%	Manufacturing
PICC - People's Insurance Co. of China	中国人保集团	90	Listed	Listed	SOE	MoF 60.8%, NSSF 15.7%, Capital Group 1.6%	$84.290	100%	Other financial services
CSG - China Southern Power Grid	南方电网	91	Unlisted	Nonlisted	SOE	Guangdong provincial government 38.4%, China Life Insurance 32%, Central SASAC 26.4%, Hainan provincial government 3.2%	$83.699	0%	Coal and electricity
CNOOC - China National Offshore Oil Corp.	中国海洋石油	92	Unlisted	Partially listed	SOE	Central SASAC 100%	$83.296	27%	Oil, gas & chemicals
CHN Energy - China Energy Investment	国家能源集团	101	Unlisted	Nonlisted	SOE	Central SASAC 100%	$80.716	0%	Coal and electricity
PowerChina - Power Construction Corp. of China	中国电力建设	107	Unlisted	Partially listed	SOE	Central SASAC 100%	$78.487	74%	Infrastructure & construction
Sinopharm - China Nat. Pharmaceutical Group Corp.	国药集团	109	Unlisted	Quasi-listed	SOE	PRC State Council 100%	$77.278	86%	Pharma & life sciences

COFCO - China Oil and Foodstuffs Corporation	中粮集团	112	Unlisted	Nonlisted	SOE	Central SASAC 100%	$76.856	7%	Consumer products & services
CITIC Group	中信集团	115	Unlisted	Quasi-listed	SOE	PRC MoF 90%, NSSF 10%	$74.689	126%	Conglomerate
Evergrande Group	恒大集团	122	Listed	Listed	NPE	Xu Jiayin 71.8%	$73.514	100%	Real estate
Beijing Automotive Group	北汽集团	124	Unlisted	Nonlisted	SOE	Beijing Municipal SASAC 100%	$72.147	0%	Manufacturing
China Telecommunications Corp.	中国电信	126	Unlisted	Quasi-listed	SOE	Central SASAC 100%	$71.401	80%	Telecoms
Norinco - China North Industries Group	中国北方工业	127	Unlisted	Nonlisted	SOE	Central SASAC 100%	$71.018	0%	Manufacturing
Tencent Holdings	腾讯控股	132	Listed	Listed	NPE	Naspers 31%, Pony Ma 7.4%, Pony Ma Global Foundation 1%	$69.864	100%	Platform
BoCom - Bank of Communications	交通银行	137	Listed	Listed	MOE	PRC MoF 23.9%, HSBC 18.7%, NSSF 6.1%, CSF 3.0%, other government entities 3.8%	$67.606	100%	Bank
Jinneng Group (ex Datong Coal)	晋能控股电力集团	138	Unlisted	Nonlisted	SOE	Shanxi Provincial SASAC 64.1%, Jincheng City SASAC 8.8%, Changzhi City SASAC 6.8%, Yangquan City SASAC 6%, 8 other local SASACs each holding less than 4%	$67.535	8%	Coal and electricity
Country Garden Holdings	碧桂园	139	Listed	Listed	NPE	Yang Huiyan 57.6%	$67.080	100%	Real estate
AVIC - Aviation Industry Corp. of China	中国航空工业	140	Unlisted	Nonlisted	SOE	Central SASAC 100%	$66.964	6%	Manufacturing
Greenland Holding Group	绿地集团	142	Listed	Listed	MOE	Shanghai Municipal SASAC 46.4%, Greenland Inv. (employee-owned) 29.1%, CSF 2.9%, Shanghai Tianshen (privately-owned) 2.3%	$66.096	100%	Real estate
Xiamen C&D Group	厦门建发集团	148	Unlisted	Nonlisted	SOE	Xiamen Municipal SASAC 100%	$64.112	0%	Conglomerate
CPCG - China Pacific Construction Group	太平洋建设	149	Unlisted	Nonlisted	NPE	Yan Hao 90%, Yan Xin 10%	$64.038	0%	Infrastructure & construction
Sinochem Group	中化集团	151	Unlisted	Nonlisted	SOE	Central SASAC 100%	$63.544	19%	Oil, gas & chemicals
CPIC - China Pacific Insurance (Group)	中国太平洋保险	158	Listed	Listed	MOE	Shanghai Municipal SASAC 19.5%, Central SASAC 13.35%, Citibank 5.8%	$61.186	100%	Other financial services
Lenovo Group	联想集团	159	Listed	Listed	NPE	Legend Holdings Corp. 23.9%, Union Star Ltd. 8.0%, Sureinvest Holdings Ltd. 5.2%	$60.742	100%	Manufacturing
China Vanke	万科	160	Listed	Listed	MOE	Shenzhen Municipal SASAC 27.9%	$60.741	100%	Real estate
ChemChina - China National Chemical Corp.	中国化工	161	Unlisted	Nonlisted	SOE	Central SASAC 100%	$60.492	5%	Oil, gas & chemicals

China Merchants Bank	招商银行	162	Listed	Listed	MOE	Central SASAC 34.4%, Hexie Health Insurance 5%, Dajia Life Insurance 4.1%, CSF 3%	$60.433	100%	Bank
China Merchants Group	招商局集团	163	Unlisted	Partially listed	SOE	Central SASAC 100%	$60.281	33%	Conglomerate
Wuchan Zhongda / Zhejiang Materials Industry Group	物产中大集团	170	Listed	Listed	SOE	Zhejiang Provincial SASAC 43.7%	$58.546	100%	Steel, metals & materials
Xiamen ITG Holding Group	厦门国贸集团	171	Unlisted	Nonlisted	SOE	Xiamen Municipal SASAC 100%	$58.279	0%	Transportation & logistics
China Poly Group	中国保利集团	174	Unlisted	Nonlisted	SOE	Central SASAC 91.63%, NSSF 8.37%	$58.072	0%	Conglomerate
GAIG - Guangzhou Automobile Industry Group	广汽集团	176	Unlisted	Nonlisted	SOE	Guangzhou Municipal SASAC 100%	$57.724	16%	Manufacturing
CNBM - China National Building Material Group	中国建材	177	Unlisted	Nonlisted	SOE	Central SASAC 100%	$57.115	0%	Steel, metals & materials
XMXYG - Xiamen Xiangyu Group	厦门象屿集团	189	Unlisted	Quasi-listed	SOE	Xiamen Municipal SASAC 100%	$54.324	96%	Transportation & logistics
China Everbright Group	中国光大集团	194	Unlisted	Nonlisted	SOE	Central Huijin 63.2%, PRC MoF 33.4%, NSSF 3.4%	$53.429	0%	Conglomerate
Industrial Bank	兴业银行	196	Listed	Listed	MOE	Fujian Province 18.8%, PICC 10.7%, China National Tobacco Corp. 7.5%, CSF 3%, Huaxia Life Insurance 2.7%, Yango Holdings 2.4%	$53.314	100%	Bank
Chinalco - Aluminum Corp. of China	中国铝业	198	Unlisted	Nonlisted	SOE	Central SASAC 90%, NSSF 10%	$53.191	0%	Steel, metals & materials
HBIS - Hebei / HeSteel Group	河北钢铁集团	200	Unlisted	Partially listed	SOE	Hebei provincial government 100%	$52.761	30%	Steel, metals & materials
SPD - Shanghai Pudong Development Bank	上海浦发银行	201	Listed	Listed	SOE	Shanghai Municipal SASAC 29.5%, Funde Sino Life Insurance 19.8%, China Mobile 18.2%, CSF 4.5%, Huijin 1.4%	$52.628	100%	Bank
Shaanxi Coal & Chemical Industry	陕西煤化集团	220	Unlisted	Partially listed	SOE	Shaanxi Provincial SASAC 100%	$49.314	28%	Coal and electricity
China Minsheng Banking	中国民生银行	224	Listed	Listed	MOE	Dajia Insurance 16.8%, China Oceanwide Holdings Group 4.6%, Central SASAC 4.3%, New Hope Group 4.2%, Shanghai Jiante Life Technology 3.2%, Hua Xia Life Insurance 3.1%, China Shipowners	$49.076	100%	Bank

						Mutual Assurance Association 3.0%, Orient Group 2.9%			
Jiangxi Copper	江西铜业	225	Unlisted	Nonlisted	SOE	Jiangxi Provincial SASAC 90%, Jiangxi Provincial DoF 10%	$48.820	0%	Steel, metals & materials
COSCO - China Ocean Shipping (Group) Company	中国远洋运输	231	Unlisted	Partially listed	SOE	Central SASAC 90%, NSSF 10%	$47.998	52%	Transportation & logistics
Shaanxi Yanchang Petroleum (Group)	延长石油集团	234	Unlisted	Nonlisted	SOE	Shaanxi Provincial SASAC 51%, Yanan City SASAC 44%, Yulin City SASAC 5%	$47.529	7%	Oil, gas & chemicals
Zhejiang Geely Holding Group	吉利控股	239	Unlisted	Nonlisted	NPE	Li Shufu 91.1%, Li Xingxing 8.9%	$47.191	0%	Manufacturing
CSSC - China State Shipbuilding	中国船舶集团	240	Unlisted	Nonlisted	SOE	Central SASAC 100%	$46.845	0%	Manufacturing
China Huaneng Group	中国华能集团	248	Unlisted	Nonlisted	SOE	Central SASAC 100%	$45.750	11%	Coal and electricity
Zhejiang Rongsheng Holding Group	浙江荣盛集团	255	Unlisted	Partially listed	NPE	Li Shuirong 60.9%, Li Guoqing 9.1%, Xu Yuejuan 9.1%, Li Yongqing 9.1%, Ni Xincai 4.6%, Zhejiang Jinyi AM 3.2%, Zhao Guanlong 3%, West Trust Co. Ltd. 1%	$44.726	37%	Oil, gas & chemicals
China Unicom	中国联通	260	Listed	Listed	SOE	Central SASAC (via China Unicom Group) 80.7%	$44.034	100%	Telecoms
Tsingshan Holding Group	青山控股	279	Unlisted	Nonlisted	NPE	Shanghai Decent Inv. Group 23.7%, Xiang Guangda 22.3%, Zhejiang Qingshan Management 11.5%, Xiang Guangtong 8%, Zhang Jimin 5%, Sun Yuanlin 5%, Jiang Haihong 4%, Xiang Bingxue 4%, He Congzheng 4%, Feng Shaode 4%, Chen Shangsong 3%, Xiang Haiya 2%, Zhang Jilun 2%, Xu Yonghe 1.5%	$42.448	0%	Steel, metals & materials
Shandong Weiqiao Pioneering Group	山东魏桥创业集团	282	Unlisted	Nonlisted	NPE	Shandong Weiqiao Inv. Holdings 39%, Binzhou Hanchuang Science & Technology Dev. Partnership Enterprise LP 20%, Zhang Shiping 18.8%, multiple individual shareholders 22.2%	$41.879	4%	Manufacturing
Sinomach - China National Machinery Industry Corp.	中国机械工业集团	284	Unlisted	Partially listed	SOE	Central SASAC 100%	$41.712	22%	Manufacturing
Midea Group	美的集团	288	Listed	Listed	NPE	He Xiangjian 30.9%, CSF 2.8%, Fang Hongbo 1.7%, Canada Pension Plan	$41.407	100%	Manufacturing

						Inv. Board 1.5%, Huijin 1.3%, Huang Jin 1.3%			
SPIC - State Power Investment	国家电投	293	Unlisted	Partially listed	SOE	Central SASAC 100%	$40.323	26%	Coal and electricity
China Energy Engineering Group	中国能源建设	301	Unlisted	Quasi-listed	SOE	Central SASAC 100%	$39.439	99%	Infrastructure & construction
CASC - China Aerospace Science & Technology	中国航天科技集团	307	Unlisted	Nonlisted	SOE	Central SASAC 100%	$38.742	0%	Manufacturing
Jiangsu Shagang Group	江苏沙钢集团	308	Unlisted	Nonlisted	NPE	Shen Wenrong 29.3%, Zhangjiagang Bonded Zone Xinghengde Trade Co. Ltd. 29.1%, Zhangjiagang Bonded Zone Runyuan Stainless Steel Trade Co. Ltd. 17.7%, Ningbo Meishan Bonded Zone Jincheng Shazhou Equity Inv. Co. Ltd. 7.1%, multiple individual shareholders 16.8%	$38.665	0%	Steel, metals & materials
Zhejiang Hengyi Group	浙江恒逸集团	309	Unlisted	Nonlisted	NPE	Hangzhou Wanytong Industrial Inv. 27%, Qiu Xiangjuan 26.2%, Qiu Jianlin 26.2%, multiple individual shareholders 20.6%	$38.562	0%	Oil, gas & chemicals
Shenghong Holding Group	盛虹集团	311	Unlisted	Nonlisted	NPE	Shenghong Holdings 62.3%, Suzhou Shenghong Industrial Co. 37.4%, Miao Hangen 0.2%, Tang Jinkui 0.1%	$38.440	9%	Coal and electricity
Anhui Conch Group	海螺水泥	315	Unlisted	Nonlisted	SOE	Anhui Provincial SASAC 51%, China Conch Venture Holdings (HK) Ltd. 49%	$37.930	0%	Steel, metals & materials
CASIC - China Aerospace Science & Industry	中国航天科工集团	320	Unlisted	Nonlisted	SOE	Central SASAC 100%	$37.697	0%	Manufacturing
Suning.com Group	苏宁易购	328	Listed	Listed	NPE	Zhang Jindong 21.0%, Taobao 20.0%, Suning entities (privately-owned) 20.8%	$36.565	100%	Platform
Yango Longking Group (Yango Financial)	阳光控股	332	Unlisted	Nonlisted	NPE	Lin Tengjiao 100%	$36.264	0%	Conglomerate
CEC - China Electronics	中国电子	334	Unlisted	Nonlisted	SOE	Central SASAC 90%, NSSF 10%	$35.931	0%	Manufacturing
Jinchuan Group	金川集团	336	Unlisted	Nonlisted	SOE	Gansu Provincial SASAC 63.9%, CDB 13.5%, Baowu Steel Group 9.7%, China-Africa Development Fund 1.4%, multiple corporate shareholders 11.5%	$35.907	0%	Steel, metals & materials
Xiaomi	小米	338	Listed	Listed	NPE	Lei Jun 26.5%	$35.633	100%	Manufacturing

Taikang Insurance Group	泰康保险集团	343	Unlisted	Nonlisted	NPE	Jiade Inv. Holdings 23.8%, Goldman Sachs 12.6%, Xinzheng Taida Inv. 11.4%, Beijing Wuhong United Inv. Co. Ltd. 11%, multiple corporate shareholders 41.2%	$35.476	0%	Other financial services
China Taiping Insurance Group	中国太平保险	344	Unlisted	Quasi-listed	SOE	PRC MoF 100%	$35.461	98%	Other financial services
CRRC Group	中国中车	349	Unlisted	Quasi-listed	SOE	Central SASAC 100%	$34.778	95%	Manufacturing
CSGC - China South Industries Group	中国南方工业集团	351	Unlisted	Nonlisted	SOE	PRC State Council 100%	$34.455	0%	Manufacturing
China Huadian	中国华电	352	Unlisted	Nonlisted	SOE	Central SASAC 90%, NSSF 10%	$34.440	0%	Coal and electricity
CETC - China Electronics Technology Group	中国电子科技集团	354	Unlisted	Nonlisted	SOE	Central SASAC 100%	$34.311	0%	Manufacturing
Cedar Holdings Group	雪松控股	359	Unlisted	Nonlisted	NPE	Zhang Jin 100%	$33.837	11%	Conglomerate
SCG - Shanghai Construction Group	上海建工集团	363	Listed	Listed	SOE	Shanghai Municipal SASAC 53.1%	$33.526	100%	Infrastructure & construction
Sunac China Holdings	融创中国	364	Listed	Listed	NPE	Sunac International Inv. Holdings Ltd. 43.7%	$33.418	100%	Real estate
CNNC - China National Nuclear Corporation	中核集团	371	Unlisted	Partially listed	SOE	Central SASAC 100%	$32.663	56%	Manufacturing
Jingye Group	敬业集团	375	Unlisted	Nonlisted	NPE	Li Ganpo 89%, Ren Yonghua 11%	$32.528	0%	Steel, metals & materials
Shandong Iron & Steel Group	山东钢铁集团	384	Unlisted	Partially listed	SOE	Shandong Provincial SASAC 90%, Shandong Provincial DoF 10%	$31.990	40%	Steel, metals & materials
New Hope Holding Group	新希望集团	390	Listed	Listed	NPE	Liu Yonghao 56.1%	$31.606	100%	Consumer products & services
Shenzhen Investment Holdings	深圳市投资控股	396	Unlisted	Nonlisted	SOE	Shenzhen Municipal SASAC 100%	$31.144	0%	Conglomerate
Ansteel - Anshan Iron and Steel Group Corporation	鞍钢集团	400	Unlisted	Partially listed	SOE	Central SASAC 100%	$30.886	47%	Steel, metals & materials
Shanxi Coking Coal Group	山西焦煤集团	403	Unlisted	Nonlisted	SOE	Shanxi Provincial SASAC 90%, Shanxi Provincial DoF 10%	$30.454	16%	Coal and electricity
Haier Smart Home	海尔智家	405	Listed	Listed	NPE	Haier Group 32.4%, JPMorgan Chase & Co. 2.4%, CSF 1.9%	$30.395	100%	Manufacturing
TongLing Nonferrous Metals Group	铜陵有色金属集团	407	Unlisted	Nonlisted	SOE	Anhui Provincial SASAC 100%	$30.301	0%	Steel, metals & materials
Shougang Group	首钢集团	411	Unlisted	Partially listed	SOE	Beijing Municipal SASAC 100%	$30.054	39%	Steel, metals & materials

New China Life Insurance	新华保险	415	Listed	Listed	MOE	Central Huijin 32.3%, Central SASAC 12.1%, Fosun Int'l 6.7%, CSF 3%, Swiss Re 2.5%	$29.545	100%	Other financial services
Weichai Power	潍柴动力	425	Listed	Listed	MOE	Shandong Provincial SASAC 17.7%, Lazard AM 4.1%, Weifang Municipal SASAC 3.7%, CSF 2.1%.	$28.622	100%	Manufacturing
Hailiang Group	海亮集团	428	Unlisted	Nonlisted	NPE	Feng Hailiang 41.2%, Ningbo Zhetao Inv. Holdings 38.1%, Ningbo Dunshi Inv. 8.8%, ICBC Financial Assets Inv. 5.5%, multiple individual shareholders 6.4%	$28.467	0%	Conglomerate
GT - China General Technology Group	中国通用技术集团	430	Unlisted	Nonlisted	SOE	PRC State Council 100%	$28.379	0%	Manufacturing
Beijing Jianlong Heavy Industry Group	北京建龙重工集团	431	Unlisted	Nonlisted	NPE	Zhang Zhixiang 100%	$28.362	0%	Steel, metals & materials
Zhejiang Communications Investment Group	浙江省交通投资集团	433	Unlisted	Partially listed	SOE	Zhejiang Provincial SASAC 90%, Zhejiang Provincial DoF 10%	$28.168	27%	Infrastructure & construction
China Datang	中国大唐	435	Unlisted	Nonlisted	SOE	Central SASAC 100%	$27.928	0%	Coal and electricity
Shanghai Pharmaceuticals Holding	上海医药	437	Listed	Listed	SOE	Shanghai Municipal SASAC 38.1%, CSF 3%, BlackRock 2%	$27.813	100%	Pharma & life sciences
Guangxi Investment Group	广西投资集团	439	Unlisted	Nonlisted	SOE	Guangxi Zhuang Autonomous Region Government 100%	$27.708	0%	Conglomerate
Xinjiang Guanghui Industry Investment	新疆广汇实业投资集团	444	Unlisted	Nonlisted	NPE	Sun Guangxin 50.1%, Evergrande Group 41%, Xinjiang Chuangjia Equity Inv. 5.2%, multiple individual shareholders 3.7%	$27.448	0%	Consumer products & services
ChinaCoal - China National Coal Group	中国中煤能源集团	451	Unlisted	Partially listed	SOE	Central SASAC 92.2%, NSSF 7.8%	$27.105	75%	Coal and electricity
Longfor Group Holdings	龙湖集团	456	Listed	Listed	NPE	Charm Talent Int'l Ltd. (trust whose beneficiary is founders' daughter) 43.75%, Cai Kui 23.3%, Jumbomax Inv. Ltd. 5.8%	$26.746	100%	Real estate
Guangzhou Municipal Construction Group	广州市建筑集团	460	Unlisted	Nonlisted	SOE	Guangzhou Municipal SASAC 100%	$26.682	0%	Infrastructure & construction
Guangzhou Pharmaceutical Holdings	广州医药集团	468	Unlisted	Nonlisted	SOE	Guangzhou Municipal SASAC 100%	$26.070	0%	Pharma & life sciences

Yunnan Provincial Inv. Holding Group	云南省投资控股集团	471	Unlisted	Nonlisted	SOE	Yunnan Provincial SASAC 90%, Yunnan Provincial DoF 10%	$25.887	0%	Conglomerate
Huayang New Material Tech. Group (ex Yangquan)	华阳新材料科技集团	481	Unlisted	Nonlisted	SOE	Shanxi Provincial SASAC 59.8%, China Cinda AM 34.7%, Shanxi Coal Coking Group 5.6%	$25.188	0%	Coal and electricity
Zijin Mining Group	紫金矿业集团	486	Listed	Listed	SOE	Shanghang County SASAC 24.0%, CSF 2.7%	$24.855	100%	Steel, metals & materials
Gree Electric Appliances	格力电器	488	Listed	Listed	NPE	Zhuhai Mingjun Inv. Partnership 15%, Jinghai Internet Dev. Co. (privately-owned) 8.2%, Zhuhai Municipal SASAC 4.79%, CSF 3.0%, Huijin 1.4%	$24.710	100%	Manufacturing
China Reinsurance (Group)	中国再保险（集团）	497	Listed	Listed	SOE	Central Huijin 71.6%	$24.376	100%	Other financial services

Sources: Fortune; Bloomberg; Wind; authors' calculations. SOE = state-owned enterprise; MOE = mixed-ownership enterprise; NPE = nonpublic enterprise. CSF = China Securities Finance; NSSF = National Social Security Fund; MoF = Ministry of Finance; DoF = Department of Finance; BoF = Bureau of Finance; AM = Asset Management; Central Huijin abbreviated to "Huijin" when it is a small minority shareholder.

APPENDIX C

CHINESE TOP LISTED 100 COMPANIES BY MARKET CAPITALISATION AT END-2021

See notes at the end of the table for explanation of acronyms.

Listed company name	Chinese name	Ticker(s) in China, Hong Kong, and/or US	First listing date	Market cap rank, end-2021	Market cap, end-2021 (billions of dollars)	Ownership category	Actual controller (as of end-2020)	Shareholders disclosed above 1%	Date of shareholders disclosure	Industry
Tencent Holdings	腾讯控股	0700.HK, TCEHY.OO	16/06/2004	1	563,0	NPE	NA	Naspers 31%, Pony Ma 7.4%, Pony Ma Global Foundation 1%	31/12/2020	Platform
Kweichow Moutai	贵州茅台	600519.SH	27/08/2001	2	403,9	SOE	Guizhou Provincial SASAC	Guizhou Provincial SASAC 54%	31/12/2020	Consumer products & services
Alibaba Group Holding	阿里巴巴	9988.HK, BABA.N	19/09/2014	3	330,7	NPE	NA	SoftBank 24.9%, Jack Ma 4.8%	02/07/2020	Platform
ICBC - Industrial & Commercial Bank of China	中国工商银行	601398.SH, 1398.HK	27/10/2006	4	244,8	SOE	None	Central Huijin 35.2%, MoF 31.6%, NSSF 6%, Ping An 4.5%, Temasek 2.1%, China Life Insurance 1.4%	31/12/2020	Bank
CATL (Ningde Era)	宁德时代	300750.SZ	11/06/2018	5	215,0	NPE	Zeng Yuqun, Li Ping	Zeng Yuqun (via Ruiting Inv.) 24.5%, Huang Shilin 11.2%, Ningbo Lianhe New Energy Inv. (privately-owned) 6.8%, Li Ping 4.8%, CMB International 4.8%, Hillhouse Capital Mgmt Ltd. 2.3%, Yu Yong 2.3%, Wu Yinming 1.5%	31/12/2020	Manufacturing
China Merchants Bank	招商银行	600036.SH, 3968.HK	09/04/2002	6	193,3	MOE	None	Central SASAC (via China Merchants Group, COSCO and three entities incorporated in Shenzhen) 34.4%, Hexie Health Insurance 5%, Dajia Life Insurance 4.1%, CSF 3%, Best Winner Inv. Ltd. 1.3%, UBS 1.1%	31/12/2020	Bank
Meituan	美团	3690.HK	20/09/2018	7	177,4	NPE	NA	Tencent (via Huai River Inv. Ltd. and Tencent Mobility Ltd.) 17.1%, Crown Holdings Asia Ltd. 8.3%, Sequioia Capital 6.6%, Charmway Enteprises Co. Ltd. 2%, Shared Patience Inc. 1.4%	31/12/2020	Platform

CCB - China Construction Bank	中国建设银行	601939.SH, 0939.HK	27/10/2005	8	175,3	SOE	PRC Government	Central Huijin 57%	31/12/2020	Bank
ABC - Agricultural Bank of China	中国农业银行	601288.SH, 1288.HK	15/07/2010	9	157,8	SOE	None	Central Huijin 40%, MoF 35.3%, NSSF 6.7%, China Life Insurance 1.6%	31/12/2020	Bank
Ping An of China	中国平安	601318.SH, 2318.HK, PNGAY.00	24/06/2004	10	139,3	MOE	None	Charoen Pokphand 8.1%, Shenzhen SASAC 6.7%, UBS 5.3%, JP Morgan Chase 4.5%, CSF 3%, Huijin 2.7%, Dacheng Zhongzheng Financial Assets Mgmt Plan 1.1%, Huaxia Zhongzheng Financial Assets Mgmt Plan 1.1%	31/12/2020	Other financial services
Wuliangye	五粮液	000858.SZ	27/04/1998	11	135,6	SOE	Yibin Municipal SASAC	Yibin Municipal SASAC 54.8%, CSF 2.4%, Huijin 1%	31/12/2020	Consumer products & services
PetroChina Company Limited	中国石油	601857.SH, 0857.HK	07/04/2000	12	134,1	SOE	Central SASAC	Central SASAC 84.1%	31/12/2020	Oil, gas & chemicals
Bank of China	中国银行	601988.SH, 3988.HK	01/06/2006	13	131,0	SOE	PRC Government	Central Huijin 64.6%, CSF 2.9%, NSSF 2.3%, BlackRock 1.7%	31/12/2020	Bank
China Mobile	中国移动	0941.HK	23/10/1997	14	122,9	SOE	NA	Central SASAC 72.7%	31/12/2020	Telecom
BYD	比亚迪	002594.SZ, 1211.HK	31/07/2002	15	113,8	NPE	Wang Chuanfu	Wang Chuanfu 18%, Lyu Xiangyang (partly via Guangzhou Youngy Inv. & Mgmt Group) 16.2%, Berkshire Hathaway Energy 7.9%, Xia Zuoquan 3.3%	31/03/2021	Manufacturing
China Life Insurance	中国人寿	601628.SH, 2628.HK	18/12/2003	16	110,6	SOE	PRC Ministry of Finance	MoF (via China Life Group) 68.4%, CSF 2.6%, BlackRock 1.8%	31/12/2020	Other financial services
JD.com	京东集团	9618.HK, JD.O	22/05/2014	17	109,2	NPE	NA	Tencent (via Huang River Inv. Ltd.) 17.8%, Richard Qiangdong Liu (partly via Max Smart Ltd. and Fortune Rising Holdings Ltd.) 16.2%, Walmart 9.8%	29/05/2020	Platform
Yangtze Power	长江电力	600900.SH	18/11/2003	18	81,0	SOE	Central SASAC	Central SASAC (via China Three Gorges Corp. and China National Nuclear Corp.) 61%, Ping An 4.3%, Yunnan Provincial SASAC 3.6%, Sichuan Provincial SASAC 3.5%, Citigroup 3.3%, CSF 2.9%, Sunshine Life Insurance 1.9%	31/12/2020	Coal and electricity
Midea Group	美的集团	000333.SZ	18/09/2013	19	80,9	NPE	He Xiangjian	He Xiangjian (via Midea Ltd.) 30.9%, CSF 2.8%, Fang Hongbo 1.7%, Canada Pension Plan Inv. Board 1.5%, Huijin 1.3%, Huang Jin 1.3%	31/12/2020	Manufacturing
Hikvision	海康威视	002415.SZ	28/05/2010	20	76,6	MOE	China Eletronics	Central SASAC (via China Electronics Technology Group) 40.8%, Gong Hongjia 10.9%, Gaoyi Linshan I 33 Fund 2.7%,	31/12/2020	Manufacturing

							Technology Group	Xinjiang Pukang Inv. Co. (privately-owned) 2%, Hu Yangzhong 2%, CITIC Securities 1.1%		
Sinopec	中国石化	600028.SH, 0386.HK	19/10/2000	21	75,3	SOE	Central SASAC	Central SASAC (via Sinopec Group) 68.3%, CSF 2.2%, China Life Insurance 1.3%	31/12/2020	Oil, gas & chemicals
Nongfu Spring	农夫山泉	9633.HK	08/09/2020	22	74,2	NPE	NA	Zhong Shanshan (partly via Yangshengtang Co. Ltd.) 83.4%	31/12/2020	Consumer products & services
LONGi Green Energy Technology	隆基股份	601012.SH	11/04/2012	23	73,2	NPE	Li Xiyan, Li Zhenguo	Li Zhenguo 14.1%, Hillhouse Capital Group 5.9%, Li Xiyan 5%, Shaanxi Provincial SASAC 3.8%, Chen Fashu 2.3%, Li Chunan 2.1%, Zhong Baoshen 1.7%, Huijin 1.5%	31/03/2021	Manufacturing
Mindray	迈瑞医疗	300760.SZ	16/10/2018	24	72,6	NPE	Li Xiting, Xu Hang	Li Xiting and Xu Hang (via several entities) 58.9%, Shenzhen Ruijia Mgmt Consulting Partnership Enterprise 1.5%, Shenzhen Ruixiang Inv. Consulting Partnership Enterprise 1.5%	31/12/2020	Manufacturing
China Postal Savings Bank	中国邮政储蓄银行	601658.SH, 1658.HK	28/09/2016	25	72,0	SOE	China Post Group	China Post Group 65.4%, CSIC Inv. One Ltd. 4.3%, China Life Insurance 3.8%, Shanghai Municipal SASAC 4.1%, China National Tabacco Corp. 1.5%, Central SASAC (via China Telecom) 1.3%, Li Ka Shing Foundation 1.3%, Himalaya Capital Investors 1.2%	31/12/2020	Bank
NetEase	网易	9999.HK, NTES.O	30/06/2000	26	69,8	NPE	NA	Ding Lei 44.7%, Orbis Inv. Mgmt Ltd. 5.1%	25/05/2020	Platform
Haitian Flavouring & Food	海天味业	603288.SH	11/02/2014	27	69,4	NPE	Pang Kang, Chen Xue, Huang Wenbiao, Wu Zhenxing and Chen Junyang	Pang Kang (partly via Guangdong Hai Tian Group Company) 67.8%, Chen Xue 3.2%, Li Xuhui 1.7%, Pan Laican 1.6%	31/12/2020	Consumer products & services
China Tourism Group Duty Free	中国中免	601888.SH	15/10/2009	28	67,2	SOE	Central SASAC	Central SASAC 53.3%, CSF 3%, Pan Feilian 1%	31/12/2020	Consumer products & services
China Shenhua Energy	中国神华	601088.SH, 1088.HK	15/06/2005	29	66,2	SOE	Central SASAC	Central SASAC (via China Energy Inv. Corp.) 69.5%, CSF 3.0%, BlackRock 1%	31/12/2020	Coal and electricity
Pinduoduo	拼多多	PDD.O	26/07/2018	30	62,4	NPE	NA	Huang Zheng 28.7%, Tencent 16%, Qubit GP Ltd. 7.6%, Banyan Partners Fund 7%, Sequoia Funds 6.8%	31/12/2020	Platform
Industrial Bank	兴业银行	601166.SH	05/02/2007	31	62,0	MOE	None	Fujian Province DoF 18.8%, PICC 10.7%, China National Tobacco 7.5%, CSF 3%,	31/12/2020	Bank

								Huaxia Life Insurance 2.7%, Yango Holdings 2.4%		
Xiaomi	小米集团	1810.HK	09/07/2018	32	60,6	NPE	NA	Lei Jun (via Smart Mobile Holdings Ltd., Team Guide Ltd., Smart Playe Ltd.) 26.5%, Apex Star LLC 8.8%	31/12/2020	Manufacturing
Shanxi Fen Wine	山西汾酒	600809.SH	16/01/1993	33	60,4	SOE	Shanxi Provincial SASAC	Shanxi Provincial SASAC (via Shanxi Fen Wine Group Company) 56.6%, China Resources 11.4%, China Merchants Zhongzheng Baijiu Index Equity Inv. Fund 2.2%, E Funds Consumption Industry Equity Fund 1.1%	31/12/2020	Consumer products & services
Eastmoney	东方财富	300059.SZ	19/03/2010	34	60,3	NPE	Qi Shi	Qi Shi 20.6%, Lu Lili 2.5%, Guotai Zhongzheng Quanzhi Securities Company ETF 1.7%, Shen Yougen 1.5%, Huijin 1.4%, Bao Yiqing 1.1%	31/12/2020	Other financial services
Luzhou Laojiao	泸州老窖	000568.SZ	09/05/1994	35	58,3	SOE	Luzhou Municipal SASAC	Luzhou Municipal SASAC (via Luzhou Laojiao Group Company) 26.0%, Luzhou city government (via Luzhou Xinglu Inv. Group) 25.0%, CSF 2.3%, Huijin 1.4%, four equity funds holding 6.2% in total	31/12/2020	Consumer products & services
Great Wall Motor	长城汽车	601633.SH, 2333.HK	15/12/2003	36	57,4	NPE	Wei Jianjun	Wei Jianjun (via Baoding Great Wall AM Co. Ltd.) 55.7%, Citigroup 2.3%, CSF 2.2%	31/12/2020	Manufacturing
China Telecom	中国电信	0728.HK, CHA.N	14/11/2002	37	57,4	SOE	NA	Central SASAC (via China Telecom Group) 70.9%, Guangdong Provincial Government (via Guangdong Guangsheng AM) 7%, BlackRock 1.6%, GIC 1.5%, Bank of New York Mellon 1.2%	31/12/2020	Telecom
Luxshare Precision	立讯精密	002475.SZ	15/09/2010	38	54,6	NPE	Wang Laichun, Wang Laisheng	Wang Laichun and Wang Laisheng 41.0%, Huijin 1.4%, CSF 1.2%	31/12/2020	Manufacturing
Wuxi Apptec	药明康德	603259.SH, 2359.HK	08/05/2018	39	54,5	NPE	Zhang Chaohui, Liu Xiaozhong, Li Ge and Zhao Ning	Li Ge 20.9%, Summer Bloom Inv. 5.9%, Shanghai Zhongmin Yinfu Capital Mgmt Co. Ltd. 3%	31/12/2020	Pharma & life sciences
SF Holding	顺丰控股	002352.SZ	05/02/2010	40	53,0	NPE	Wang Wei	Wang Wei (via Shenzhen Mingde Holdings Development Co. Ltd.) 59.3%, Central SASAC (via China Merchants Group) 5.9%, Ningbo Shundafeng Entrepreneurship Inv. Partnership Enterprise 3%, Suzhou	31/12/2020	Transportation & logistics

								Industrial Park Yunhe Shunfeng Equity Inv. Enterprise 1.4%		
Baidu	百度	9888.HK, BIDU.O	05/08/2005	41	51,6	NPE	NA	Robin Li Yanhong 17%	23/03/2021	Platform
Hengrui Medicine	恒瑞医药	600276.SH	18/10/2000	42	50,9	NPE	Sun Piaoyang	Sun Piaoyang (via Jiangsu Hengrui Medicine Group) 24%, Tibet Dayuan Enterprise Mgmt (privately-owned) 14.9%, Qingdao Bosentai Inv. Partnership Enterprise 4.9%, Central SASAC (via China National Pharmaceutical Industry) 4.1%, Qingdao Youwo Inv. Partnership 2.5%, Lianyungang CIty SASAC 2.1%, CSF 1.5%, OppenheimerFunds 1.2%	31/12/2020	Pharma & life sciences
Wuxi Biologics	药明生物	2269.HK	13/06/2017	43	50,6	NPE	NA	Li Ge (via Wuxi Biologics Holdings Ltd.) 23.1%, JPMorgan Chase 9.6%, Capital Group 6.8%	31/12/2020	Pharma & life sciences
NIO	蔚来	NIO.N	12/09/2018	44	50,2	NPE	NA	Tencent 11.2%, Li Bin 11.2%, Baillie Gifford 6.9%	31/12/2020	Manufacturing
Ping An Bank	平安银行	000001.SZ	03/04/1991	45	50,2	MOE	None	Ping An 57.9%, CSF 2.2%, Huijin 1.1%	31/12/2020	Bank
CITIC Securities	中信证券	600030.SH, 6030.HK	06/01/2003	46	50,1	MOE	None	MoF (via China CITIC Group) 15.5%, Guangzhou Municipal SASAC (via Guangzhou Yuexiu Financial Holdings Co.) 6.2% , NSSF 5.3%, CSF 2.8%, Bank of New York Mellon 2.3%, Huijin 1.5%, Guotai Zhongzheng All Index Equity ETF 1.4%, Dacheng Zhongzheng Financial Assets Mgmt Plan 1.2%, Huaxia Zhongzheng Financial Assets Mgmt Plan 1.1%, Credit Suisse 1.1%	31/12/2020	Other financial services
Wanhua Chemical	万华化学	600309.SH	05/01/2001	47	49,7	MOE	Yantai Municipal SASAC	Yantai Municipal SASAC (via via Yantai Guofeng Inv. Holdings Group Co. Ltd.) 21.6% , Prime Partner International Ltd. 10.7%, Yantai Zhongcheng Investemnt Co. Ltd. (privately-owned) 10.5%, Ningbo Zhongkai Inv. Co. Ltd. (privately owned) 9.6%, Sun Huigang 2.4%, CSF 2.3%, Beijing Dejie Huitong Technology Co. Ltd. 2.2%	31/12/2020	Oil, gas & chemicals
BoCom - Bank of Communications	交通银行	601328.SH, 3328.HK	23/06/2005	48	49,5	MOE	None	MoF 23.9%, HSBC 18.7%, NSSF 6.1%, CSF 3.0%, China National Tobacco 2.1% , China Civil Aeronautics Administration (via Capital Airports Holding Company) 1.7%	31/12/2020	Bank

China National Offshore Oil Corporation (CNOOC)	中国海洋石油	0883.HK, CEO.N	27/02/2001	49	46,0	SOE	NA	PRC Government (via CNOOC (BVI) Limited) 64.4%	31/12/2020	Oil, gas & chemicals
Muyuan Foods	牧原股份	002714.SZ	28/01/2014	50	44,0	NPE	Qin Yinglin, Qian Ying	Qin Yinglin (partly via Muyuan Industrial Group Co Ltd.) 52.8%, Employee Stock Ownership Plan II 3.3%, Yuan Guibao 1.7%, Qian Ying 1.2%, Qian Yunpeng 1%	31/12/2020	Consumer products & services
COSCO Shipping Holdings	中远海控	601919.SH, 1919.HK	30/06/2005	51	43,6	SOE	Central SASAC	Central SASAC (via China COSCO Shipping Corp., Baowu Steel Group and China Eastern Airlines) 49.4%, CSF 2.5%	31/12/2020	Transportation & logistics
XPeng Motors	小鹏汽车	XPEV.N	27/08/2020	52	43,0	NPE	NA	He Xiaopeng 25%, Alibaba 12.3%	31/12/2020	Manufacturing
Will Semiconductor	韦尔股份	603501.SH	04/05/2017	53	42,7	NPE	Yu Renrong	Yu Renrong (partly via Shaoxing Weihao Equity Inv. Fund Partnership Enterprise) 41.5%, Qingdao Rongtong Minhe Inv. Center 5.1%, Lyu Dalong 5.2%, Seagull Inv.s 4.1 %, Shanghai Tangxin Enterprise Mgmt Partnership 1.6%	31/12/2020	Manufacturing
Yili	伊利股份	600887.SH	12/03/1996	54	41,6	MOE	None	Hohhot Municipal SASAC (via Inner Mongolia Financial Inv. Group) 8.9%, Pan Gang 4.7%, CSF 3%, Zhao Chengxia 1.5%, Liu Chunhai 1.5%	31/12/2020	Consumer products & services
Haier Smart Home	海尔智家	600690.SH, 6690.HK	19/11/1993	55	41,5	NPE	Haier Group	Haier Group (partly via Haier Electric Appliances and HCH (HK) Inv. Mgmt Co., Ltd.) 32.4%, JPMorgan Chase & Co. 2.4%, CSF 1.9%, equity investment funds 2%	31/12/2020	Manufacturing
Zhangzhou Pientzehuang Pharmaceutical	片仔癀	600436.SH	16/06/2003	56	41,4	SOE	Zhangzhou SASAC	Zhangzhou City SASAC (via via Zhangzhou Jiulongjiang Group Holding) 57.9%, Wang Fuji 4.5%, CSF 1.9%	31/12/2020	Pharma & life sciences
Anta Sports	安踏体育	2020.HK	10/07/2007	57	40,5	NPE	NA	Ding Shizhong and Ding Shijia (via multiple entities) 61.5%	31/12/2020	Consumer products & services
Bank of Ningbo	宁波银行	002142.SZ	19/07/2007	58	39,6	MOE	None	Ningbo Municipal SASAC (via several entities) 21.2%, OCBC 20%, Youngor Group (33% owned by Li Rucheng, rest dispersed) 8.3%, Huamao Group (privately-owned) 3%, Ningbo Light Industry Holding Group 2%, Huijin 1.2%	31/12/2020	Bank
SPD - Shanghai Pudong Development Bank	上海浦东发展银行	600000.SH	10/11/1999	59	39,3	SOE	None	Shanghai Municipal SASAC (via several entities) 29.5%, Funde Sino Life Insurance 19.8%, China Mobile 18.2%, CSF 4.5%, Huijin 1.4%	31/12/2020	Bank
Yanghe	洋河股份	002304.SZ	06/11/2009	60	38,9	MOE	Suqian SASAC	Suqian City SASAC 34.2%, Jiangsu Lanse Tongmeng Co. Ltd. (privately-owned)	31/12/2020	Consumer products & services

								19.9%, China National Tobacco 9.7%, Shanghai Municipal SASAC 4%, three equity funds together holding 4.8%		
Kuaishou Technology	快手	1024.HK	06/02/2021	61	38,9	NPE	NA	Tencent 12.2%, Morningside China TMT Fund II 11.9%, Reach Best Developments Ltd. 11.65%, Ke Yong Ltd. 9.24%, DCM Ventures China Fund VII 6.4%, DST Asia IV 4.9%, Parallel Nebula Inv. Ltd. 2.0%, Image Frame Inv. (HK) Ltd. 1.9%, Morespark Ltd. 1.3%	31/03/2021	Platform
Zijin Mining Group	紫金矿业	601899.SH, 2899.HK	23/12/2003	62	38,2	MOE	Shanghang County SASAC (Fujian Province)	Shanghang County SASAC (Fujian Province) 24.0%, CSF 2.7%, Shanghai Perseverance AM 1.7%, VanEck 2.7%, BlackRock 1.3%, equity investment funds 2.3%	31/12/2020	Steel, metals & materials
SAIC Motor	上汽集团	600104.SH	25/11/1997	63	37,8	SOE	Shanghai SASAC	Shanghai Municipal SASAC (via SAIC Motor Group) 71.2%, Nanjing Municipal SASAC 3.5%, CSF 3%	31/12/2020	Manufacturing
Beijing-Shanghai High-Speed Railway	京沪高铁	601816.SH	16/01/2020	64	37,2	SOE	China Railway Investment Co. Ltd.	PRC Government (via China Railway Inv.) 43.4%, Beijing-Shanghai High-Speed Railway Equity Inv. Plan 10.0%, NSSF 6.2%, Jiangsu Provincial SASAC (via Jiangsu Railway Ltd.) 5.0%, Shanghai Municipal SASAC 4.6%, Nanjing Municipal SASAC 4.4%, Tianjin Municipal SASAC 3.9%, Shandong Provincial SASAC 3.8%, Bank of China Group Inv. Ltd. 3.3%, Beijing Municipal SASAC 1.8%	31/12/2020	Transportation & logistics
CPIC - China Pacific Insurance (Group)	中国太保	601601.SH, 2601.HK	25/12/2007	65	36,7	MOE	None	Shanghai Municipal SASAC (partly via Shenergy Group Co. Ltd.) 21.8%, Central SASAC (via Huabao Inv. Co.) 13.35%, China National Tobacco 4.9%, CSF 2.8%, Citibank 1.8%, Central SASAC 1.2%	31/12/2020	Other financial services
Aier Ophthalmology	爱尔眼科	300015.SZ	30/10/2009	66	35,9	NPE	Chen Bang	Chen Bang (partly via Aier Ophthalmology) 51.5%, Li Li 3.5%, Guo Hongwei 2.2%, Hillhouse Capital Mgmt 1.5%, Temasek Holdings 1%	31/12/2020	Pharma & life sciences
Eve Energy	亿纬锂能	300014.SZ	30/10/2009	67	35,2	NPE	Liu Jincheng, Luo Jinhong	Liu Jincheng and Luo Jinhong (partly via Huizhou Billion Wei Holdings Ltd.) 35.9%, Huian Fund 4.1%, equity investment funds 4%, Liu Jianhua 1%	31/12/2020	Manufacturing

Shanghai Energy New Materials Technology Co. (SEMCORP)	恩捷股份	002812.SZ	14/09/2016	68	35,0	NPE	Li Xiaoming Family	Paul Xiaoming Lee 14.2%, Jerry Yang Li (partly via Yuxi Inv.) 13.4%, Sherry Lee 8.2%, Li Xiaohua 7.8%, Wang Jingliang (via Kunming Huazhen Inv.) 2.3%, Jerry Yang Li 2%, Zhang Yong 1.8%, Zhuhai Hengjie Enterprise Mgmt 1.7%, Zhuoyue Changqing PE Fund 1.3%	6/31/2021	Manufacturing
NARI Technology	国电南瑞	600406.SH	16/10/2003	69	34,8	SOE	Central SASAC	Central SASAC (via State Grid and China Huaneng) 58.1%, CSF 3%, Shen Guorong 2.4%, Qiu Guogen (via Shanghai Chongyang Strategic Investment) 1.3%	6/31/2021	Manufacturing
Sunny Optical Technology	舜宇光学科技	2382.HK	15/06/2007	70	34,7	NPE	NA	Employee stock ownership trust (via Shunxu Co. Ltd. and Shunguang Co. Ltd.) 38.5%, JPMorgan Chase & Co. 4.3%	31/12/2020	Manufacturing
China Vanke	万科	000002.SZ, 2202.HK	29/01/1991	71	34,6	MOE	None	Shenzhen Municipal SASAC (via Shenzhen Metro Group) 27.9%, Guosen Jinpeng Class I Assets Mgmt Plan 3.9%, Huijin 1.6%, GIC 1.4%, Deying Assets Mgmt Plan I 1.1%	31/12/2020	Real estate
Gree Electric Appliances	格力电器	000651.SZ	18/11/1996	72	34,4	NPE	None	Zhuhai Mingjun Inv. Partnership Enterprise 15%, Jinghai Internet Dev. Co. (privately-owned) 8.2%, Zhuhai Municipal SASAC (via Gree Electric Group) 4.79%, CSF 3.0%, Huijin 1.4%, Qian Hai Life Insurance 1%	31/12/2020	Manufacturing
Sungrow Power Supply	阳光电源	300274.SZ	02/11/2011	73	34,0	NPE	Cao Renxian	Cao Renxian 31%, Luzhou Huizhuo Enterprise Management Partnership 3.8%, GF Advanced Manufacturing Equity Investment Fund 1.3%, NSF 1.1%	6/31/2021	Manufacturing
China Three Gorges Renewables Group	三峡能源	600905.SH	10/06/2021	74	33,7	SOE	Central SASAC	Central SASAC (via China Three Gorges Corp., Power Construction Corp. of China and China Intelligent Logistics Packaging Company) 59.5%, Zhuhai Ronglang Investment Management Partnership 3.5%, Zhejiang Provincial SASAC (via Zhejiang Provincial Energy Group) 3.5%, Jinshi New Energy Investment (Shenzhen) Partnership, 1.8%	6/31/2021	Coal and electricity
China State Construction Engineering Corporation	中国建筑	601668.SH	29/07/2009	75	32,9	SOE	Central SASAC	Central SASAC 58.5%, CSF 3%, Huijin 1.4%	31/12/2020	Infrastructure & construction
Li Auto	理想汽车	2015.HK, LI.O	31/07/2020	76	32,5	NPE	NA	Xing Wang 21.6%, Li Xiang 20%	31/12/2020	Manufacturing

Anhui Conch Cement	海螺水泥	600585.SH ,0914.HK	21/10/1997	77	31,8	MOE	Anhui Provincial SASAC	Anhui Provincial SASAC (via Anhui Conch Group Co. Ltd.) 37.2%, CSF 3.0%, Taiwan Cement Corp. 2.2%, BlackRock 2%, Citigroup 1.7%, JPMorgan Chase 1.7%, Huijin 1.3%	31/12/2020	Steel, metals & materials
Tongwei	通威股份	600438.SH	02/03/2004	78	31,7	NPE	Liu Hanyuan	Liu Hanyuan (via Tongwei Group) 44.4%, China Life Insurance 2%, several equity investment funds 3.6%, Huaneng Trust 1.1%	31/12/2020	Manufacturing
Zhifei Biological Products	智飞生物	300122.SZ	28/09/2010	79	31,3	NPE	Jiang Rensheng	Jiang Rensheng 50.4%, Jiang Lingfeng 5.4%, Liu Tieying 3.8%, Wu Guanjiang 3%	31/12/2020	Pharma & life sciences
China Securities	中信建投	601066.SH ,6066.HK	09/12/2016	80	31,2	SOE	-	Beijing Municipal SASAC (via Beijing Financial Holdings Group) 34.6%, Central Huijin 30.8%, CITIC Securities 4.9%, CITIC Group (via Jinghu Holdings) 4.5%, Tibet Tengyun Inv. Mgmt Company 1.9%	31/12/2020	Other financial services
CITIC Bank	中信银行	601998.SH ,0998.HK	27/04/2007	81	31,1	SOE	PRC Ministry of Finance	MoF (via CITIC Ltd.) 66%, Summit Idea Ltd. 4.7%, China National Tobacco 4.4%, CSF 2.3%	31/12/2020	Bank
Smoore International	思摩尔国际	6969.HK	10/07/2020	82	30,6	NPE	NA	Chen Zhiping (via SMR and Alon Ltd.) 33.9%, Eve Battery Inv. Ltd. (privately-owned) 32.4%, Andy Xiong Holding Ltd. 5.2%	31/12/2020	Consumer products & services
Semiconductor Manufacturing International Corp. (SMIC)	中芯国际	688981.SH ,0981.HK	18/03/2004	83	30,4	MOE	None	Central SASAC (via China Information and Communication-Technologies Group Co. Ltd. and China Datang Corp.) 23.3%, National Integrated Circuit Industry Inv. Fund (partly via Xinxin (HK) Capital Co. Ltd.) 9.72%, GIC 1.4%, Qingdao Juyuan Xinxing Equity Inv. Partnership Enterprise 1.1%	31/12/2020	Manufacturing
Sany Heavy Industry	三一重工	600031.SH	03/07/2003	84	30,4	NPE	Liang Wengen	Liang Wengen (mostly via Sany Group Co. Ltd.) 32.9%, CSF 2.8%, Huijin 1%	31/12/2020	Manufacturing
Ganfeng Lithium	赣锋锂业	002460.SZ, 1772.HK	10/08/2010	85	30,3	NPE	Li Liangbin	Li Liangbin 18.8%, Wang Xiaoshen 7%, Lombarda Era Pioneer Equity Investment Fund 1.3%	6/31/2021	Manufacturing
Qinghai Salt Lake Potash	盐湖股份	000792.SZ	04/09/1997	86	30,2	SOE	Qinghai Provincial SASAC	Qinghai SASAC 16.8%, Central SASAC (via Sinochem Corp.) 10.5%, ICBC 7.5%, China Development Bank 7.4%, Postal Savings Bank of China 6.4%, Bank of China 5.2%, Agricultural Bank of China 3.8%, China Cinda AMC 3.2%	6/31/2021	Oil, gas & chemicals

BOE Technology	京东方	000725.SZ	12/01/2001	87	30,1	MOE	Beijing Municipal SASAC	Beijing Municipal SASAC (via two entities) 14.8%, Hefei Municipal SASAC (via two entities) 4.4%, Chongqing Municipal SASAC 1.9%, Beijing Economic and Technological Development Zone Administration Committee 1.1%	31/12/2020	Manufacturing
China Resources Land	华润置地	1109.HK	08/11/1996	88	30,0	SOE	Central SASAC	Central SASAC (via CRH (Land) Limited) 59.5%	6/31/2021	Real estate
Poly Real Estate	保利发展	600048.SH	31/07/2006	89	29,3	MOE	Central SASAC	Central SASAC (via China Poly Group) 40.5%, Taikang Insurance 6.2%, CSF 3%, Huamei International Investment Group 1.8%, Huijin 1.5%, Aegon-Industrial Trend Investment Fund 1.1%	6/31/2021	Real estate
Goertek	歌尔股份	002241.SZ	22/05/2008	90	29,0	NPE	Jiang Bin	Jiang Bin (partly via Weifang Goertek Group) 28%, Jiang Long 5.8%, Employee Stock Ownership Plan IV 1.4%	6/31/2021	Manufacturing
Shenzhou International	申洲国际	2313.HK	24/11/2005	91	28,9	NPE	NA	Ma Jianrong, Huang Guanlin, and Ma Baoxing (together via Xierong Co. Ltd.) 42.5%, JPMorgan Chase & Co. 5%	31/12/2020	Manufacturing
Rongsheng Petro Chemical	荣盛石化	002493.SZ	02/11/2010	92	28,8	NPE	Li Shuirong	Li Shuirong (partly via Zhejiang Rongsheng Holding Group) 67.6%, GF Advanced Manufacturing Equity Investment Fund 1.3%	6/31/2021	Oil, gas & chemicals
PICC - People's Insurance Co. of China	中国人保集团	601319.SH, 1339.HK	07/12/2012	93	28,8	SOE	PRC Ministry of Finance	MoF 60.8%, NSSF 15.7%, Capital Group 1.6%	31/12/2020	Other financial services
CITIC Ltd.	中信股份	0267.HK	26/02/1986	94	28,7	SOE	NA	CITIC Group (via CITIC Polaris Limited and CITIC Glory Limited) 58.1%, Right & Bright Inv. Co., Ltd. (50% owned by Charoen Pokphand Group and 50% owned by Itochu Corp.) 20%	31/12/2020	Conglomerate
Li Ning	李宁	2331.HK	29/06/2004	95	28,6	NPE	NA	Li Ning (via Viva China Holdings Ltd.) 13.3%, Citigroup 5.2%	31/12/2020	Consumer products & services
Naura Technology	北方华创	002371.SZ	16/03/2010	96	28,6	SOE	Beijing Municipal SASAC	Beijing Municipal SASAC (via Beijing Electronics Holding Corp.) 43.4%, National Integrated Circuit Industry Inv. Fund 7.5%	6/31/2021	Manufacturing
Longfor Group Holdings	龙湖集团	0960.HK	19/11/2009	97	28,6	NPE	NA	Charm Talent Int'l Ltd. (trust whose beneficiary is founders' daughter) 43.75%, Cai Kui 23.3%, Jumbomax Inv. Ltd. 5.8%	31/12/2020	Real estate
Inovance	汇川技术	300124.SZ	28/09/2010	98	28,4	NPE	Zhu Xingming	Zhu Xingming (partly via Shenzhen Huichuan Inv. Co. Ltd.) 23.1%, Liu Guowei 3.1%, Li Juntian 3.1%, Zhao Jinrong 2.8%,	31/12/2020	Manufacturing

								Liu Yingxin 2.6%, Tang Zhuxue 2.5%, Huijin 1.7%, Li Fen 1.6%		
BeiGene	百济神州	6160.HK, BGNE.O	04/02/2016	99	27,9	NPE	NA	Amgen Inc. 20.6%, Baker Brothers Life Sciences LP 11.9%, Gaoling Fund LP 10.9%, Capital Group 7.8%, JPMorgan Chase 7%, FMR LLC 5.5%, Oyler Inv. LLC 2.5%, Hillhouse BGN Holdings Ltd. 1.1%	31/12/2020	Pharma & life sciences
Country Garden Services	碧桂园服务	6098.HK	20/06/2018	100	20,2	NPE	NA	Yang Huiyan (via Concrete Win Ltd. and Fortune Warrior Global Ltd.) 49.5%, JPMorgan Chase & Co. 4%	31/12/2020	Real estate

Sources: Wind; company disclosures; media reports; authors' calculations. Notes: Only the top 10 shareholders owning more than 1 percent are included in this appendix. In the "actual controller" column, "NA" (not applicable) refers to the absence of "actual controller" disclosure requirements for companies that are not listed in mainland China, whereas "None" refers to companies listed in mainland China which do not disclose any "actual controller". SOE = state-owned enterprise; MOE = mixed-ownership enterprise; NPE = nonpublic enterprise. CSF = China Securities Finance; NSSF = National Social Security Fund; MoF = Ministry of Finance; DoF = Department of Finance; BoF = Bureau of Finance; AM = Asset Management; Central Huijin abbreviated to "Huijin" when it is a small minority shareholder.

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