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# Can Restructuring Gains Be Sustained Without Ownership Changes? Evidence from Withdrawn Privatizations

Gabriele Lattanzio
*Southern Methodist University Cox School of Business*
glattanzio@smu.edu

William L. Megginson
*University of Oklahoma Price College of Business, and University of International Business and Economics (Beijing)*
wmegginson@ou.edu (corresponding author)

## Abstract

By employing a novel, hand-collected sample of withdrawn and completed share issue privatizations, we show that both groups undergo comparable restructuring processes over the 3 years preceding the event. We employ matching procedures to explicitly control for the restructuring effect, isolating the effect of the ownership transfer from state to private investors on corporate policies and performance. We document that, absent the ownership transfer, most of the gains realized during the restructuring process are reabsorbed over the posttreatment period. The transition from state to private ownership thus represents a necessary condition for the long-term success of privatization programs.

## I. Introduction

> I don't make jokes. I just watch the government and report the facts.
> —Will Rogers (1925)

Privatizations have reshaped the global economy. Since 1977, more than 100 governments in both emerging and developed countries have relied on this policy to enhance the competitiveness of their economic systems, raising approximately $3.5 trillion by successfully selling state-owned enterprises (SOEs) and

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assets to both domestic and international investors (Megginson (2017)). An extensive literature documents the economic consequences of these transactions, reporting often impressive performance improvements for the privatized companies, both in anticipation of divestment and after the share issue privatization (SIP) is executed.[1] Most studies examining both pre- and postsale performance changes document improvements both before and after the SIP (Laurin and Bozec (2000), Wolf and Pollitt (2008) and, for China, Liao, Liu, and Wang (2014), Tan, Tian, Zhang, and Zhao (2014)), but a few studies find that most or all of the recorded gains occur before the SIP transfers ownership from state to private investors (Martin and Parker (1995), Villalonga (2000), Dewenter and Malatesta (2001), Wolf (2009), and Goyal, Jategaonkar, and Muckley (2018)).

The existence of these endogenous preprivatization trends suggests that a massive restructuring process takes place over the years immediately preceding these transactions. This raises a fundamental question concerning the causes of privatization programs' long-term success: Can a SOE lock in the reported restructuring gains without successfully transitioning from state to private ownership?[2] That is, does the ownership transfer from political to private investors represent a necessary condition for the long-term success of privatization programs? The literature provides conflicting evidence. Boardman and Vining (1989), Ehrlich, Gallais-Hamonno, Liu, and Lutter (1994), Ramamurti (1997), Shleifer (1998), Shirley and Walsh (2000), Dewenter and Malatesta (2001), Karpoff (2002), O'Toole, Morgenroth, and Ha (2016) and R. Chen, El Ghoul, Guedhami, and Wang (2017) conclude that switching to private ownership is required to improve SOE performance, whereas Kole and Mulherin (1997) and Wolf and Pollitt (2008) show that SOEs can be competitive even without full privatization.

In this article, we seek to provide a rigorous answer to whether actual privatization is required to lock in presale restructuring gains by studying a new, hand-collected sample of withdrawn privatizations. After governments file initial registration statements to sell shares in SOEs with the relevant national agency, a surprisingly large number of these SIPs are withdrawn, which is consistent with findings reported in the emerging literature analyzing withdrawn private sector share issues in the United States (see Mikkelson and Partch (1988), Dunbar (1998), Busaba, Benveniste, and Guo (2001), Busaba (2006), Dunbar and Foerster (2008), Lee and Masulis (2009), and Boeh and Dunbar (2013)).[3] The literature has largely ignored these failed privatizations, anecdotally considering them numerically and economically marginal. However, a detailed empirical analysis of the incidence of

[1]For recent surveys of the privatization literature, see Gupta, Schiller, Ma, and Tiongson (2001), Megginson and Netter (2001), Djankov and Murrell (2002), Estrin, Hanousek, Kòcenda, and Svejnar (2009), Fotak, Gao, and Megginson (2017), and Megginson (2017). The empirical evidence overwhelmingly indicates that even partial privatization is associated with significantly increasing revenue, profitability, efficiency, capital investment and investment efficiency, and dividend payments, and with declining financial leverage.

[2]Specific examples of privatization-related restructuring strategies are described in Ramamurti (1997), La Porta and López-de-Silanes (1999), Dewenter and Malatesta (2001), Chong, Guillen, and López-de-Silanes (2011), Santos (2016), and Subramanian and Megginson (2018), among others.

[3]Helbing and Lucey (2019) provide the only international study on withdrawn initial public offerings (IPOs), focusing only on the main European markets: Britain, Germany, and France.

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these events contradicts this idea: From 1998 to 2016, 412 filed SIPs were withdrawn, with governments consciously leaving on the table approximately $116 billion globally. We analyze these events and hand collect financial data for 186 withdrawn and 221 successful SIPs occurring in 26 countries over 1998–2015.[4]

Because the reputational and financial costs of withdrawing a previously filed share issue are likely to be severe (Dunbar and Foerster (2008)), governments are unlikely to strategically register SIPs that are certain to fail. Consequently, all SOEs selected for privatization are expected to be exposed to comparable restructuring processes over the pretransaction period. Consistent with the anticipation literature cited previously, we confirm that the expectation of being exposed to market discipline generates endogenous preprivatization trends for all targeted firms. In particular, SOEs selected for privatization experience significant increases in profitability and operating efficiency, as well as strong declines in labor intensity and capital expenditures (specific to Chinese SOEs) over the 3 years preceding the event. No significant difference in trends over the preprivatization period is identified between successful and withdrawn SIPs.

These findings indicate that we can explicitly control for both the nonrandom selection process governments use to select SOEs for privatization in a given year (Du and Liu (2015)) and the previously overlooked restructuring effect by rigorously matching successful and withdrawn SIPs. This identification strategy allows us to robustly estimate the effect of the ownership transfer from political to private investors. However, the validity of the proposed setting hinges on our ability to successfully model the selection process leading governments to decide whether to withdraw a previously filed SIP.

To shed light on the determinants of a government's decision to withdraw a previously filed privatization, we model a rational issuer's ex ante probability to withdraw the SIPs included in our data set. By employing linear as well as nonlinear probability models, we find that both institutional and political factors play fundamental roles in explaining a government's decision to exercise this real option. Numerous studies highlight the role of politics in shaping privatization strategies (Biais and Perotti (2002), Gupta (2005), Belloc, Nicita, and Sepe (2014), and, in China, Piotroski and Zhang (2014)), but we are the first to show that a government's propensity to withdraw a previously filed SIP appears to be systematically larger in democratic countries. Consistent with Dinç and Gupta (2011), we identify the existence of a strong minority coalition party as the single most important political determinant of a government's propensity to withdraw a SIP. This finding is consistent with political risk playing a major role in shaping privatization programs, ultimately determining their outcomes.

Because heavily indebted countries are more dependent on external capital markets and institutional investors, these governments need to carefully manage their reputation as reliable financial counterparties. Therefore, we find that high

[4]Similar to the literature, we consider exclusively transactions for which at least 2 pre-event years are available over the 3 fiscal years preceding the attempted privatization. For firms that disclose their postevent performance, we collect data for the 3 years following the attempted privatization. This filter causes the sample of actual and attempted issuances to end in 2015. Before 1998, the number of available observations is extremely low, limiting our ability to analyze that period. We elaborate on our data collection process in the following section.

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levels of government debt are associated with a lower propensity to withdraw a previously filed SIP. Similarly, high-current-deficit countries are more reluctant to withdraw a SIP, suggesting that public finance considerations play a nonnegligible role in accelerating the successful completion of privatization programs.

From a financial perspective, governments are less averse to withdrawing a SIP when the firm's operating efficiency is high. This is consistent with governments paying particular attention to transactions involving their "crown jewels." Furthermore, we document that the probability of withdrawing a previously filed SIP increases with both the targeted SOE's size and the percentage of shares available for sale, consistent with the large and widely scrutinized transactions carrying more political risk. Finally, in contrast to findings reported in Busaba et al. (2001) and Bernstein (2015),[5] we identify no significant relation between the decision to withdraw a previously filed SIP and stock market returns over the 30 trading days preceding the event, suggesting that market timing concerns have at most a marginal effect on a government's decision to withdraw a previously filed SIP. These results collectively call into question, first, whether governments manage SIP transactions for revenue maximization and, second, whether SIPs and share issues executed by privately owned firms are actually comparable, given their differing final objectives (Laffont and Tirole (1993), Shleifer (1998)) and sensitivities to market conditions.

The observed relevance of political factors in determining the success of an attempted privatization allows us to exploit them as a source of exogenous variation to quasi randomize the treatment assignment. In particular, similarly to Dinç and Gupta (2011) we argue that a country's degree of political competitiveness is a valid instrument for the decision to withdraw a previously filed SIP. Because the time-series variation of this instrument for nondemocratic political systems is limited, we use a country's level of public debt at the end of the fiscal year preceding the attempted privatization as an additional source of exogenous variation.[6] The resulting propensity-score-matched samples allow us to isolate the effect of transferring ownership from political to private investors from any confounding events that take place during the pretreatment period. In particular, we estimate a set of difference-in-difference (DiD) regressions to study the economic consequences of a SIP withdrawal on five major corporate values: profitability, measured as a firm's return on sales; operating efficiency, proxied by the ratio of net income to number of employees; labor intensity, defined as total number of employees divided by the firm's total assets (normalized to 2010 U.S. dollars); payout ratio, proxied by the ratio of total common dividends to total revenues; and capital expenditures, measured as the ratio of a firm's capital expenditures to its total assets.[7]

Because roughly half of our sample, as well as of the population, of withdrawn and completed SIPs involve Chinese SOEs, we must explicitly account for the differences between SIPs in China and elsewhere. We begin with the fact that

[5]Busaba et al. (2001) and Bernstein (2015) focus on American privately owned firms, identifying a strong negative relation between stock market returns preceding the decision to withdraw a previously filed IPO and its economic consequences.

[6]The validity of the proposed instruments is discussed in detail in Section VI.

[7]Variables are defined in Table A1 of the Appendix.

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Chinese SIPs are all primary capital-raising share offerings (see Sun and Tong (2003), Li, Megginson, Shen, and Sun (2017), and Megginson (2017)) whereas SIPs almost everywhere else involve pure secondary offerings of government-owned shares. Even more important for our purposes is the evidence that Chinese SOEs both overinvest (Liu and Siu (2011)) and invest very inefficiently (D. Chen, Dequan, Ljungqvist, and Lu (2017), R. Chen et al. (2017)) relative to comparable private sector firms in China and elsewhere (Jaslowitzer, Megginson, and Rapp (2018)). This means that a privatization-related improvement in Chinese capital investment manifests itself in a decline in SOE capital spending and an increase in capital expenditure efficiency. Additionally, there is less conclusive evidence that privatization improves Chinese SOE profitability (Sun and Tong (2003), Li et al. (2017)) than is true for most other countries, so profitability changes for both successful and withdrawn Chinese SIPs may be more muted than for the non-Chinese companies in our samples. From an empirical perspective, the stability of the Chinese political system prevents purely political variables from representing valid instruments for the decision to withdraw a previously filed SIP. That is, the only available exogenous variation we can exploit in our setting originates from the time-series dynamics of China's total public debt. As appropriate, we replicate our analyses after dropping Chinese SOEs from our sample. This additional test confirms the robustness of our findings and allows us to discuss the capital expenditure and profitability effects of SIP withdrawals separately for Chinese and non-Chinese companies.

Our tests provide strong support for the existence of state-ownership-induced agency costs. Operating efficiency and the payout ratio decline dramatically post-withdrawal for SOEs whose privatizations are not successfully completed, whereas their labor intensity increases compared with the selected counterfactuals. Capital expenditures decline for non-Chinese withdrawn SIPs postevent but increase for withdrawn Chinese SIPs; both results suggest performance degradation after failed privatizations.[8] No major difference in profitability between successful and withdrawn SIPs is recorded over the posttreatment period for the full sample, but this is driven entirely by the static profitability effects for withdrawn Chinese SIPs. Non-Chinese withdrawn SIPs experience significant profitability declines whereas successful non-Chinese SIPs see profitability increases postsale. These findings strongly suggest that ownership transfer from political to private investors represents a necessary condition to sustain the economic gains cumulated by targeted firms over the preprivatization period and, therefore, to attain the long-term success of privatization programs.

Despite being widely applied in academic research, the use of an "instrumented" propensity score matching (PSM) procedure to infer causality is criticized in the econometric literature (Wooldridge (2016), King and Nielsen (2016)). Therefore, it is important to show that our results are not driven by a particular empirical strategy. Consequently, we employ the previously computed probability of withdrawal as an instrumental variable for the outcome of an attempted SIP to study the

[8]Note that newly privatized Chinese firms' profitability might be depressed mechanically because the offering involves only primary shares being sold. This yields an immediate increase in assets and equity, well before any compensatory rise in operating profits can be achieved.

existence of systematic differences in growth rates and levels for the 5 corporate policies investigated over the posttreatment period. These two 3-stage least squares (3SLS) specifications are directly derived from Dinç and Gupta (2011) and Bernstein (2015), and they provide strong support for all the DiD results. Operating efficiency, capital expenditures, and the payout ratio all decrease postwithdrawal, whereas labor intensity dramatically increases over the posttreatment period for the average withdrawn SIP, as compared to successfully privatized SOEs.

All in all, as the expectation of being exposed to market discipline disappears, state-ownership-induced agency costs reemerge, absorbing the efficiency gains achieved by target SOEs over the pretreatment period. Therefore, although the successful transfer of ownership and control to profit-maximizing investors is not a sufficient condition for the long-term attainment of firm-level efficiency gains, it appears to be a necessary condition for the long-term success of privatization programs.

This article contributes to the literature in two main ways. First, it presents a novel, hand-collected sample of 186 withdrawn SIPs and 221 successful SIPs, which allows us to study the economic consequences of SIPs in a new setting. In particular, comparing successful and withdrawn privatizations offers new evidence for the importance of state-ownership-induced agency costs, whose resolution cannot be achieved without the actual transfer of control from government to private owners.[9] Second, this article contributes to the growing empirical literature on the political economy of financial markets (Jones, Megginson, Nash, and Netter (1999), Clarke and Cull (2002), Brown and Dinç (2005), Dinç and Gupta (2011), Bortolotti, Fotak, and Megginson (2015), and Borisova, Fotak, Holland, and Megginson (2015)) in several ways. First, the political economy of finance literature builds on the idea that politicians are exposed to strong incentives that might lead governments to deviate from the ideal concept of the benevolent social planner. By supporting the proposition that privatization withdrawals are strongly motivated by political factors, this article provides an indirect test for this underlying assumption and shows how politicians' incentives might shape the outcome of a proposed privatization program. Second, by modeling the decision to withdraw a previously filed SIP, we show that market conditions play an, at most, marginal role in explaining this important financial and political decision, raising further questions about the direct comparability of SIPs and share issues completed by privately owned firms, given their differential determinants and sensitivities to market conditions. Finally, these results complement findings reported in Dinç and Gupta (2011), suggesting that political measures may be used as instruments to correct for the intrinsic endogeneity characterizing the literature on privatization and liberalization programs.

The rest of this article is organized as follows: Section II documents the incidence of SIP withdrawals, discusses their time and country distribution, and presents the novel data set employed in this article. Section III evaluates whether successful and withdrawn privatizations undergo comparable restructuring

[9]Note that this result provides implicit support for the complementarity of privatization and liberalization programs, rather than for their substitutability. For a discussion, see Belloc et al. (2014).

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processes over the preprivatization period. Section IV analyzes a government's decision to withdraw a previously filed SIP, and Section V studies the economic consequences of withdrawing a SIP. Section VI concludes.

## II. Sample and Data

Only a few studies have investigated the incidence of share offering withdrawals, primarily focusing on the American IPO market. Dunbar (1998) and Busaba et al. (2001) show that between the mid-1980s and mid-1990s, almost 20% of proposed IPOs were withdrawn before completion. In a more recent study, Dunbar and Foerster (2008) confirm this figure, showing that the fraction of withdrawn IPOs increased significantly between the mid-1990s and 2008, reaching almost 50% of filed IPOs during 2000. Identifying similar statistics for seasoned equity offerings (SEOs) appears to be more challenging. Lee and Masulis (2009), identify a sample of 2,960 completed and 336 withdrawn SEOs by U.S. issuers between 1990 and 2002, suggesting that a nonnegligible number of SEOs are withdrawn before completion. A similar ratio of withdrawn to successful SEOs is reported in Mikkelson and Partch (1988), providing further support for the numerical and economic relevance of these "failed" transactions. Given this strong pattern for privately owned (American) firms, it would not be unreasonable to hypothesize a similar pattern for privatization. However, careful empirical analysis is needed, as the generalizability of these statistics outside the United States is far from proven.

To provide a detailed overview of this withdrawn share offering phenomenon across countries and over time, we carefully hand collect and analyze data on the plans of both successful and withdrawn firms to issue new common equity filed between 1998 and 2016 from SDC Platinum and Datastream.[10] Table 1 reports the time distribution and incidence of these failed transactions. Of the 5,797 SIPs[11] attempted between 1998 and 2016, 412 (6.64%) were withdrawn.[12] This figure is slightly higher than the one recorded for privately owned firms: Of the 145,442 attempted share issues, 7,121 (4.66%) were withdrawn over the same period. Consistent with results reported in Busaba et al. (2001), no strong time pattern is observed for the ratio of withdrawn to attempted share issues for either privately owned or state-owned firms, as shown in Figure 1.

The temporal correlation (0.5227) between the ratio of withdrawn to attempted share issues for privately owned firms and SOEs is positive and significant, but also

[10]To cross-check the validity of the information, we verify the available events with news information reported in LexisNexis, Bloomberg, and Privatization Barometer Reports (2004–2016).

[11]SIPs are identified using the "Government Owned Involvement Flag," available for the New Issues database in SDC Platinum. This dummy variable is coded as "yes" if "the Public Mid Code of the Issuer/Borrower, Immediate or Ultimate Parent of the Issuer/Borrower, Selling Shareholder, or Immediate or Ultimate Parent of the Selling Shareholder is Government."

[12]Share issues of American Depositary Receipts (ADRs), closed-end funds, conversion of mutual institutions, or multiple-class are excluded from the sample. The authors note and address severe double-counting for data downloaded from Securities Data Company (SDC). The cleaned data set used in this section is available from the authors.

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TABLE 1

Time Distribution of Completed and Withdrawn Share Issues

Table 1 reports the time distribution of completed and withdrawn share issues attempted by both privately and state-owned enterprises. Proceeds for withdrawn transactions are defined as the product between the midprice and the number of shares issued, as reported in the filing documents. Reported proceeds are severely biased downward because of missing/omitted observations. Approximately 6.00% of the observations for proceeds raised by privately owned companies successfully completing a share issue are not reported in the original data set. Analogously, 20.00% of the proceeds raised by governments from share issue privatizations are missing. Finally, we are unable to identify the proceeds associated with 60.00% of withdrawn share issues attempted by both privately and state-owned companies. All monetary values are reported in millions of U.S. dollars.

| | Private: Successful | | Private: Withdrawn | | Privatization: Successful | | Privatization: Withdrawn | |
|---|---|---|---|---|---|---|---|---|
| Year | *N* | Proceeds | *N* | Proceeds | *N* | Proceeds | *N* | Proceeds |
| 1998 | 4,621 | $362,750.54 | 262 | $1,318.17 | 572 | $77,299.05 | 14 | $200.00 |
| 1999 | 5,129 | $472,126.79 | 181 | $298.41 | 277 | $129,799.51 | 26 | $452.80 |
| 2000 | 5,773 | $502,751.30 | 446 | $964.42 | 162 | $82,176.19 | 8 | – |
| 2001 | 4,343 | $1,147,271.74 | 390 | $655.65 | 146 | $42,072.52 | 54 | $2,536.70 |
| 2002 | 4,464 | $292,073.99 | 243 | $5,072.71 | 171 | $48,914.93 | 39 | $1,563.24 |
| 2003 | 5,015 | $333,531.54 | 93 | $9,056.47 | 187 | $72,649.18 | 11 | $1,199.22 |
| 2004 | 6,037 | $411,638.10 | 215 | $41,893.77 | 247 | $121,506.31 | 10 | $2,928.79 |
| 2005 | 6,125 | $537,763.52 | 158 | $20,348.49 | 173 | $79,552.35 | 5 | $1,196.77 |
| 2006 | 7,069 | $715,607.55 | 199 | $32,122.34 | 207 | $109,366.59 | 5 | $5,808.51 |
| 2007 | 9,990 | $1,012,156.95 | 339 | $49,657.29 | 308 | $171,176.34 | 16 | $6,869.33 |
| 2008 | 7,711 | $722,469.02 | 537 | $123,713.89 | 241 | $102,477.39 | 16 | $3,886.13 |
| 2009 | 10,008 | $897,676.79 | 437 | $78,624.48 | 289 | $102,202.80 | 16 | $6,877.38 |
| 2010 | 11,676 | $868,453.92 | 609 | $77,297.31 | 459 | $217,779.61 | 34 | $14,995.21 |
| 2011 | 10,060 | $690,669.26 | 694 | $86,030.44 | 358 | $150,370.86 | 29 | $14,283.92 |
| 2012 | 8,904 | $579,095.18 | 551 | $43,800.17 | 392 | $143,849.80 | 22 | $9,375.02 |
| 2013 | 9,143 | $700,397.05 | 382 | $33,431.11 | 382 | $132,957.76 | 13 | $3,984.21 |
| 2014 | 9,653 | $767.237.92 | 449 | $41,577.95 | 446 | $187,916.19 | 23 | $6,680.08 |
| 2015 | 7,935 | $1,059,050.09 | 352 | $89,825.47 | 307 | $193,555.40 | 45 | $24,483.49 |
| 2016 | 11,766 | $863,753.70 | 584 | $62,301.68 | 473 | $229,634.50 | 62 | $9,182.84 |
| Total | 145,422 | $12,169,237.03 | 7,121 | $797,990.56 | 5,797 | $2,395,257.97 | 412 | $116,504.94 |
| Yearly mean | 7,654 | $676,069.28 | 375 | $41,999.77 | 305 | $126,066.84 | 22 | $6,472.55 |

significantly different from 1.[13] This finding suggests that different determinants are likely driving the decision to withdraw a previously filed share issue for privately and state-owned firms.[14]

SIP withdrawals are a global phenomenon. As reported in Figure 2, the incidence of these failed transactions ranges between 5% and 10% for most countries. As reported in Table 2, focusing exclusively on countries that experienced at least 5 SIP withdrawals between 1998 and 2016 shows that these failed transactions are common in some countries, reaching almost 10% in China and 24% in the Czech Republic. Furthermore, the incidence of SIP withdrawals is systematically larger than the incidence of share issue withdrawals for privately owned firms, suggesting that the value of the option to withdraw a previously filed share issue is likely to be significantly higher for political agents because of their exposure to specific sources of political risk.

[13]This result is only partly driven by the observed spike in 2001. Once we drop 2001 from the sample, the correlation between the two time series declines to 0.2539.

[14]We acknowledge that regulatory differences might cause the observed correlation to be significantly different from 1, conditional on different countries representing different percentages of the number of yearly global issues executed by privately and state-owned firms. This issue is at least partially addressed in the next section through different matching procedures aimed at balancing the sample and within-group regressions.

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FIGURE 1

Percentage Incidence of Share Issue Withdrawals (1998–2016)

Figure 1 reports the time-series for the ratio of withdrawn to attempted share issues for privately owned and state owned enterprises for the period 1998–2016. Data are from SDC Platinum and Datastream. Events are validated using news information reported in Lexis-Nexis, Bloomberg, and in Privatization Barometer Reports (2004–2016).

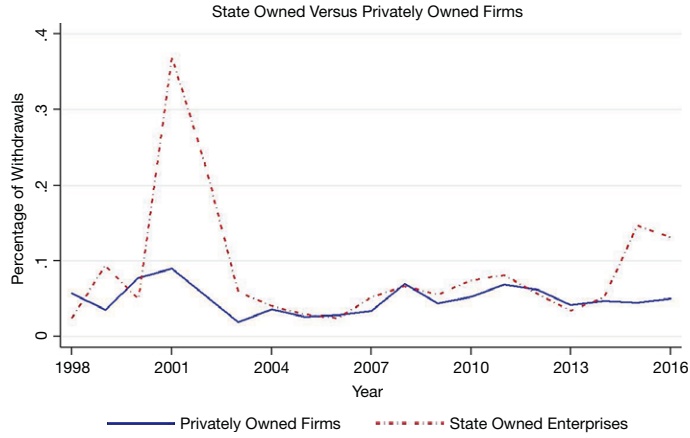
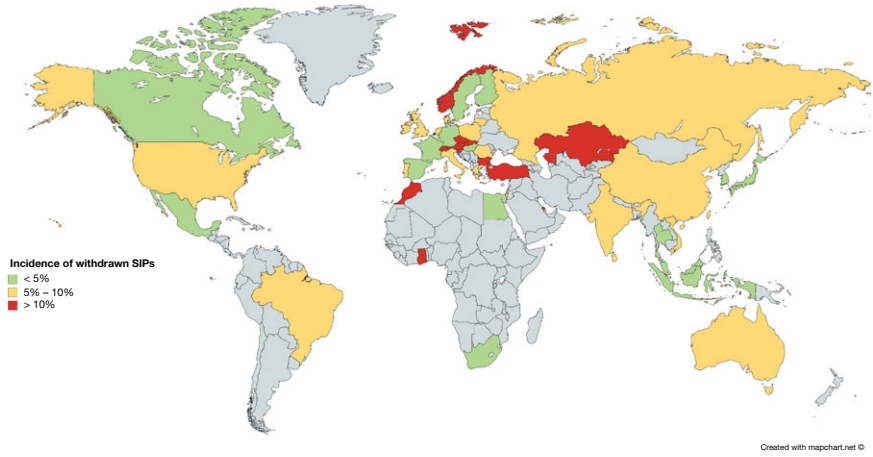



FIGURE 2

Incidence and Geographical Distribution of Withdrawn Share Issue Privatizations

Figure 2 reports the geographical distribution of the ratio of withdrawn to attempted share issue privatizations (SIPs) for the period 1998–2016. Data are from SDC platinum and Datastream. Events are validated using news information reported in Lexis-Nexis, Bloomberg, and in Privatization Barometer Reports (2004–2016).




It is more challenging to assess the economic relevance of these failed transactions. Following Busaba et al. (2001), we compute the expected offer value as the number of shares offered times the midpoint of the price range specified in the filing

TABLE 2

Withdrawn Share Issues: A Country-Level Perspective

Table 2 reports the incidence of withdrawn share issues for countries experiencing at least 5 share issue privatization withdrawals. The reported frequencies are for 1998–2016.

| | Privately Owned Firms | | | | State-Owned Firms | | | |
|---|---|---|---|---|---|---|---|---|
| Country | Total | Successful | Withdrawn | % of Withdrawn | Total | Successful | Withdrawn | % of Withdrawn |
| Australia | 18,687 | 18,387 | 300 | 1.61% | 234 | 222 | 12 | 5.13% |
| Brazil | 930 | 884 | 46 | 4.95% | 89 | 81 | 8 | 8.99% |
| China | 7,772 | 6,834 | 938 | 12.07% | 1,405 | 1,250 | 155 | 11.03% |
| Czech Republic | 50 | 43 | 7 | 14.00% | 22 | 16 | 6 | 27.27% |
| France | 2,282 | 2,196 | 86 | 3.77% | 101 | 96 | 9 | 9.37% |
| Greece | 571 | 525 | 46 | 8.06% | 80 | 71 | 9 | 11.25% |
| Hong Kong | 5,512 | 5,328 | 184 | 3.34% | 318 | 311 | 7 | 2.20% |
| India | 4,815 | 4,676 | 139 | 2.89% | 388 | 370 | 18 | 4.64% |
| Italy | 1,005 | 892 | 113 | 11.24% | 106 | 88 | 18 | 16.98% |
| Malaysia | 2,133 | 2,052 | 81 | 3.80% | 129 | 123 | 6 | 4.65% |
| Norway | 860 | 826 | 34 | 3.95% | 27 | 22 | 5 | 18.52% |
| Poland | 1,152 | 1,127 | 25 | 2.17% | 135 | 123 | 12 | 8.89% |
| Russian Fed | 730 | 677 | 53 | 7.26% | 224 | 210 | 14 | 6.25% |
| Singapore | 2,212 | 2,149 | 63 | 2.85% | 119 | 113 | 6 | 5.04% |
| South Korea | 5,630 | 5,433 | 197 | 3.50% | 176 | 169 | 7 | 3.98% |
| Taiwan | 3,748 | 3,233 | 515 | 13.74% | 55 | 50 | 5 | 9.09% |
| Turkey | 569 | 513 | 56 | 9.84% | 48 | 40 | 8 | 16.67% |
| United Kingdom | 9,722 | 9,516 | 206 | 2.12% | 128 | 122 | 6 | 4.69% |
| Vietnam | 940 | 892 | 48 | 5.11% | 238 | 223 | 15 | 6.30% |

prospectus and reported in SDC.[15] Following this strategy allows us to recover the expected proceeds for approximately 42% of the withdrawn share issues executed by both privately and state-owned firms. Given the large number of omitted observations, it is difficult to make strong inferences from these values.[16] However, conditional on their availability, foregone revenues from withdrawn SIPs cumulate to a nonnegligible $116 billion, representing approximately 5% of the $2.39 trillion raised by governments through SIPs over the study period, as shown in Table 1. This value is consistent with that observed for privately owned firms, for which the expected proceeds from withdrawn transactions cumulate to approximately $797 billion, which represents 6.14% of the $12.16 trillion raised by private investors.[17]

What happens to withdrawn SIPs? Less than 30% of these SOEs return to the market over the 5 years following the withdrawal, confirming the existence of large reputational costs associated with exercising this real option. Although data on direct assets sales are limited, we could identify no systematic pattern indicating that withdrawn SIPs are subsequently privatized through direct sales, confirming that governments retain control of a large majority of these SOEs for the foreseeable future.

To obtain consistent and comparable accounting data, we exclude unit and multiple-class offerings, offerings of real estate investment trusts (REITs), ADRs, and closed-end mutual funds. Furthermore, we exclude offerings of financial

[15]Alternatively, we used the item "total proceeds in all markets" reported in SDC to proxy for the expected proceeds.

[16]Omitted observations are likely to be driven by both country-specific regulations and accounting standards; consequently, they are unlikely to be randomly distributed. Therefore, any inference based on this sample should be carefully interpreted.

[17]When we focus on IPOs, similar figures can be identified. Tables and figures including only IPOs are available from the authors.

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institutions (Standard Industrial Classification [SIC] codes 6000–6999), which should be studied in isolation.[18] Following the literature on privatization, we hand collect from multiple sources data on targeted SOEs' performance over the 7 years surrounding the event. Accounting data are collected from Bloomberg, Compustat Global, and the share issue prospectus. We retain any firm for which we could identify at least 2 observations over the pretreatment period. The resulting sample includes 186 withdrawn and 221 successful SIPs, which results in an unbalanced panel including 2,087 firm-year observations. Successful SIPs are included in our sample if they occurred in a country industry for which at least 1 privatization failed over the studied period.

As accounting disclosure is generally not required for unlisted firms, financial information concerning the postwithdrawal performance of SIPs is often unavailable. Nonetheless, we collect complete information for 137 withdrawn SIPs. Because of the presence of extreme outliers for several financial variables that might be caused by reporting errors, we winsorize all accounting variables at the 1% level. Chinese SOEs account for roughly half the sample, but we study SOEs from 26 countries, so the sample remains global even when China is excluded. In particular, Panel A of Table 3 documents that the cross-country distribution of the transactions in our sample mimics that of the universe of withdrawn privatizations, mitigating concerns about the representativeness of the available transactions.

Panels B and C of Table 3 report summary statistics for the available accounting, political, and public finance variables. Withdrawn SIPs involve significantly larger firms, whose successful sale causes a more material control transfer and that, unsurprisingly, cluster during weak market conditions. However, the most striking differences between the two groups are observed with respect to political factors. Withdrawals are more common in democratic countries in which a strong minority coalition party is active and competitive, and they seem to cluster around elections. However, univariate statistics provide poor guidance to fully understand the factors leading to a SIP's withdrawal. Therefore, in the next section, we seek to shed light on the characteristics and consequences of any restructuring process that takes place over the 3 years preceding an attempted privatization.

## III. Comparing Successful and Withdrawn SIPs over the Preprivatization Period

From an economic perspective, when an issuer files the required documents to issue shares on a regulated market, the reputational costs of withdrawing from this commitment are likely to be severe (Dunbar and Foerster (2008)). Therefore, it is unlikely that such a late withdrawal was strategically planned before the filing. If this were the case, successful and withdrawn privatizations should be virtually indistinguishable before the treatment is assigned. In this section, we formally test whether successful and withdrawn privatizations are comparable over the pretreatment period. In particular, because the economic consequences of state

[18]We find accounting data for approximately 30 financial institution whose SIPs were withdrawn before completion.

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## TABLE 3
## Summary Statistics

Panel A of Table 3 describes the sample of withdrawn privatizations for which data are available. Available events indicates the number of withdrawn share issue privatizations (SIPs) included in our sample for a given country. Total Events reports the total number of withdrawn SIPs occurring in a given country. Coverage indicates the percentage of events in a given country for which data are available. In-Sample Incidence and Total Incidence indicate the percentage of observations from a given country as compared to the total number of available observations and the universe of failed SIPs, respectively. Panel B reports summary statistics for accounting and financial variables. Panel C reports summary statistics for political and public finance variables. Variables are defined in Table A1 of the Appendix. Monetary values are deflated to 2010 dollars. All values are winsorized at the 1% level. For non-U.S. firms, the yearly average exchange rates have been applied for conversion. For countries that adopted the euro in Jan. 1999, the exchange rate of the original country was used until the end of the fiscal year 1998. Values that are statistically significant at the 5% confidence level from those reported for successful privatizations are in bold. Statistical significance is assessed using Wilcoxon rank-sum tests for mean and median values.

*Panel A. Representativeness of the Sample of Withdrawn Privatizations*

| Nation | Available Events | Total Events | Coverage | In-Sample Incidence | Total Incidence |
|---|---|---|---|---|---|
| Australia | 8 | 12 | 66.67% | 4.30% | 3.87% |
| Austria | 3 | 4 | 75.00% | 1.61% | 1.29% |
| Brazil | 5 | 8 | 62.50% | 2.69% | 2.58% |
| Canada | 2 | 2 | 100.00% | 1.08% | 0.65% |
| China | 81 | 155 | 52.26% | 43.55% | 50.00% |
| Denmark | 2 | 3 | 66.67% | 1.08% | 0.97% |
| Finland | 2 | 3 | 66.67% | 1.08% | 0.97% |
| France | 6 | 9 | 66.67% | 3.23% | 2.90% |
| Germany | 3 | 4 | 75.00% | 1.61% | 1.29% |
| Greece | 4 | 9 | 44.44% | 2.15% | 2.90% |
| India | 10 | 18 | 55.56% | 5.38% | 5.81% |
| Indonesia | 4 | 4 | 100.00% | 2.15% | 1.29% |
| Israel | 2 | 3 | 66.67% | 1.08% | 0.97% |
| Italy | 11 | 18 | 61.11% | 5.91% | 5.81% |
| Japan | 1 | 1 | 100.00% | 0.54% | 0.32% |
| Malaysia | 3 | 6 | 50.00% | 1.61% | 1.94% |
| Netherlands | 4 | 4 | 100.00% | 2.15% | 1.29% |
| Norway | 7 | 8 | 87.50% | 3.76% | 2.58% |
| Poland | 6 | 12 | 50.00% | 3.23% | 3.87% |
| Portugal | 4 | 4 | 100.00% | 2.15% | 1.29% |
| South Korea | 4 | 7 | 57.14% | 2.15% | 2.26% |
| Spain | 2 | 3 | 66.67% | 1.08% | 0.97% |
| Sweden | 3 | 3 | 100.00% | 1.61% | 0.97% |
| Switzerland | 3 | 4 | 75.00% | 1.61% | 1.29% |
| Turkey | 5 | 8 | 62.50% | 2.69% | 2.58% |
| United States | 1 | 1 | 100.00% | 0.54% | 0.32% |
| Total | 186 | 310 | 60.00% | | |

| | Successful Privatizations | | | Withdrawn Privatizations | | |
|---|---|---|---|---|---|---|
| Variable | *N* | Mean | Median | *N* | Mean | Median |
| *Panel B. Accounting and Financial Variables* | | | | | | |
| log(SIZE) | 1,251 | 7.47 | 7.67 | 836 | **9.36** | **7.98** |
| #_OF_EMPLOYEES | 1,251 | 22,336.23 | 4,128.00 | 836 | **19,669.19** | **4,908.00** |
| SALES_GROWTH | 1,251 | 0.24 | 0.17 | 836 | **0.18** | **0.12** |
| ROS | 1,251 | 0.08 | 0.05 | 836 | 0.07 | 0.05 |
| OPERATING_EFFICIENCY | 1,251 | 0.03 | 0.01 | 836 | 0.04 | 0.01 |
| LABOR_INTENSITY | 1,251 | 4.87 | 2.85 | 836 | **3.94** | **2.54** |
| CAPITAL_EXPENDITURES | 1,251 | 0.08 | 0.06 | 836 | 0.08 | 0.07 |
| ACCRUALS | 1,251 | 0.15 | 0.12 | 836 | **0.09** | **0.07** |
| PAYOUT | 1,251 | 0.03 | 0.01 | 836 | 0.03 | 0.01 |
| LEVERAGE | 1,251 | 0.32 | 0.29 | 836 | 0.32 | **0.35** |
| IPO | 1,251 | 0.19 | 0.00 | 836 | **0.36** | 0.00 |
| %_SHARES_FILED | 1,251 | 0.11 | 0.12 | 836 | **0.18** | **0.20** |
| 1_MONTH_STOCK_RETURNS | 1,251 | 0.01 | 0.01 | 836 | **0.00** | **0.01** |
| TIME_TO_ACTION | 963 | 219.97 | 194.00 | 591 | 226.01 | 199.00 |
| #_OF_IPO | 1,251 | 266.08 | 221.00 | 836 | **173.08** | **102.00** |
| 2_YEAR_GDP_FORECAST | 1,251 | 7.49 | 7.92 | 836 | **5.47** | **5.21** |
| GDP_PER_CAPITA | 1,251 | 8.55 | 8.64 | 836 | **9.00** | 8.76 |
| *Panel C. Political and Public Finance Variables* | | | | | | |
| CUMULATIVE_PROCEEDS_FROM_SIP | 1,251 | 96.91 | 124.23 | 836 | **75.80** | **29.84** |
| PUBLIC_DEBT | 1,251 | 0.27 | 0.37 | 836 | **0.44** | **0.34** |
| EMPLOYMENT_RATIO | 1,251 | 0.66 | 0.67 | 836 | 0.64 | 0.67 |
| STOCK_MARKET_SIZE | 1,251 | 0.89 | 0.85 | 836 | **0.75** | **0.79** |
| TRADE_OPENNESS | 1,251 | 0.71 | 0.49 | 836 | 0.65 | 0.49 |
| LEFT_WING_GOVERNMENT | 1,251 | 0.77 | 1.00 | 836 | 0.74 | 1.00 |
| ELECTION_YEAR | 1,251 | 0.06 | 0.00 | 836 | **0.13** | 0.00 |
| POLITICAL_COMPETITIVENESS | 1,251 | 0.81 | 1.00 | 836 | **0.47** | **0.28** |
| POLITI_IV_INDEX | 1,251 | −3.86 | −7.00 | 836 | **1.37** | **5.00** |

ownership on a firms' operating and financial performance are dynamic in nature (Villalonga (2000), Gupta (2005)), we investigate the existence of parallel conditional trends between the two groups by estimating the following regression model via ordinary least squares (OLS):

$$(1)\qquad Y_{i,t} = \alpha + \sum_{k=1}^{2} \beta_k \times \text{YEAR}_k + \beta_3 \times \text{WITHDRAWN}_i + \sum_{j=4}^{5} \sum_{k=1}^{2} \beta_j \times \text{YEAR}_{i,k} \times \text{WITHDRAWN}_i + \beta_6 \times X_{i,t} + \gamma_{\text{INDUSTRY_FISCAL_YEAR}} + \gamma_{\text{COUNTRY}} + \varepsilon_{i,t}.$$

We estimate this model to study the time-series behavior of 5 corporate policies extensively studied in the privatization literature: profitability, labor intensity, operating efficiency, payout policy, and capital expenditures. $\alpha$ represents the constant term; $\text{YEAR}_{i,t}$ is an indicator variable equal to 1 if the observation precedes the event by $t$ fiscal years, and 0 otherwise. WITHDRAWN is a dummy equal to 1 if firm $i$'s SIP is withdrawn, and 0 otherwise. $X_{i,t}$ is a matrix including several firm-specific control variables, capturing eventual confounding effects of firm size (TOTAL_ASSETS), leverage, number of employees, sales growth, and capital expenditures. If one of these firm characteristics is used as the dependent variable, this covariate is not included in $X_{i,t}$ in that specification. Finally, $\gamma_{\text{INDUSTRY_FISCAL_YEAR}}$ and $\gamma_{\text{COUNTRY}}$ are industry fiscal-year and country fixed effects, respectively. Industries are defined at the 2-digit SIC level.

Because the panel is built at the firm relative-year ($\text{YEAR}_t$) level, rather than at the firm fiscal-year level, the use of industry fiscal-year fixed effects does not preclude time-series interpretation of the estimated coefficients, and it does capture eventual industry-specific shocks that might affect the time-series dynamics of the studied SOEs' performance (e.g., oil price shocks or disruptive innovation in the telecommunication sector). The regression is estimated over the 3 years preceding the event date, and standard errors are clustered by country.

The two $\text{YEAR}_t$ dummies capture the existence of an eventual time trend over the preprivatization period, and WITHDRAWN controls for any differences in dependent variable levels between the two groups, as measured 3 years before the attempted transaction. Finally, the 2 interaction terms ($\text{YEAR}_t \times$ WITHDRAWN) allow us to estimate differences in trends over the pretreatment period between successful and withdrawn SIPs. Therefore, statistically significant coefficients for $\text{YEAR}_2$ (2 years before the event date) and $\text{YEAR}_1$ (1 year before the event date) indicate the existence of preprivatization trends for successful privatizations, whereas significant coefficients for $\text{YEAR}_2 \times \text{WITHDRAWN}_i$ and $\text{YEAR}_1 \times \text{WITHDRAWN}_i$ suggest differential dynamics for the 2 groups over the 3 years preceding the event.

Table 4 reports our findings for the full sample. Strong, statistically significant preprivatization trends emerge from this analysis. Consistent with Villalonga (2000), Dewenter and Malatesta (2001), and Wolf (2009), improvements in targeted SOEs' profitability, labor intensity, and operating efficiency are identified over the preprivatization period. We also document a reduction in capital

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TABLE 4

Difference in Preprivatization Trends

Table 4 reports results of a test for difference in trends over the preprivatization period between successful and withdrawn share issue privatizations. WITHDRAWN is a dummy that equals 1 if the transaction is withdrawn, and 0 otherwise. $YEAR_2$ is a dummy that equals 1 if the observation precedes the treatment by 2 fiscal years. $YEAR_1$ is a dummy that equals 1 if the observation precedes the treatment by 1 fiscal year. Additional controls include total assets, leverage, capital expenditures, number of employees, and sales growth. If one of these covariates is used as the dependent variable, we do not use it as a control. Standard errors are clustered at the country level. ** and *** indicate statistical significance at the 5% and 1% levels, respectively.

| Variable | Return on Sales<br>1 | Labor Intensity<br>2 | Operating Efficiency<br>3 | Payout<br>4 | Capital Expenditure<br>5 |
|---|---|---|---|---|---|
| WITHDRAWN | −0.016<br>(0.019) | −1.448***<br>(0.514) | 0.019**<br>(0.007) | −0.086**<br>(0.033) | 0.011<br>(0.008) |
| $YEAR_2$ | 0.022**<br>(0.006) | −0.235**<br>(0.007) | 0.016**<br>(0.007) | 0.031<br>(0.037) | −0.0013<br>(0.003) |
| $YEAR_1$ | 0.033***<br>(0.011) | −0.274**<br>(0.009) | 0.019**<br>(0.001) | −0.029<br>(0.029) | −0.010***<br>(0.003) |
| $YEAR_2 \times$ WITHDRAWN | 0.013<br>(0.026) | 0.491<br>(0.555) | 0.002<br>(0.078) | 0.014<br>(0.058) | 0.002<br>(0.008) |
| $YEAR_1 \times$ WITHDRAWN | −0.011<br>(0.025) | 0.639<br>(0.605) | 0.003<br>(0.011) | 0.104<br>(0.074) | 0.011<br>(0.013) |
| Constant term | Yes | Yes | Yes | Yes | Yes |
| Additional controls | Yes | Yes | Yes | Yes | Yes |
| Industry fiscal-year fixed effects | Yes | Yes | Yes | Yes | Yes |
| Country fixed effects | Yes | Yes | Yes | Yes | Yes |
| No. of obs. | 1,019 | 1,019 | 1,019 | 782 | 1,019 |
| Adj. $R^2$ | 0.71 | 0.68 | 0.55 | 0.69 | 0.48 |

expenditures for both groups.[19] No difference in trends is identified between the two groups, suggesting that all target SOEs undergo comparable restructuring processes over the 3 years preceding the planned privatization.

Despite the observed financial similarities between failed and successful SIPs, a government's decision to withdraw an attempted privatization is unlikely to be random. In particular, WITHDRAWN is statistically significant for labor intensity (column 2), operating efficiency (column 3), and payout ratio (column 4), suggesting that financial considerations are likely to influence governments' decisions to withdraw a previously filed SIP. Because direct comparability between the two samples hinges on our understanding of such a complex decision process, in the next section, we model rational issuers' ex ante expected probability of withdrawal.

## IV. Political and Financial Determinants of SIPs' Withdrawal

As discussed in Busaba et al. (2001) and Busaba (2006), the decision to withdraw a previously filed share issue hinges on the position of the issuer's reservation price relative to possible investors' valuation. Therefore, the economic and political factors affecting these two dimensions are likely to play a critical role in determining whether a government withdraws a SIP. However, the empirical and

[19]Findings in Jaslowitzer et al. (2018) and D. Chen et al. (2017) suggest that the identified reduction in capital expenditures might be driven by Chinese SOEs. We formally test for this consideration in the next section.

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theoretical frameworks presented in Busaba et al. (2001) and Busaba (2006) are likely to poorly reflect the situation regarding SOEs, given their nature. For instance, SOEs often face soft budget constraints (Kornai (1988), Laffont and Tirole (1993)), making financial-constraint-related considerations secondary in the decision to issue shares in a regulated market. Absent a clear theoretical model, we control for several firm- and country-level variables that might affect a government's decision to withdraw a previously filed SIP, and let the data speak for themselves.

## Decision to Withdraw a Previously Filed SIP

In Table 5, we estimate a rational issuer's ex ante expected probability of withdrawal for the 407 attempted SIPs for which we have relevant financial, political, and macroeconomic data. The decision to withdraw a previously filed SIP is modeled as a function of several firm-level financial factors, as observed at the end of the fiscal year preceding the attempted share issue, and of a set of political variables observed immediately before the proposed sale. We control for expectations concerning future macroeconomic scenarios by including 2-year gross domestic product (GDP) forecasts as reported at the end of the fiscal year preceding the attempted SIP. To account for country-level shocks, without sacrificing the possibility of studying the role played by highly persistent political factors in triggering the decision to withdraw a previously filed SIPs, we employ country random effects in all proposed specifications. Furthermore, all our models incorporate industry fixed effects. Because the relation between the decision to exercise this real option and the set of variables reported in Table 5 is likely to be nonlinear, we estimate a logit model via maximum likelihood estimation.[20]

Interestingly, financial factors appear to play a secondary role in determining whether a government exercises its option to withdraw a previously filed SIP. Operating efficiency (the ratio of net income to the number of employees) is the only factor whose coefficient is consistently (positively) significant at the 1% confidence level. This indicates that governments' sensitivity to macro and political factors is highest when the privatization program includes that nation's most efficient "crown jewels." We find robust evidence that larger attempted SIPs, as measured in terms of both SOE size and percentage of filed shares, have a higher probability of failing, suggesting that large and heavily scrutinized transactions are more likely to result in political backlash for the ruling party. Furthermore, SIPs characterized by lower sales growth rates are more likely to be withdrawn, consistent with demand-side issues being more likely to emerge for SIPs with scarce growth opportunities. Finally, no support is provided for the idea that governments exercise their option to walk away in an attempt to time the market. Busaba et al. (2001) and Bernstein (2015) do find this for privately owned firms, raising further concerns about the direct comparability of share issues attempted by privately

[20]All continuous variables are normalized with 0 mean and 1 standard deviation. Results are robust to using either a probit or linear probability model, as well as to dropping Chinese SOEs from our sample.

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TABLE 5

Decision to Withdraw a SIP

Table 5 reports estimates for 2 in-sample probability models analyzing the determinants of the decision to withdraw a previously filed share issue privatization (SIP). The dependent variable is equal to 1 for withdrawn SIPs, and 0 otherwise. All variables are defined in Table A1 of the Appendix. All continuous variables are standardized, with 0 mean and 1 standard deviation. Columns 1 and 2 report logit models estimated using maximum likelihood estimation. All models include a constant term, country random effects, and industry fixed effects. Additional controls include capital expenditures; number of employees; accruals; a dummy variable equal to 1 if the share issue is an initial public offering (IPO), and 0 otherwise; 2-year forecasted gross domestic product (GDP) growth; stock market size; and number of IPOs that occur in the same country fiscal year in which the event takes place. Standard errors are clustered by country. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

| Variable | 1 | 2 |
|---|---|---|
| log(SIZE) | 0.784* | 0.967** |
| | (0.408) | (0.385) |
| SALES_GROWTH | −0.383* | −0.510** |
| | (0.231) | (0.238) |
| PROFITABILITY | 0.087 | 0.102 |
| | (0.199) | (0.287) |
| LABOR_INTENSITY | −0.262 | −0.229 |
| | (0.226) | (0.228) |
| LEVERAGE | 0.037 | −0.066 |
| | (0.140) | (0.114) |
| OPERATING_EFFICIENCY | 0.664*** | 0.643*** |
| | (0.147) | (0.130) |
| GDP_PER_CAPITA | 0.962** | 0.962** |
| | (0.431) | (0.390) |
| NET_DEFICIT | −0.849*** | −0.842*** |
| | (0.329) | (0.310) |
| PUBLIC_DEBT | −0.104*** | −0.117** |
| | (0.029) | (0.046) |
| POLITI_IV_INDEX | 0.308*** | |
| | (0.097) | |
| %_SHARES_FILED | 0.645** | 0.741** |
| | (0.291) | (0.336) |
| LEFT_WING_GOVERNMENT | −0.355 | −1.449* |
| | (1.312) | (0.852) |
| ELECTION_YEAR | −0.318 | −0.247 |
| | (0.4799) | (0.886) |
| POLITICAL_COMPETITIVENESS | −0.343** | −0.514** |
| | (0.144) | (0.236) |
| 1_MONTH_STOCK_RETURNS | −0.240 | 0.145 |
| | (0.512) | (0.162) |
| EMPLOYMENT_RATIO | 0.138 | 0.537 |
| | (0.582) | (0.356) |
| TRADE_OPENNESS | 0.022* | 0.028** |
| | (0.012) | (0.012) |
| Additional controls | Yes | Yes |
| Country effects | Random | Random |
| Industry effects | Fixed | Fixed |
| No. of obs. | 407 | 407 |
| No. of countries | 26 | 26 |

and state-owned firms, given their different sensitivities to political and financial factors.

Political and institutional factors play an important role in determining the outcome of an attempted SIP. High-current-deficit countries have a substantially lower degree of financial flexibility, which results in greater reluctance to withdraw a previously filed SIP. Similarly, heavily indebted countries are more dependent on external financial markets and, consequently, need to carefully manage their reputation as reliable financial counterparties. These governments also have a more

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pressing fiscal need to raise funds and therefore are more reluctant to abandon an offering once launched. These factors result in a lower propensity to withdraw SIPs for countries with a high stock of public debt. Finally, it is important to discuss the strong marginal effect of the Politi IV Index on the probability of withdrawing a SIP (column 1 of Table 5). The Politi IV Index is a discrete measure that can take values between −10 and +10. The higher the score, the more democratic a country is. This index is an indirect function of all the other political variables included in Table 5, explaining the lack of significance for other arguably important factors, such as closeness to a political election. Furthermore, this indicator is time invariant for China, which represents approximately 50% of our sample. Consequently, the Politi IV Index might be acting as a China fixed effect indicator, from which we would only be able to infer that attempted Chinese SIPs are more likely to be withdrawn.[21] Thus, in column 2 we reestimate the logit model after dropping the Politi IV Index. With this alternative specification, we attempt to open the political "black box," shedding light on which political factors are driving the results. Consistent with findings reported in Dinç and Gupta (2011), the strength of the minority coalition party (POLITICAL_COMPETITIVENESS) plays a significant role in determining the success of these attempted privatizations.[22] In particular, the larger the difference in votes controlled in Parliament by the majority versus the minority coalition party, the lower the probability of withdrawing a previously filed SIP, indicating that strong minority coalition parties are more likely to cause the failure of an attempted privatization.[23] Finally, we find weak evidence that governments of countries whose economies are reliant on exports are more reluctant to withdraw a previously filed SIP. This finding further suggests that openness to international markets has "disciplinary effects," inducing governments to carefully manage their financial reputation.

Results in Table 5 confirm that the decision to withdraw a previously filed SIP is endogenous. However, the primary role played by both political and public finance considerations in determining the outcome of governments' decision processes allows us to mitigate self-selection concerns. In particular, we recognize that both a country's stock of public debt and its degree of political competitiveness as observed at the end of the fiscal year preceding the event are unlikely to have direct implications for a SOE's future performance,[24] though they appear to be fundamental determinants of a government's decision to withdraw a previously filed

[21]China has a Politi IV score of −7, which is the lowest score among the countries in the sample.

[22]POLITICAL_COMPETITIVENESS is time invariant for China. Consequently, concerns similar to those described for the Politi IV Index apply to the interpretation of this coefficient, which might capture a China fixed effect.

[23]This finding can be either positive or negative in terms of its social welfare implications. On the one hand, a strong opposition party can reduce the risk of tunneling or of political patronage. On the other hand, a stronger minority coalition party might have the power to freeze a government's attempts to finalize important economic reforms in order to damage the majority party from an electoral perspective.

[24]Both covariates are relatively highly persistent and both are predetermined through a country's history and political structure. In particular, a country's stock of debt results from the historical cumulation of governments' public finance decisions, whereas its current degree of political competition depends on both historical considerations and the outcome of the most recent election.

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SIP.[25] Consequently, we can employ the ex ante expected probability of default estimated in model 2 of Table 5 to propensity score match the two samples. These political variables act as valid instruments, de facto quasi randomizing the treatment assignment. To capture country-specific factors that might drive the decision to exercise this real option, we match each withdrawn observation to its nearest neighbor, conditional on both SOEs relying on common support and on being incorporated in the same country. That is, the exogenous variation allowing us to quasi randomize the treatment assignment originates from changes in a country's stock of public debt and its degree of political competitiveness from 1998 to 2016. It is important to emphasize that the availability of two exogenous instruments is critical in our setting, as the degree of political competitiveness is highly persistent in several countries and, in particular, is not time varying for China. Thus, changes in the stock of public debt provides the core of the required exogenous variation allowing us to successfully match these two subsamples. This demanding procedure results in a matched sample comprising 98 withdrawn and 98 successful SIPs from 19 countries. As expected, Chinese SOEs represent approximately 50% of this sample.[26]

Panel A of Table 6 confirms that the previously identified trends (see Table 4) hold in our matched sample of completed and withdrawn SIPs. In particular, we observe large increases in targeted SOEs' profitability and operating efficiency, as well as evidence of significant reductions in labor intensity and capital expenditures over the 2 years before the projected privatization date.[27] No significant difference in trends is observed between the two groups, confirming that all targeted SOEs undergo similar restructuring processes over the 3 years preceding the event. Furthermore, WITHDRAWN is significant for capital expenditures (column 5) exclusively, suggesting that the proposed PSM successfully reduces differences in observables between the treated and control samples.

The literature suggests that Chinese SOEs are exposed to a unique political and institutional environment, which might induce "abnormal" corporate behaviors compared to other countries. For instance, Chinese privatizations often result in no change in profitability and a net decline in capital expenditures (Megginson (2017), D. Chen et al. (2017)), reversing the findings documented for non-Chinese transactions. Furthermore, as previously discussed, only the stock of public debt provides exogenous variation in the time series to quasi randomize the decision to withdraw a previously filed Chinese SIP. Consequently, even if the numerical dominance of Chinese SIPs in our sample captures global trends in privatizations over the last 20 years, it is important to address concerns about the extent to which previously reported results are driven by Chinese attempted transactions. We replicate the tests reported in Panel A of Table 6 after excluding Chinese SOEs

[25]Virtually no country in our sample experiences multiple withdrawals in the same fiscal year. This dispersion decreases concerns about the lack of within-country-year variation characterizing the proposed instruments.

[26]As previously discussed, private firms are rarely required to disclose accounting information. This data limitation constrains our ability to match all attempted SIPs in our sample, thus shrinking the final number of usable observations. The time-series distribution of the matched sample is provided in Table A.2 in the Supplementary Material.

[27]Results reported in Table 6 are generated by matching treated and control units with replacement. Consequently, we prudentially estimate the standard errors by bootstrapping them within each country.

TABLE 6

Difference in Preprivatization Trends: Matched Sample

Table 6 reports results of a test for difference in trends over the preprivatization period between successful and withdrawn share issue privatizations (SIPs). WITHDRAWN is a dummy that equals 1 if the transaction is withdrawn, and 0 otherwise. $YEAR_2$ is a dummy that equals 1 if the observation precedes the treatment by 2 fiscal years. $YEAR_1$ is a dummy that equals 1 if the observation precedes the treatment by 1 fiscal year. Additional controls include total assets, leverage, capital expenditures, number of employees, and sales growth. If one of these covariates is used as the dependent variable, we do not use it as a control. Standard errors are bootstrapped and stratified by country in Panels A and B. The regressions are estimated over the 3 years preceding the successful/withdrawn SIP. All regressions include country and industry fiscal-year fixed effects. Panel A reports the 98 state-owned enterprises (SOEs) successfully matched using propensity score matching (PSM). Panel B reports the 50 non-Chinese SOEs successfully matched using PSM. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

| Variable | Return on Sales<br>1 | Labor Intensity<br>2 | Operating Efficiency<br>3 | Payout<br>4 | Capital Expenditures<br>5 |
|---|---|---|---|---|---|
| *Panel A. Matched Sample* | | | | | |
| WITHDRAWN | 0.012<br>(0.016) | −0.373<br>(0.489) | 0.009<br>(0.007) | 0.009<br>(0.088) | −0.040**<br>(0.011) |
| $YEAR_2$ | 0.026**<br>(0.013) | −0.151*<br>(0.081) | 0.009***<br>(0.002) | 0.001<br>(0.055) | −0.016*<br>(0.001) |
| $YEAR_1$ | 0.044***<br>(0.017) | −0.642***<br>(0.172) | 0.066***<br>(0.018) | −0.051<br>(0.055) | −0.018**<br>(0.008) |
| $YEAR_2$ × WITHDRAWN | −0.0251<br>(0.025) | 0.0184<br>(0.203) | −0.359<br>(0.523) | −0.026<br>(0.083) | 0.012<br>(0.009) |
| $YEAR_1$ × WITHDRAWN | −0.0150<br>(0.024) | −0.180<br>(0.465) | −0.214<br>(0.339) | −0.023<br>(0.013) | −0.008<br>(0.013) |
| Constant term | Yes | Yes | Yes | Yes | Yes |
| Additional controls | Yes | Yes | Yes | Yes | Yes |
| Industry fiscal-year fixed effects | Yes | Yes | Yes | Yes | Yes |
| Fiscal-year fixed effects | Yes | Yes | Yes | Yes | Yes |
| Country fixed effects | Yes | Yes | Yes | Yes | Yes |
| No. of obs. | 492 | 492 | 492 | 441 | 492 |
| No. of countries | 19 | 19 | 19 | 18 | 19 |
| Adj. $R^2$ | 0.74 | 0.67 | 0.53 | 0.66 | 0.52 |
| *Panel B. Matched Sample: Excluding Chinese SIPs* | | | | | |
| WITHDRAWN | −0.052<br>(0.038) | −0.224<br>(0.455) | 0.004<br>(0.006) | −0.110<br>(0.255) | −0.045<br>(0.007) |
| $YEAR_2$ | 0.041**<br>(0.024) | −0.575**<br>(0.375) | 0.016***<br>(0.002) | 0.030<br>(0.090) | −0.026<br>(0.033) |
| $YEAR_1$ | 0.076***<br>(0.025) | −1.200***<br>(0.562) | 0.031***<br>(0.005) | −0.005<br>(0.162) | −0.052<br>(0.048) |
| $YEAR_2$ × WITHDRAWN | −0.036<br>(0.037) | 0.059<br>(0.592) | −0.018*<br>(0.006) | −0.036<br>(0.213) | −0.029<br>(0.038) |
| $YEAR_1$ × WITHDRAWN | −0.036<br>(0.046) | 0.076<br>(0.536) | −0.008<br>(0.011) | −0.031<br>(0.450) | −0.037<br>(0.051) |
| Constant term | Yes | Yes | Yes | Yes | Yes |
| Additional controls | Yes | Yes | Yes | Yes | Yes |
| Industry fiscal-year fixed effects | Yes | Yes | Yes | Yes | Yes |
| Country fixed effects | Yes | Yes | Yes | Yes | Yes |
| No. of obs. | 232 | 232 | 232 | 225 | 232 |
| No. of countries | 18 | 18 | 18 | 17 | 18 |
| Adj. $R^2$ | 0.83 | 0.89 | 0.88 | 0.68 | 0.79 |

from the matched sample. Estimates based on the remaining 50 withdrawn and 50 successful non-Chinese privatizations are reported in Panel B of Table 6. Consistent with previous results, we report a strong increase in profitability and operating efficiency over the 3 years preceding the event for non-Chinese planned SIPs, as well as a strong decline in labor intensity. The greater performance improvements for planned non-Chinese SIPs are consistent with the weaker performance effect induced by Chinese privatizations, which dilutes the impressive gains achieved by targeted non-Chinese SOEs (Megginson (2017)). Similarly, over

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the pretreatment period, we identify no evidence of a decline in capital expenditures for non-Chinese SOEs induced by the expectation of being exposed to market discipline. As expected, overinvestment issues are not observed in non-Chinese SOEs (Jaslowitzer et al. (2018), D. Chen et al. (2017)).

All in all, the reported similarities between withdrawn and successful SIPs suggest that we might be able to isolate the economic consequences of transferring ownership from state to private investors by comparing these two groups. Indeed, the proposed instrumented matching strategy allows us to explicitly control for the i) economic consequences of the expectation of being privatized, ii) selection of which SOE to target for privatization, and iii) endogenous selection of which attempted SIP to withdraw before completion, thus isolating the marginal effect of a firm's privatization on its long-term economic performance.

## V. Economic Consequences of SIPs' Withdrawal

As previously discussed, the propensity-score-matched sample allows us to isolate the effect of the ownership transfer from state to private investors after controlling for endogenous pretreatment trends. Furthermore, results reported in Table 6 suggest that the parallel trends assumption is likely satisfied, allowing us to estimate the treatment effect by exploiting a DiD setting. Because data constraints do not allow us to match on industry and fiscal year, we augment our DiD model by explicitly controlling for industry and fiscal-year fixed effects to absorb potential shocks that might induce differences in performance over the posttreatment period. Furthermore, we explicitly control for the firm-level variables used in Tables 4 and 6. Panel A of Table 7 reports our findings.

Both the successful and unsuccessful privatization groups experience statistically significant declines in profitability (ROS) over the posttreatment period, with no relevant difference recorded between the two groups. However, as discussed below, this is driven completely by Chinese SIPs.[28] Completed privatizations experience significant increases in operating efficiency and payout, as well as a continuing significant decline in labor intensity postsale. Conversely, withdrawn privatizations experience a strong relative decline in operating efficiency and payout after the SIP is withdrawn, plus a significant increase in labor intensity as compared to successful SIPs. These findings are consistent with the existence of state-ownership-induced agency costs that cannot be fully dealt with without ownership and control transfer. Furthermore, consistent with the hypothesis that state ownership induces overinvestment, withdrawn SIPs' average capital expenditure increases significantly once the expectation of being exposed to the market discipline disappears, though this too is solely a Chinese SOE phenomenon.

[28]It is possible that the profitability of newly privatized firms might suffer from a downward bias because of agency conflicts generated by the dispersed ownership that results from the transaction itself, as suggested by Jensen and Meckling (1976) and Jensen (1989). This might explain the model's inability to identify statistically significant results. Furthermore, it is important to recall that Chinese SIPs are severely affected by the so-called listing effect, which results in weaker improvements in profitability and operating efficiency (Li et al. (2017)).

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TABLE 7

Economic Consequences of Privatization Withdrawals: DiD Estimation

Table 7 reports results of a difference-in-difference (DiD) model aimed to study the economic consequences of a share issue privatization's (SIP) withdrawal. POST is a dummy that equals 1 if the observation occurs after the transaction is completed, and 0 otherwise. WITHDRAWN is a dummy that equals 1 if the SIP is not successfully completed. Additional controls include total assets, leverage, capital expenditures, number of employees, and sales growth. If one of these covariates is used as the dependent variable, we do not use it as a control. The dependent variables are defined in Table A1 of the Appendix. Standard errors are bootstrapped and stratified by country. All regressions are estimated over the period from 3 years before the event to 3 years after the event, for all observation successfully matched using propensity score matching. In Panel A, all models are estimated over the full matched sample. Panel B includes only the 100 matched withdrawn and successful SIPs. *,**, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

| Variable | Return on Sales<br>1 | Labor Intensity<br>2 | Operating Efficiency<br>3 | Payout<br>4 | Capital Expenditures<br>5 |
|---|---|---|---|---|---|
| *Panel A. Full Matched Sample* | | | | | |
| WITHDRAWN | −0.001 | 0.791 | 0.0165* | −0.007 | −0.015 |
| | (0.010) | (0.521) | (0.008) | (0.009) | (0.012) |
| POST | −0.061** | −0.476* | 0.012 | 0.035* | −0.027*** |
| | (0.023) | (0.253) | (0.011) | (0.0019) | (0.011) |
| WITHDRAWN × POST | 0.039 | 0.259** | −0.014** | −0.0294* | 0.023** |
| | (0.043) | (0.106) | (0.006) | (0.0162) | (0.010) |
| Constant term | Yes | Yes | Yes | Yes | Yes |
| Additional controls | Yes | Yes | Yes | Yes | Yes |
| Industry fiscal-year effects | Yes | Yes | Yes | Yes | Yes |
| Country effects | Matched | Matched | Matched | Matched | Matched |
| No. of obs. | 972 | 972 | 972 | 954 | 972 |
| $R^2$ | 0.69 | 0.48 | 0.34 | 0.49 | 0.27 |
| *Panel B. Matched Sample: Excluding Chinese SIPs* | | | | | |
| WITHDRAWN | −0.016 | −0.406 | −0.003 | −0.021* | 0.007 |
| | (0.020) | (1.044) | (0.010) | (0.011) | (0.026) |
| POST | 0.039* | −0.451 | −0.016 | 0.024* | −0.061** |
| | (0.021) | (0.599) | (0.013) | (0.013) | (0.026) |
| WITHDRAWN × POST | −0.041 | 1.440*** | −0.039** | −0.039** | 0.020 |
| | (0.037) | (0.429) | (0.021) | (0.018) | (0.003) |
| Constant term | Yes | Yes | Yes | Yes | Yes |
| Additional controls | Yes | Yes | Yes | Yes | Yes |
| Industry fiscal-year effects | Yes | Yes | Yes | Yes | Yes |
| Country effects | Matched | Matched | Matched | Matched | Matched |
| No. of obs. | 523 | 523 | 523 | 509 | 523 |
| $R^2$ | 0.75 | 0.78 | 0.66 | 0.84 | 0.55 |

Finally, SOEs whose privatizations are not successfully completed have significantly lower payout ratios, consistent with private investors only being able to impose dividend payments to mitigate agency costs on successfully privatized companies. These agency costs might be induced by governments retaining minority shares even in "privatized" SOEs.[29]

The simultaneous increase in i) capital expenditure and ii) labor intensity, and the reported iii) reduction in operating efficiency observed for withdrawn SIPs support the hypothesis that state-ownership-induced agency costs do exist and can be severe. Furthermore, the lack of relative decline in profitability over the post-treatment period suggests that these agency costs might be transferred to consumers/taxpayers either directly, through a higher markup for goods and services

[29]Virtually no SIPs involve 100% of an SOE's equity. Governments generally divide privatizations into several tranches to maximize revenues and reduce market liquidity concerns (see, e.g., Gupta (2005)).

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sold by the (remaining) SOE, or indirectly, through a suboptimal subsidization of certain industries or firms to maximize employment for political reasons, or both.

As previously discussed, it is important to study whether Chinese SOEs are driving the findings. Therefore, we drop China from the initial sample and replicate our DiD regressions for the 100 remaining matched SOEs. These estimates are reported in Panel B of Table 7. Virtually all results are robust to this jackknife test. However, two important differences are worth noting. First, as expected, the decrease in SOEs' profitability after the completion of the SIP is a China-specific phenomenon: The estimated coefficient for the dummy variable indicating the postevent period turns positive and statistically significant for completed non-Chinese SIPs. Second, consistent with Jaslowitzer et al. (2018) and D. Chen et al. (2017), SOEs' overinvestment appears to be significantly more pronounced in China than in other countries. Indeed, no statistically significant difference is identified between withdrawn and successful SIPs with respect to their capital expenditures in countries other than China. These results confirm that absent the ownership transfer from political to private investors, the large efficiency gains cumulated by SOEs over the preprivatization period are not sustainable in the long term.

The reliability of our results hinges on the validity of the proposed matching procedure. However, using an instrumental variable to estimate a firm's propensity to be treated is controversial, as it is based on strong but untestable econometric assumptions (Wooldridge (2016), King and Nielsen (2016)).[30] Therefore, it is of paramount importance to validate the results within a different framework.

We estimate a 2-stage least squares (2SLS) specification similar to the one proposed in Dinç and Gupta (2011). In particular, we follow Angrist and Pischke (2008) and employ the fitted values from the logit model estimated in model 2 of Table 5 as an instrument for the decision to withdraw a previously filed SIP. As previously discussed, a country's stock of public debt and its degree of political competitiveness, as measured at the end of the fiscal year preceding the privatization, provide the required exogenous variation to obtain consistent estimates of the treatment effect. These regressions include country and industry fiscal-year fixed effects, as well as additional control variables similar to those employed in Dinç and Gupta and used in our previous analyses. These specifications are estimated on the full sample of targeted SOEs, and the dependent variables are changes in the five studied corporate policies over the 3 years following the event.[31] From the first-stage regression reported in Panel B of Table 8, we confirm that the estimated probability of withdrawal appears to be a relevant instrument for a government's decision to exercise this real option. The second-stage estimates are reported in Panel A. All results are consistent with those reported in Table 7, strongly suggesting the existence of severe state-ownership-induced agency costs that cannot be mitigated without the successful ownership transfer from state to private investors.[32]

[30]PSM might result in increased imbalance, inefficiency, model dependence, and bias when covariates satisfying the instrumental variable assumption are included in matching estimators.

[31]To compute changes over the posttreatment period, we constrain the sample to the withdrawn and successful SIPs with at least 2 valid observations over the 3 years following the event.

[32]Virtually all results reported in Table 7 are robust to dropping Chinese SIPs from the sample. These estimates are reported in Panels C and D of Table 8. Findings confirm that SOEs' overinvestment appears to be more pronounced in China.

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TABLE 8

Economic Consequences of Privatization Withdrawals: Change Regressions

Table 8 presents results from a pooled instrumental variable regression. Panel A reports results from the second stage of 2-stage least squares regressions over 5 corporate policies, defined in Table A1 of the Appendix. The dependent variables are measured as percentage change over the 3 years following the event. WITHDRAWN is a dummy variable equal to 1 if the share issue privatization (SIP) is not successfully completed, and 0 otherwise. This variable is instrumented by the fitted probabilities obtained in the probit model estimated in model 4 of Table 5. A country's degree of political competitiveness and stock of public debt act as an instrument for the computed probability of withdrawal. Panel B reports the first stage of the regression. Standard errors are robust to clustering at the country level and all specifications include country and fiscal-year fixed effects. Additional controls include log(size), leverage, number of employees, gross domestic product (GDP) per capita, left-wing government, election year, trade openness, size of the stock market, employment rate, and a dummy equal to 1 if the attempted SIP is an initial public offering, and 0 otherwise. Panels C and D replicate Panels A and B after excluding Chinese SIPs. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

*Panel A. Second Stage*

| Variable | Change in Return on Sales<br>1 | Change in Labor Intensity<br>2 | Change in Operating Efficiency<br>3 | Change in Payout Policy<br>4 | Change in Capital Expenditures<br>5 |
|---|---|---|---|---|---|
| WITHDRAWN | −0.084<br>(0.053) | 0.437**<br>(0.191) | −0.051***<br>(0.013) | −0.092*<br>(0.037) | 0.09***<br>(0.004) |
| Constant | Yes | Yes | Yes | Yes | Yes |
| Country and industry fiscal-year effects | Fixed | Fixed | Fixed | Fixed | Fixed |
| Additional control | Yes | Yes | Yes | Yes | Yes |
| No. of obs. | 278 | 278 | 278 | 278 | 278 |
| $R^2$ | 0.89 | 0.84 | 0.87 | 0.79 | 0.89 |

*Panel B. First Stage*

| Variable | Withdrawn<br>1 |
|---|---|
| PROPENSITY_TO_WITHDRAW | 0.942***<br>(0.203) |
| Constant | Yes |
| Country and fiscal-year effects | Fixed |
| Additional control | Yes |
| No. of obs. | 278 |
| $R^2$ | 0.83 |

*Panel C. Second Stage: Excluding Chinese SIPs*

| Variable | Change in Return on Sales<br>1 | Change in Labor Intensity<br>2 | Change in Operating Efficiency<br>3 | Change in Payout Policy<br>4 | Change in Capital Expenditures<br>5 |
|---|---|---|---|---|---|
| WITHDRAWN | −0.197<br>(0.047) | 0.831***<br>(0.113) | −0.031***<br>(0.008) | −0.046***<br>(0.009) | 0.047<br>(0.087) |
| Constant | Yes | Yes | Yes | Yes | Yes |
| Country and fiscal-year effects | Fixed | Fixed | Fixed | Fixed | Fixed |
| Additional control | Yes | Yes | Yes | Yes | Yes |
| No. of obs. | 95 | 95 | 95 | 95 | 95 |
| $R^2$ | 0.92 | 0.88 | 0.85 | 0.83 | 0.91 |

*Panel D. First Stage: Excluding Chinese SIPs*

| Variable | Withdrawn<br>1 |
|---|---|
| PROPENSITY_TO_WITHDRAW | 1.134***<br>(0.296) |
| Constant | Yes |
| Country and industry fiscal-year effects | Fixed |
| Additional control | Yes |
| No. of obs. | 95 |
| $R^2$ | 0.89 |

Similarly, Table 9 reports estimates for a 3SLS model, as in Bernstein (2015), in which the dependent variables represent the average level for each of the five studied corporate policies over the 3 years following the event, rather than their

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## TABLE 9

## Economic Consequences of Privatization Withdrawals: Level Regressions

Table 9 presents results from a pooled instrumental variable regression. Panel A reports results from the second stage of 2-stage least squares regressions over 5 corporate policies, defined in Table A1 of the Appendix. The dependent variables are measured as the averages over the 3 years following the event. WITHDRAWN is a dummy variable equal to 1 if the share issue privatization (SIP) is not successfully completed, and 0 otherwise. This variable is instrumented by the fitted probabilities obtained in the probit model estimated in model 4 of Table 5. A country's degree of political competitiveness and stock of public debt act as instrument for the computed probability of withdrawal. Panel B reports the first stage of the regression. Standard errors are robust to clustering at the country level and all specifications include country and fiscal-year fixed effects. Additional controls include log(size), leverage, number of employees, gross domestic product (GDP) per capita, left-wing government, election year, trade openness, size of the stock market, employment rate, and a dummy equal to 1 if the attempted SIP is an initial public offering IPO, 0 otherwise. Furthermore, all regressions include the average value of the dependent variable over the 3 years preceding the event as an additional control. Panel C and Panel D replicate Panel A and Panel B after excluding Chinese SIPs. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

*Panel A. Second Stage*

| Variable | Return on Sales<br>1 | Labor Intensity<br>2 | Operating Efficiency<br>3 | Payout<br>4 | Capital Expenditures<br>5 |
|---|---|---|---|---|---|
| WITHDRAWN | 0.013<br>(0.023) | 1.019***<br>(0.371) | −0.018***<br>(0.004) | −0.001*<br>(0.001) | 0.004*<br>(0.003) |
| Constant | Yes | Yes | Yes | Yes | Yes |
| Additional controls | Yes | Yes | Yes | Yes | Yes |
| Country effects | Yes | Yes | Yes | Yes | Yes |
| Industry fiscal-year effects | Yes | Yes | Yes | Yes | Yes |
| No. of obs. | 278 | 278 | 278 | 278 | 278 |
| $R^2$ | 0.78 | 0.84 | 0.81 | 0.92 | 0.73 |

*Panel B. First Stage*

| | Withdrawal | | | | |
|---|---|---|---|---|---|
| Variable | Return on Sales<br>1 | Labor Intensity<br>2 | Operating Efficiency<br>3 | Payout<br>4 | Capital Expenditures<br>5 |
| PROPENSITY_TO_WITHDRAW | 1.314***<br>(0.387) | 0.964***<br>(0.120) | 0.986***<br>(0.151) | 1.376***<br>(0.324) | 1.064***<br>(0.246) |
| Constant | Yes | Yes | Yes | Yes | Yes |
| Additional controls | Yes | Yes | Yes | Yes | Yes |
| Country effects | Yes | Yes | Yes | Yes | Yes |
| Fiscal-year effects | Yes | Yes | Yes | Yes | Yes |
| No. of obs. | 278 | 278 | 278 | 278 | 278 |
| $R^2$ | 0.89 | 0.92 | 0.74 | 0.94 | 0.70 |

*Panel C. Second Stage: Excluding Chinese SIPs*

| Variable | Return on Sales<br>1 | Labor Intensity<br>2 | Operating Efficiency<br>3 | Payout Policy<br>4 | Capital Expenditures<br>5 |
|---|---|---|---|---|---|
| WITHDRAWN | −0.052<br>(0.189) | 0.752**<br>(0.200) | −0.025***<br>(0.002) | 0.004<br>(0.041) | 0.003<br>(0.005) |
| Constant | Yes | Yes | Yes | Yes | Yes |
| Country and fiscal-year effects | Fixed | Fixed | Fixed | Fixed | Fixed |
| Additional control | Yes | Yes | Yes | Yes | Yes |
| No. of obs. | 95 | 95 | 95 | 95 | 95 |
| $R^2$ | 0.76 | 0.92 | 0.78 | 0.92 | 0.70 |

*Panel D. First Stage: Excluding Chinese SIPs*

| | Withdrawal | | | | |
|---|---|---|---|---|---|
| Variable | Return on Sales<br>1 | Labor Intensity<br>2 | Operating Efficiency<br>3 | Payout<br>4 | Capital Expenditures<br>5 |
| PROPENSITY_TO_WITHDRAW | 1.003***<br>(0.096) | 0.921***<br>(0.241) | 0.968***<br>(0.191) | 1.107***<br>(0.364) | 1.011***<br>(0.103) |
| Constant | Yes | Yes | Yes | Yes | Yes |
| Country and industry fiscal-year effects | Fixed | Fixed | Fixed | Fixed | Fixed |
| Additional control | Yes | Yes | Yes | Yes | Yes |
| No. of obs. | 95 | 95 | 95 | 95 | 95 |
| $R^2$ | 0.91 | 0.87 | 0.69 | 0.74 | 0.81 |

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changes. As in Bernstein, we control for the average level of the independent variable over the pretreatment period, and we estimate these specifications over the full sample. Again, a country's stock of public debt and degree of political competition act as instrumental variables for a government's decision to withdraw a previously filed SIP. The relevance of the instrumented probability of withdrawal is confirmed in the first-stage regressions reported in Panel B of Table 9. Second-stage estimates are reported in Panel A, further suggesting that absent the successful completion of the ownership transfer, state-ownership-induced agency costs reemerge, absorbing the significant efficiency gains achieved by the targeted SOEs over the preprivatization period. In particular, higher levels of labor intensity and capital expenditures, as well as lower levels of operating efficiency and payout ratio, are identified for SOEs whose privatization failed.[33]

All in all, although the literature supports the idea that an ownership transfer from political to private investors is insufficient, per se, to generate significant efficiency gains (Kole and Mulherin (1997)), the results reported here at least suggest that ownership and control transfer from state to private investor represents a necessary condition for the long-term sustainability of any improvements achieved by targeted SOEs over the preprivatization period.

## VI. Conclusions

This is the first study to empirically analyze the political and financial economics of withdrawn SIPs. We document that approximately 7% of the SIPs filed over 1998–2015 are withdrawn, with governments leaving on the table $116 billion in unrealized proceeds. The decision to exercise this option appears to be both political and economic in nature, and all SOEs targeted for privatizations appear to undergo comparable restructuring processes over the 3 years preceding the attempted SIP.

By exploiting reported similarities between withdrawn and successful privatizations, we provide support for the existence of severe state-ownership-induced agency costs. These agency conflicts materialize in a strong reduction in operating efficiency and payout ratio, often resulting in a suboptimally high level of employment and, for Chinese SIPs, overinvestment. Furthermore, the small differences in profitability between successful and withdrawn privatizations over the posttreatment period suggests that these inefficiencies might be transferred to consumers/taxpayers either directly, through a potentially higher markup for goods and services, or indirectly, through hidden subsidizations of inefficient SOEs, or both. Thus, although ownership transfer from government-related to private investors is not a sufficient condition to achieve the often impressive efficiency gains documented in the privatization literature, it appears to be a necessary condition for the long-term sustainability of any gains achieved by targeted firms over the preprivatization period.

[33] Profitability, labor intensity, and operating efficiency results are robust to dropping Chinese SIPs from the sample. However, no major differences in payout ratio and capital expenditures are identified in this subsample. These estimates are reported in Panels C and D of Table 9.

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# Appendix.

TABLE A1

**Variable Definitions**

Table A1 provides variable definitions.

| Variable | Definition |
|---|---|
| *Panel A. Accounting Variables* | |
| log(SIZE) | Natural logarithm of the value of total book assets in millions, where assets are deflated to 2010 dollars. |
| SALES_GROWTH | Natural logarithm of sales in 2010 dollar millions in year *t* divided by the value of sales in millions in year $t-1$. |
| ROS | Returns on sales, measured as the ratio of net income to sales, both measured in millions. |
| OPERATING_EFFICIENCY | Net income efficiency, measured as the ratio of net income in millions to the number of employees. |
| LABOR_INTENSITY | Ratio of the number of employees to total book assets in millions, where assets are deflated to 2010 dollars. |
| LEVERAGE | Ratio of total debt to total book assets. |
| CAPITAL_EXPENDITURES | Capital expenditures to total assets, measured as the ratio of capital expenditures to total book assets, both in millions. |
| ACCRUALS | Normalized accruals, cash flow method, as measured at the end of the fiscal year. |
| IPO | Dummy variable equal to 1 if the share issue is an initial public offering (IPO), and 0 otherwise. |
| %_SHARES_FILED | The ratio of the number of shares issued (or sold by the government) to the total number of shares outstanding as at the end of the fiscal year preceding the privatization. |
| 1_MONTH_STOCK_RETURNS | 30-day returns recorded for the main index of the stock exchange targeted for the share issue privatization (SIP). |
| #_OF_IPO | Number of IPOs that occurred in the same country and in the same year as the SIP is supposed to occur. |
| 2_YEAR_GDP_FORECAST | 2-year, country-specific gross domestic product (GDP) growth forecast published by the International Monetary Fund (IMF) at the end of the fiscal year preceding the attempted SIP. |
| GDP_PER_CAPITA | GDP per capita is GDP divided by midyear population. GDP is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources. Data are in current U.S. dollars. |
| *Panel B. Political and Public Finance Variables* | |
| CUMULATIVE_PROCEEDS_FROM_SIP | Ratio of the proceeds in millions raised from SIP by a government up to year *t* divided by its GDP per capita. |
| EMPLOYMENT_RATIO | Proportion of a country's population that is employed. Employment is defined as persons of working age (at least15 years old) who, during a short reference period, were engaged in any activity to produce goods or provide services for pay or profit, whether at work during the reference period (i.e., who worked in a job for at least 1 hour) or not at work due to temporary absence from a job, or to working-time arrangements. |
| PUBLIC_DEBT | All general government, state-owned enterprises (SOEs), and central banks' liabilities that require future payment of interest and/or principal by the debtor to the creditor. This includes debt liabilities in the form of special drawing rights, currency, and deposits; debt securities; loans; insurance, pension, and standardized guarantee programs; and other accounts payable. (See the IMF's 2001 Government Finance Statistics Manual and Public Sector Debt Statistics Manual.) |
| NET_DEFICIT | Year-on-year percentage growth of a country's public debt. |
| LEFT_WING_GOVERNMENT | Dummy equal to 1 if the government is defined as "left-wing" in the Database of Political Institutions 2015. |
| ELECTION_YEAR | Dummy equal to 1 if a legislative or executive election is scheduled over the 12 months following an attempted SIP, and 0 otherwise. |
| POLITICAL_COMPETITIVENESS | Absolute value of the difference between the number of seats controlled in the Parliament by the majority coalition party and those controlled by the main minority coalition party. |
| POLITI_IV_INDEX | Politi Index is a composite index proxying for a country's democracy "quality." It is based on a unified scale with values ranging from +10 (strongly democratic country) to −10 (strongly autocratic country). For further details, see Marshall and Jaggers (2011). |
| STOCK_MARKET_SIZE | Ratio of the aggregate public equity market capitalization for firms traded on the major national stock market to GDP, both measured at the end of year *t*. |
| TRADE_OPENNESS | Ratio of a country's total export activity to GDP, both measured in year *t*. |

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TABLE A2

Time Distribution of Completed and Withdrawn Share Issues: Matched Sample

Table A2 reports the time distribution of completed and withdrawn share issues attempted by all state-owned enterprises included in the matched sample. Proceeds for withdrawn transactions are defined as the product between the midprice and the number of shares issued, as reported in the filing documents. Reported proceeds are severely biased downward because of missing or omitted observations. Approximately 6.00% of the observations for proceeds raised by privately owned companies successfully completing a share issue are not reported in the original data set. Analogously, 20.00% of the proceeds raised by governments from share issue privatizations are missing. Finally, we are unable to identify the proceeds associated with 60.00% of withdrawn share issues attempted by both private and state-owned companies. All monetary values are reported in millions of U.S. dollars.

| | Successful Privatization | | Withdrawn Privatization | |
|---|---|---|---|---|
| Year | *N* | Proceeds | *N* | Proceeds |
| 1998 | 0 | 180.65 | 2 | – |
| 1999 | 1 | 286.03 | 2 | – |
| 2000 | 1 | 140.34 | 1 | – |
| 2001 | 1 | 2,715.57 | 5 | 3,388.63 |
| 2002 | 11 | 5,787.60 | 9 | 1,612.68 |
| 2003 | 7 | 0.00 | 6 | 1,748.46 |
| 2004 | 0 | 2,090.00 | 1 | 144.30 |
| 2005 | 11 | 532.56 | 1 | 125.50 |
| 2006 | 4 | 205.63 | 2 | 111.12 |
| 2007 | 1 | 305.00 | 2 | 261.10 |
| 2008 | 2 | 635.44 | 3 | 600.30 |
| 2009 | 8 | 401.85 | 3 | 272.37 |
| 2010 | 3 | 3,331.20 | 6 | 872.22 |
| 2011 | 10 | 2,026.40 | 11 | 2,563.00 |
| 2012 | 5 | 3,304.86 | 14 | 5,728.25 |
| 2013 | 19 | 1,806.65 | 12 | 1,797.34 |
| 2014 | 8 | 575.41 | 9 | 418.64 |
| 2015 | 6 | 841.36 | 9 | 754.2 |
| Total | 98 | 25,166.55 | 98 | 20,398.11 |
| Yearly mean | 5.44 | 1,398.14 | 5.44 | 1,359.87 |

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