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The Consequences of Controversial Privatizations*

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Privatization reforms are plagued by controversies regarding sale prices and buyer identity. However, little is known about the subsequent behavior of firms privatized in controversial processes. This paper studies rent seeking behavior of firms privatized by the Pinochet regime in Chile. Using several novel datasets, we characterize privatizations using a data driven algorithm, confirming that some state owned firms were sold underpriced to politically connected individuals, i.e. as controversial. We then compare the rent seeking behavior of *similar* firms that were privatized differently and find that firms with controversial privatizations benefitted from the Pinochet regime, changed their ownership structures, formed strategic political connections, financed political campaigns, and were more likely to appear in the Panama Papers. These results suggest that firms with controversial privatizations engage in rent seeking and reveal how authoritarian regimes can influence the economy and politics even after a regime change.

Keywords: privatization, rent seeking, dictatorship, democracy

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1 Introduction

Privatization reforms are plagued by controversies regarding sale prices and the identity of buyers. An example is Russia, where a large number of state owned firms were sold underpriced to individuals who stripped them down and used the money to bribe politicians and block reforms (Black et al., 2000). Russia is far from the only exception as we found controversial privatizations in Argentina, China, India, Mexico, Serbia, Turkey, and Uganda, among other countries.¹ Despite their prevalence and apparent importance, there is surprisingly little evidence about the subsequent behavior of firms privatized in controversial processes.² Finding a suitable context to study this matter has been challenging, as we need to observe comparable firms with different types of privatization processes, and measure their future behavior over an extended period of time.

This paper studies the rent seeking behavior of firms privatized by the Pinochet regime in Chile (1973–1990). Although these privatizations have been perceived as successful, with a World Bank report claiming they “improved domestic and world welfare” (Galal, 1994), some processes were controversial. A leading example is one of the largest chemical and mining companies in the world, sold underpriced to Pinochet’s son-in-law. Using several novel datasets, we characterize privatizations using a data driven algorithm, confirming that some state owned firms were sold underpriced to politically connected individuals, i.e. which we define as controversial. We then compare the rent seeking behavior of *similar* firms that were privatized differently and find that firms with controversial privatizations benefitted from the Pinochet regime, changed their ownership structures to ones that facilitate the expropriation of minority shareholders, formed strategic political connections, financed political campaigns, and were more likely to appear in the Panama Papers. These results suggest that firms with controversial privatizations engage in rent seeking and reveal how authoritarian regimes can influence the economy and politics even after a regime change.

To study privatizations in Chile, we construct several datasets. Firms listed in the stock market were required to annually report their activities to a regulatory agency. We digitized the information in these reports including balance sheets, income statements, debt with banks, and the names of owners and board members. Then, using the names of all firms privatized by the Pinochet regime, we identify privatizations with annual reports. To characterize their privatization processes, we collected data on buyers and sale prices using a wide range of sources. Finally, we use the names

¹ For details about these privatization processes see Saba and Manzetti (1997); Celarier (1997); Baran (2000); Tangri and Mwenda (2001); Milovanović (2007); Fisman and Wang (2014).

² An exception is Fisman and Wang (2014), which studies causes and consequences of corruption in Chinese privatizations. In the absence of controversies, the state usually obtain revenues from selling state owned assets and firms experience increased productivity (La Porta and López-de-Silanes, 1999; D’Souza and Megginson, 1999; Frydman et al., 1999). Megginson and Netter (2001) and Estrin et al. (2009) provide excellent surveys of the literature.

of owners, board members, and firms, together with the names of politicians in the dictatorship (1973–1990) and democracy periods (1990–), to measure the evolution of firm ownership, the dynamic formation of political connections, to identify firms contributing to political campaigns, and to measure tax avoidance in the Panama Papers.

We detect firms that had a controversial privatization process using a data driven algorithm. Using book values, balance sheets, and the identity of buyers and board members before privatization, we construct relative measures of underpricing and closeness to the Pinochet regime. The underpricing variable reveals substantial differences in the prices at which firms were sold. The closeness-to-the-regime variable shows a wide range of buyer types, from those closely connected to Pinochet to those with no relationship at all. These variables allow us to characterize privatizations using data and employ a clustering algorithm to detect groups of firms. When comparing groups, we identify firms that were sold underpriced to people close to the regime, i.e. controversial privatizations.³ We crosscheck the classification delivered by the algorithm using the names of firms mentioned in a well known journalistic investigation (Mönckeberg, 2001).

After constructing the data, we begin by showing that firms with controversial privatizations were relatively similar to other privatized firms *before* privatization. Indeed, before being privatized, controversial and uncontroversial firms had similar level of indebtedness and performance, and operated in a wide range of industries. This similarity in observable variables suggests that controversies in privatization processes were unrelated to firm behavior and industry dynamics. Interestingly, however, the day after the referendum that ended the Pinochet regime in October 1988 – an event that happened after most of the privatizations in our data – firms with controversial privatizations experienced an 8 percentage points decrease in abnormal returns in their stock prices. These patterns suggest that financial investors perceived that controversial firms lost value after learning that the regime was going to (unexpectedly) come to an end, a fact consistent with these firms obtaining benefits from the regime (Fisman, 2001).

Motivated by the reaction of financial investors, which suggests the existence of benefits flowing from the regime to specific firms, we study rent extraction in the public and private sectors by comparing controversial and otherwise *similar* uncontroversial privatizations. First, we focus on the short-run after privatization and study debt financing between privatized firms and state owned banks, since previous research has shown companies may use these financial institutions to extract rents.⁴ Second, we study rent seeking behavior in the long-run (1990–2005) and look at the evolution of firm ownership structures, which research has related to the control of assets and

³ Other articles using clustering algorithms in economics include Brocas et al. (2014), which classifies subjects using their revealed choices, and Crone (2005), which constructs an alternative definition of regions in the U.S.

⁴ Khwaja and Mian (2005) show that politically connected firms in Pakistan used government banks to extract rents from the State. See also Claessens et al. (2002), Sapienza (2004), and González and Prem (2017).

expropriation of minority shareholders (Johnson et al., 2000; Bortolotti and Faccio, 2009; Morck et al., 2005). Finally we study the political arena after Pinochet left power and analyze the relationship between controversial firms, political connections, campaign finance, and tax avoidance.⁵

We study the credit market in the short-run because the literature has shown the existence of rent extraction using loans, and we observe detailed firm-bank relationships. Our analysis reveals that firms with controversial processes obtained more loans at lower interest rates from state owned banks towards the end of the regime (1988-1990). This result is consistent with our stock market findings and constitutes additional evidence suggesting these firms were benefitting from the regime. Our econometric strategy uses the unexpected outcome of the referendum that ended the Pinochet regime and a detailed analysis of loans from state owned banks. Consistent with this cheaper financing we observe that controversial firms, *smaller* than uncontroversial ones before privatization, were then *larger* when democracy arrived in 1990.

Regarding rent seeking behavior in the long-run, we find that controversial privatizations were more likely to evolve towards pyramidal ownership structures. As Morck et al. (2005) show, pyramidal structures allow controlling shareholders to exert power over assets many times larger than their investments, a strategy consistent with owners trying to extract resources from firms. Moreover, these structures facilitate agency problems and tunneling (Lin et al., 2011). Interestingly, we also observe that controversial firms had significantly lower performance, a finding consistent with results in Fisman and Wang (2014), which links the lower performance to the existence of value destroying related party transactions.⁶

Next, we show that firms with controversial privatizations formed dynamic political connections, financed political campaigns, and were more likely to appear in the Panama Papers. Using the names of politicians in the dictatorship and democracy periods, and the names of board members, we find that controversial firms hired politicians 25 percentage points more often. Moreover, these hires are dynamic because firms *substituted* political connections from the *old* to the *new* democratic regime after democratization. Towards the year 2005, controversial firms hired 40 percentage points more politicians of the new democratic regime. This finding is important because political connections are associated with misallocation of resources (Cingano and Pinotti, 2013; Colonelli and Prem, 2017). Finally, we find that controversial firms were 31 percentage points more likely to finance political campaigns and 36 percentage points more likely to appear in the Panama Papers than uncontroversial firms. Taken together, these results suggest that state owned firms privatized by a dictatorship can influence politics even after a regime change.

⁵ Political connections are associated with rent extraction and the exchange of favors. See Faccio et al. (2006), Goldman et al. (2013), and Faccio and Hsu (2017), among others.

⁶ In a similar vein, Gan et al. (2017) study the type of privatization chosen by local governments in China and find that the privatization process can affect control rights and performance.

We complement our findings in two directions. First, we implement econometric exercises showing results are robust to different classification methods, estimation techniques, additional control variables, and when accounting for the effect of unobservable variables using new methods that rely on coefficient stability across regression specifications (Altonji et al., 2005; Oster, 2017). Second, we abstract from our classification method and study the relative importance of underpricing and buyer identity and find that both are important empirically. Overall, we conclude that our estimates appear to represent robust estimates of controversial privatizations.

This paper contributes to two related literatures. First, our work contributes to the literature studying corrupt privatizations. Although work on privatizations is vast – see Megginson and Netter (2001) and Estrin et al. (2009) for excellent reviews – research studying *corrupt* privatizations is relatively scarce. For example, Black et al. (2000) argue that one of the reasons behind the unsuccessful privatization process in Russia was the corruption behind the process. Fisman and Wang (2014) provide rigorous empirical evidence for the negative effects of corrupt privatizations on firm performance. However, there is very little work outside of these contributions. We add to this literature by pointing towards how, in addition to the effects on firm performance, controversial privatizations may extract rents from the state using the credit market and avoiding taxes, extract rents from firms using ownership structures, and attempt to influence politics forming political connections and providing financial resources in electoral campaigns.

Our work also sheds light on mechanisms that authoritarian regimes may use to extract rents from the State. Earlier theoretical work has provided foundations for rationalizing the inefficiencies of rent extraction in order to provide stable political coalitions (Brough and Kimenyi, 1986). Recent empirical work has shown how ethnic and regional favoritism – two forms of rent extraction – are exacerbated in authoritarian regimes using targeted local policies (Hodler and Raschky, 2014; Burgess et al., 2015). More closely related to our work, Atanasov (2005) shows that as much as 85% of firm value was extracted during Bulgaria’s mass privatization process in the late 1990s. We contribute to this literature by showing evidence of rent extraction using state owned banks, ownership structures, political connections, and electoral campaigns.

2 The Privatizations of the Pinochet Regime

The dictatorship led by Augusto Pinochet rose to power after a coup d’etat in 1973 against President Salvador Allende, and remained in power until March 1990, 17 months after citizens rejected Pinochet’s continuation in office in a referendum known as the “1988 plebiscite” (October 5, 1988). Following an agreement between the regime and the opposition, a presidential election with candidates from all parties was held in December 1989. Unsurprisingly, the opposition won that election

and, after 17 years of dictatorship, Chile returned to democracy. Despite contentious debates about the legacies of the Pinochet regime, there is surprisingly little evidence testing if and how policies implemented by Pinochet persisted into democracy.⁷

The main economic policies implemented by the Pinochet regime aimed to decrease government spending, control the high inflation experienced since the beginning of the 1970s, decrease tariffs to liberalize trade, and implement a mass privatization process. While creating these policies the regime followed recommendations of economists trained at the University of Chicago, popularly known as the “Chicago Boys.” The effects of these policies are now a source of controversy among supporters and critics of the regime. Supporters argue that the macroeconomic stability and high growth rates in the 1990s were a direct consequence of the regime’s economic policies in the 1970s and 1980s. Critics point to corruption during the Pinochet years and the currently high income inequality.⁸ One of the most important controversies lies around privatizations.

The privatization process was arguably one of Pinochet’s most important policies. The sale of state owned assets had several objectives. First, and most importantly, the regime was strongly influenced by economists who believed in the efficiency of private property, a popular sentiment – especially among right-wing parties – after the economic instability of Allende’s socialist government (1970–1973). Unsurprisingly, one of the regime’s goals was to privatize firms that were previously nationalized by Allende. In addition to these economic reasons, there were also political ones, such as to unite businesspeople behind the government – particularly after the social turmoil generated by the 1982 economic crisis – and to gain their support before the 1988 plebiscite.⁹

Mass privatizations are difficult to implement. In an attempt to gain popular support, the regime used Margaret Thatcher’s framing of “popular capitalism” and justified the process as a “diffusion of property to make Chile a country of owners” (Huneus, 2006, p. 314).¹⁰ The regime privatized state owned firms in two different rounds. The first round was in the second half of the 1970s, was organized by the Production Development Corporation, and was primarily aimed at re-privatizing companies expropriated by Allende. The second round of privatizations used the “popular capitalism” strategy and began after the 1982 economic crisis, a period in which the State gained control

⁷ Huneus (2006) provides the most detailed analysis of the Pinochet regime, and Cavallo et al. (2011) provides detailed accounts of important events. According to data collected by Treisman (2017), the type of democratization experienced by Chile is a common one.

⁸ Despite this controversy, researchers have found that some of these policies seem to have had positive impacts on the economy including lower inequality (e.g. Cuesta et al. 2015).

⁹ Huneus (2006, ch. 9) provides a nice summary of the privatization process. Other accounts of the process include Hachette and Lüders (1992) and Hachette (2001).

¹⁰The Ministry of Economics stated that “Private property is one of the pillars of a free society and one of the keys to success of advanced Western societies. For the right to property to really be effective, it must come with extensive, massive and indiscriminate access to property” (*Estrategia*, May 12-18, 1986).

of several firms that were privatized afterwards. Figure 2-A plots the number of privatizations per year, where these two waves of privatizations are clearly visible.

Although the regime's privatization process is widely perceived as a relatively successful reform (Galal, 1994), some privatizations have generated significant controversy, permeating the debate about the legacies of the Pinochet regime. Given the vast amount of state resources that were privatized – approximately US \$3.6 billion according to Meller (1998, p. 268) – the controversy is understandable. On one hand, critics argue that some privatizations were used to transfer resources from the State to a handful of individuals who were close to the regime. On the other hand, supporters argue that these privatizations increased the performance of firms and benefited the economy. We gather the most comprehensive data on firm-level privatization processes in an attempt to evaluate their short- and long-run consequences.

3 Data Construction

We use annual firm-level data that we digitized from administrative documents kept by Chile's regulatory agency *Superintendencia de Valores y Seguros*, an independent institution equivalent to the Securities and Exchange Commission in the U.S. By law, all firms listed in the Chilean stock market have to submit yearly reports of their activities. Firms submitting reports are among the largest in the country and represent a sizable share of economic activity.

The reports reveal firms' balance sheets, income statements, name and compensation of board members, name of firm owners, number of workers, and debts. The information required by the agency was standardized in 1985 and, as a consequence, all firms report the same variables from then onwards. Before that year, however, firms reported their balance sheets, income statements, and other scattered information, which restricts our ability to measure some firm dimensions before 1985. We extracted all available variables from the reports and standardized the monetary ones to 1998 Chilean pesos using the consumer price index constructed by Central Bank of Chile. An example of a report can be found in Figure 1, where we plotted four different types of data. These reports are audited by international firms and are the main source of information used by the most well-known investigations of firms in this period.¹¹

After digitizing annual reports, we matched the names of firms in our data with the list of 725 firms privatized by the Pinochet regime. The name of the firms privatized is publicly available as

¹¹Examples of journalistic investigations using anecdotal data from the reports include Mönckeberg (2001), Tromben (2016), and Guzmán and Rojas (2017), among others. To the best of our knowledge the only papers using 1980s reports in an econometric framework are González and Prem (2017, 2018a,b), who study the role of political connections in Chile's democratization. Academic articles using post 1990s reports include, for example, Khanna and Palepu (2000) and Martínez et al. (2007).

a series of documents produced by the Congress after Chile’s return to democracy (CEME, 2004). We found 50 firms in both our data and Congress’ list. Firms privatized by the regime are larger and older but have similar debt compared to other firms in our data. Among the privatized ones, we find popular companies that were sold underpriced to individuals who were socially close to the regime. For example, our data includes the Chemical and Mining Society of Chile (SQM), sold to Pinochet’s son-in-law and the focus of several corruption scandals in recent years; and the National Electricity Company (Endesa), sold to a former collaborator of the regime. Our data also includes the companies mentioned by Mönckeberg (2001), a popular journalistic investigation and best selling book in Chile that studies Pinochet’s privatizations. In an attempt to provide data driven evidence of controversies in privatization processes, the following subsection constructs underpricing and distance-to-the-regime variables for each privatization in our data.

3.1 Detecting controversial privatizations

We detect controversial privatizations using an empirical approach that relies on information about the sale process and a clustering algorithm, a quantization technique from signal processing. More precisely, we use a k -means cluster analysis with two variables that evaluate the privatization process of a firm. First, we collect information about individuals involved in the sale of a firm and construct a measure of “social distance” to the Pinochet regime. Second, we use multiple historical sources to recover sale prices for each privatization in our data and construct a measure of underpricing that can be compared across firms. We say a privatization process was controversial if a firm was sold relatively underpriced and the transaction involved individuals who were closed to the regime. We now provide more details about these two variables and the clustering algorithm.

The first variable that characterizes a privatization is the social distance between individuals involved in the sale and the Pinochet regime. To construct this variable, we proceed in two steps. In the first step, we identify the buyer of the firm and study their relationship to the regime. We classify a buyer as linked to the regime if we find they have worked for the regime before the privatization. Similarly, in the second step we use the names of individuals on the board of directors, study their job history prior to the privatization, and identify all those who had previously worked for the Pinochet regime. Appendix A.1 provides step by step details about this procedure and the historical sources used. Table 1 presents summary statistics for both of these variables. Overall 8% of directors and 42% of buyers had worked for Pinochet. When using the algorithm, we combine both measures linearly to create an unidimensional metric of “closeness to the Pinochet regime.”

The second variable measures the relative extent of underpricing in the sale of a firm. To construct this variable, we compare the price per share paid during the privatization process with the book value per share, which we obtained by dividing the book value of equity in the year before

the privatization over the number of shares available, while ensuring all prices are in comparable currencies and taking inflation values into account. For companies that were returned by the State to their previous owners without payment, and for companies with negative equity (i.e. bankrupt), we assume that there is no underpricing. Therefore, our underpricing variable is the ratio between the difference in privatization price and book value per share over the book value per share. More than a cardinal value, we consider this underpricing measure to be ordinal in the sense that it allows us to compare sale prices across privatizations. Table 1 presents descriptive statistics for this variable, although the number itself has only a relative interpretation.

In the last step, we employ a k -means clustering algorithm (Steinhaus, 1957) using underpricing and closeness-to-the-regime as inputs to detect groups of firms. This algorithm is an unsupervised learning approach that classifies firms in our data, and we chose it due to its simplicity and relatively wide use in empirical research. Figure 3-A presents results graphically. The y -axis measures relative underpricing and the x -axis the closeness-to-the-regime of individuals involved in the sale. As can be seen in the figure – and confirmed statistically in Table 1 – there is a group of state owned firms that were sold underpriced to individuals who had close ties to the regime.¹² In particular, the algorithm finds 22 firms that had, under the previously discussed definition, controversial privatization processes. All of the privatizations the algorithm classifies as controversial have been mentioned by Mönckeberg (2001) as “corrupt” due to underpricing, which serves as a partial check to the approach.¹³

3.2 Ownership and politics

To study the consequences of controversial privatizations, we analyze firm-level variables in the reports and three additional areas that have been suggested as being potentially affected by firms. In the first place, we look at the evolution of firm ownership, empirically and theoretically associated to the expropriation of minority shareholders, i.e. tunneling (Johnson et al., 2000; Almeida and Wolfenzon, 2006; Lin et al., 2011). Ownerships have sparked some controversy in Chile, as some individuals involved in the privatizations studied have been accused of using complex ownership structures to benefit themselves. In the second place, we look at the formation of political connections, campaign finance, and tax avoidance, three important dimensions that research has found can be potentially affected by firms (Fisman, 2001; Claessens et al., 2008; Zucman, 2013).

¹²Figures 3-B and 3-C show that the classification of firms into groups is robust to the use of other clustering algorithms, in particular the spectral algorithm and the agglomeration algorithm.

¹³Importantly, note that the grouping of privatizations may be at first sight unnecessary, as we could have analyzed separately the effects that the underpricing and the closeness-to-the-regime variables have on an outcome of interest. However, due to our small sample of privatizations – which we take into account when making inference – we lack the statistical power to identify the effect of these variables separately. Section 6 explores these two separately.

We now explain in detail how we constructed all of these variables.

We uncover firm ownership using names of shareholders, available in one of the mandatory modules in the reports (see Figure 1-D), and complement it with additional data from the website of the regulatory agency. Although the reports reveal the twelve largest shareholders, the majority of them are other firms. Therefore, we had to perform a detailed analysis of owners of all additional firms listed as shareholders to understand how these are controlled. Eventually we were able to uncover the ownership of all firms in our data in 1995, 2000, and 2005.

As an example that illustrates our work in uncovering firm ownership, consider the case of the Chemical and Mining Society of Chile (SQM, see Figure A.1), the largest non-metallic mining company in the country. This firm is controlled by Julio Ponce Lerou, Pinochet's son-in-law, through a pyramidal ownership structure formed by listed firms *Norte Grande*, *Oro Blanco* and *Pampa Calichera*, and privately held firms, *Inversiones SQYA* and *Global Mining Investments*, among others. Julio Ponce Lerou owned 90% of *Norte Grande*, which along successive controlling stakes in *Oro Blanco* and *Pampa Calichera* allowed him to control SQM. Our approach to uncover firm ownership is extremely important because, if we were only taking into account controlling stakes in listed firms into account, we would be understating Ponce Lerou's actual voting rights.

After uncovering firm ownership, we reduced its dimensionality to exploit this information in a regression framework. In particular, we constructed an indicator for firms that are part of pyramids in 1995, 2000, and 2005. Pyramids are common ownership structures outside of the U.S. in which shareholders use direct and indirect ownership to control many firms (La Porta et al., 1999; Bertrand and Mullainathan, 2003; Morck et al., 2005). We also constructed an indicator for differences between cash and voting rights, known as *wedge*. This variable has been used to capture the incentive and entrenchment effects of controlling shareholders (Claessens et al., 2002).

We constructed three additional datasets that measure: (i) which firms in our data formed political connections after the privatization process, (ii) which firms contributed to political campaigns, and (iii) which board members appeared in the Panama Papers. The first additional dataset uncovers the hiring of politicians as board members in listed firms and their political affiliations in the dictatorship (1980s) and democracy periods (1990s and 2000s). We collected the names of all individuals working as Ministers and similar high-level positions during the Pinochet dictatorship, calling them "politicians of the *old* regime." We also gathered the names of all Ministers and similar high-level positions of *La Concertación*, the new coalition in power in the 1990s, calling them "politicians of the *new* regime." Then we looked at all individuals working as board members in the firms in our data and identified politicians using a probabilistic record-matching algorithm that exploits the uniqueness of full names.¹⁴ Using this approach, we generated an indicator for firms

¹⁴The algorithm produces a similarity index with support at the unit interval. We checked case by case among high

with political connections to the old and new regimes.

The last two sources of information we use are recently declassified documents that identified which firms contributed to political campaigns and which firms avoided taxes using tax havens. We observe legal and illegal campaign contributions *separately*. The latter information takes the form of a list of firms that illegally financed the political campaigns of candidates in the 2013 presidential election. The Chilean tax authority made this list public in 2014 due to irregularities in campaign financing.¹⁵ The list reveals, for example, that SQM, firm with a controversial privatization process, transferred financial resources to political candidates before the elections. Overall, the data show that 37% and 19% of firms in our data financed political campaigns legally and illegally respectively. To measure tax avoidance, we matched the list of board members in democracy with the list of individuals who appeared in the Panama Papers using the previously described probabilistic record-matching algorithm. We found 13 board members, who worked in 15 firms in our data, 10 controversial and 5 uncontroversial firms.

4 Short-Run Consequences in Dictatorship

This section shows that: (i) firms with controversial privatizations were similar to firms with uncontroversial processes before they were privatized, but (ii) received a differential treatment from the regime afterwards. The analysis is divided in two parts. The first part shows that there are few meaningful differences in balance sheets and income statements across firms with and without controversies *before* the privatization process, suggesting that controversies are unrelated to firms' potential outcomes. Additionally, we show that the stock market value of firms with controversies decreased temporarily after the announcement of the transition from dictatorship to democracy. The second part shows that firms with controversies obtained more loans at lower interest rates from state banks before the political transition took place. We interpret these results in light of the existing literature showing similar findings (Fisman, 2001; Khwaja and Mian, 2005) and conclude that firms with controversial privatizations had a somewhat differential – and probably preferential – treatment from the Pinochet regime *after* they were sold to individuals socially close to the regime. These results constitute our first piece of evidence suggesting that controversial privatizations are more than a transfer of wealth from the State to politically connected individuals.

index values and defined a match if: (i) there was an obvious misspelling, (ii) there was a missing name but the two last names were the same and in correct order, or (iii) there was a missing last name but the individual had the same two names in correct order. We identified 30 board members as former politicians.

¹⁵The illegality of these campaign contributions arises because firms bypassed the campaign contributions law and “hired” candidates for services that were never provided, a transfer of money that allowed firms to pay fewer taxes. Data on illegal financing of political campaigns is unfortunately only available for the 2013 presidential election.

4.1 Firm differences before privatization and the stock market

How different were firms with controversial and uncontroversial processes before they were privatized? To answer this question, we compare variables in the reports before the privatization year of each firm. To decrease the effect of noise, and thus gain statistical accuracy about firms' fundamentals, we take three-year averages for each of four variables. In addition, we collect the dates when firms were established. We compare these five variables, and the year the process started, to gain insights about firm-level differences between types of privatization.

Table 2 presents comparisons between firms. Each row presents the average and standard deviation of one of five variables. Columns 1 and 2 examine controversial and uncontroversial privatizations separately. Columns 3 and 4 present p -values for differences in means across groups, without and with correction for small sample inference respectively.¹⁶ The main take away from this table is that we do not observe statistically significant differences in profitability, indebtedness, or firm age before privatization. The exception is firm size; we observe controversial firms were relatively smaller in comparison, although still large in absolute terms. These differences are similar when we use within-industry comparisons. Although our ability to detect differences across firms may be affected by the sample size, the majority of differences are of relatively small economic magnitude.¹⁷ We interpret these results as suggestive evidence that privatization processes were not driven by firm behavior, potential outcomes, or strategic decisions by the regime. We present several econometric exercises that support this interpretation in the following sections.

We now use Fisman (2001) framework to provide evidence that firms with controversial processes were benefiting from the Pinochet regime. More precisely, we statistically test for changes in the stock market value of controversial firms after an exogenous shock that increased the probability of political transition.¹⁸ The idea is that, if controversial firms were benefiting from the dictatorship, we should expect a decrease in their stock market value after the announcement of a democratization. In practice, we exploit the unexpected outcome of the referendum that ended the dictatorship as a source of variation. The referendum, popularly known as 1988 plebiscite, was held on October 5 of 1988 and had Pinochet running to remain in office for the next eight years (with yes or no votes). The regime wanted to validate themselves as a democratic form of government in front of the international community. Both the rejection of Pinochet's continuation

¹⁶See Robinson and Robinson (2001) for details about permutation tests in regression models and Rossi (2014) for an application of it. We calculate p -values using Monte Carlo simulations with 1,000 random permutations.

¹⁷Table A.2 further confirms that there are few differences across firms using the subsample privatized in the 1980s, where we observe more variables due to report standardization (see section 3).

¹⁸Fisman (2001) used negative health shocks suffered by Indonesia's dictator. Subsequent papers have used unexpected electoral outcomes or unexpected nominations of high-level politicians. See, for example, Ferguson and Voth (2008), Dube et al. (2011), and Fisman et al. (2012) among many others.

in office and the regime's acknowledgement of negative results were unexpected.¹⁹ In contrast, we show that other important political events of the time did not affect the relative stock valuation of firms.

To measure changes in the stock market after the 1988 plebiscite, we digitized daily stock prices of listed firms from newspaper *El Mercurio*, available at Chile's National Library. We restrict attention to firms that were traded for at least four months before the plebiscite to analyze abnormal returns, i.e. the difference between returns and expected returns. We define abnormal returns of stock i on day t as:

$$AR_{it} \equiv R_{it} - (\hat{\alpha}_i + \hat{\beta}_i R_{mt}) \quad (1)$$

where R_{it} is the stock return of firm i on day t , R_{mt} is the market return on day t , and we estimate the parameters $\hat{\alpha}_i, \hat{\beta}_i$ using pre-plebiscite data. As for robustness, we also looked at cumulative abnormal returns, defined as $\sum_{t=0}^{t=j} AR_{it}$ (see Campbell et al. 1997 for more details). The usage of pre-plebiscite transaction data to construct abnormal returns leaves us with 41 privatized firms, 20 of which had controversial processes. We present the evolution of abnormal returns across firms graphically and as estimates on the following regression:

$$CAR_{it} = \beta_t \cdot \text{Controversial}_i + \delta_t X_i + \eta_{jt} + \epsilon_{ijt} \quad (2)$$

where $CAR_{it} \equiv \sum_{k=0}^t AR_{ik}$ is the cumulative abnormal return for firm i from the day of the plebiscite up to t following days. The variable Controversial_i is an indicator for controversial firms, X_i represent pre-privatization controls, η_{jt} is a set of industry fixed effects, and ϵ_{ijt} is a mean zero error term. The parameter of interest is β and measures the differential cumulative abnormal return for firms with controversial privatizations. All parameters in equation (2) are indexed by t because we estimate it separately for $t = 1, 3, 5, 8, 10$.

Figure 4-A presents daily abnormal returns graphically by type of privatization, and Table 3 presents the corresponding regression estimates, with and without pre-privatization controls. Consistent with the hypothesis that controversial firms were benefiting from the regime, we find a statistically significant decrease in abnormal returns among these firms the day after the plebiscite. The drop in abnormal returns corresponds to approximately 7.5 percentage points (Table 3-A, column 1, p -value<0.01), and is an economically large effect. As can be seen in Table 3, this negative effect lasts for at least ten days and is robust to the inclusion of pre-privatization controls (see Panel B).

¹⁹González and Prem (2017, 2018a) provide more details about the plebiscite, show the unexpectedness of the outcome by studying stock prices and show how televised political campaigns influenced electoral results.

Importantly, Figures 4-B through 4-D show that these patterns are particular to the announcement of the transition. Indeed, we observe *similar* abnormal returns across firms with different privatizations around other important political events, namely the day when Pinochet was nominated to be on the ballot at the plebiscite (August 30, 1988), the last constitutional reform in dictatorship (July 30, 1989), the 1989 presidential election (December 14, 1989), and when the new government took office (March 3, 1990). Following the literature, we say the behavior of financial investors is consistent with the idea that controversial firms received benefits from the regime. Now we turn to a direct empirical test of benefits in the credit market.

4.2 The credit market

We now turn to an empirical investigation of the credit market in dictatorship. The credit market is useful to study because it has the potential to reveal if firms with and without controversial privatizations were receiving a differential treatment from the regime. In this sense, when compared to the previous stock market analysis, it provides a complementary approach to test for potential benefits flowing from the regime to specific firms. To study this market, we make use of the reports, which contain information about firms' outstanding debt with *Banco del Estado* (Bank of the State), the only state owned bank in the country. The operations made by this bank before the transition have been a source of controversy, but there has not been a statistical analysis of them.²⁰ We study firm debt financing with this bank in the period between October 1988 and March 1990, when Pinochet was still in power but it was known he would be leaving.

We use the announcement of the transition to study how debt financing and interest rates with the Banco del Estado differed between controversial and uncontroversial privatizations. In particular, we estimate the following regression before and after the plebiscite:

$$Y_{ijt} = \beta_t \cdot \text{Controversial}_{ij} + \delta_t X_{ij} + \gamma_{jt} + \epsilon_{ijt} \quad (3)$$

where i indexes firms, j industries, and t periods. The dependent variable Y_{ijt} is an indicator for firms with outstanding debt with Banco del Estado in period t , the average interest rate with this bank, or their leverage. The considered period before the plebiscite is 1986-1987, and the one after the plebiscite is 1988-1990. All regressions include pre-privatization controls X_{ij} and industry fixed effects by period, γ_{jt} . The coefficients of interest are β_t and they measure the within-industry differences among controversial privatizations in the outcome of interest while controlling for pre-

²⁰For example, Leon-Dermota (2003) argues that between October 1988 and March 1990, Banco del Estado lost a significant amount of wealth because of dubious financial operations. The president of this bank during this period was a "Chicago Boy" appointed directly by Pinochet in November 1988.

privatization differences. Note that when estimating equation (3), we are allowing all coefficients of pre-privatization variables and industry fixed effects to differ by period.

Table 4-A presents estimates of equation (3) after the plebiscite. The coefficient in column 1 shows that controversial privatizations were 30 percentage points more likely to have outstanding debt from Banco del Estado between 1988 and 1990 (p -value <0.05), when it was known Pinochet would be leaving. This result is consistent with the findings in Khwaja and Mian (2005) and suggests that the dictatorship used the credit market to benefit these firms; and it is also consistent with the evidence presented by González and Prem (2017), which finds that firms in the Pinochet's social network obtained more loans from state owned banks between 1988 and 1990. Moreover, column 2 shows that the loans that controversial firms obtained from the Banco del Estado had, on average, 4 percentage points lower interest rates.²¹ Finally, column 3 shows that there are no statistically significant differences in leverage between privatizations, which suggests firms either substituted loans across banks or increased their equity in this period. Although the reader might be concerned that controversial privatizations were potentially different in unobservable dimensions, and this is the reason why we observe a different credit market for these firms, the evidence suggests this was unlikely to be the case. Table 4-B presents estimates of equation (3) using reports *before* the plebiscite and we do not find statistically significant differences in state loans, interest rates, or leverage. Moreover, point estimates are economically smaller than in panel A. Section 6.1 discusses additional robustness checks and econometric exercises for studying these results in more detail.

5 Long-Run Consequences in Democracy

This section studies if controversial privatizations engaged in rent seeking behaviors after Chile's return to democracy in 1990. We first analyze firm-level differences in balance sheets at the beginning of democracy. Then we study the evolution of ownership in the decades after the political transition. Finally, we investigate if controversial firms hired politicians as board members – i.e. formed political connections – or contributed to political campaigns. The two latter variables have been associated with resource misallocation and political distortions (e.g. Claessens et al. 2008; Cingano and Pinotti 2013). Overall, our ownership and political variables attempt to capture if firms with controversial privatizations are associated with distortions in the long-run.

As a starting point, we begin by showing how controversial privatizations differed from uncon-

²¹The point estimate in the interest rate regression does not include pre-privatization controls and is imprecisely estimated due to missing observations, but it is statistically significant at conventional levels when we correct for small sample inference (p -value 0.04).

troversial ones at the very beginning of democracy. To do this, we consider a version of equation (3) with time-invariant coefficients and measuring the dependent variable in 1990. To be consistent with our analysis of pre-privatization differences in section 4.1, we consider the same four firm-level outcomes: assets, sales, return over equity, and leverage. Note that we again control for pre-privatization observable variables and include industry fixed effects in our estimation.

Table 5 presents results. Columns 1 and 2 show that firms with controversial privatizations were significantly larger than other firms at the beginning of the democracy. In terms of magnitude, the coefficient implies that controversial firms were approximately 9% larger than uncontroversial firms. This is surprising given that controversial firms were 13% *smaller* before being privatized. Results using sales as dependent variable confirm this increase in size with a p -value <0.01 when correcting for small sample. In contrast, columns 3 and 4 show that there continues to be little difference in indebtedness levels (i.e. leverage) and profitability (i.e. return over equity). Given the increase in size of controversial firms towards the end of the Pinochet regime, we believe it is particularly important to test if the ownership of these firms changed after democracy. The appearance of ownership structures that facilitate the extraction of rents can produce higher financial returns in the presence of more capital; this appears to be the case with controversial firms.

5.1 Firm ownership

We now study if the ownership structure of controversial firms evolved differently in democracy. Econometrically, we estimate equation (3) using ownership-related variables every five years after the regime changed as dependent variable and thus time-varying coefficients. More precisely, we study pyramidal structures and differences between cash and voting rights (wedge) in 1995, 2000, and 2005. Section 3.2 gives a precise definition of these variables. We continue to use pre-privatization variables as controls and include industry fixed effects in the estimation. Before discussing results, Figure A.1 presents an example, the evolution of SQM's ownership structure between 1986 and 1993. SQM was privatized in 1986, a process that positioned Julio Ponce Lerou – Pinochet's son in law – as the largest shareholder. Soon after the privatization, Ponce Lerou listed several firms, building a pyramidal structure that allowed him to increase his control.

Column 1 in Table 6 presents estimated coefficients, the corresponding p -value that corrects for small sample inference in column 2, and the average of the dependent variable among firms with uncontroversial privatizations in column 3. Note that regression estimates are now presented in rows instead of columns. The first three rows show that controversial privatizations were 40 percentage points more likely to be part of pyramidal structures in 1995, and 41 percentage points in 2000 and 2005. This is a large difference when compared to other privatizations, which on average have a 52% chance of being part of a pyramid. Put differently, almost all controversial

privatizations were part of a pyramid, when only half of other privatizations were. Consistent with this interpretation, the following three rows in this table show that controversial privatizations were also more likely to exhibit a wedge between voting and cash flow rights.

These findings are important because pyramids allow owners to separate voting from cash flow rights, allowing controlling shareholders to manage assets in a way that outweighs their investments (Morck et al., 2005). The appearance and persistence of pyramidal structures is interesting because no firm in our sample was privatized as part of a pyramid. Additionally, these findings are consistent with Donelli et al. (2013) and Larrain and Urzúa I. (2016), which show that pyramidal structures in Chile are built “bottom-up” as opposed to the more common “top-down” approach (Almeida and Wolfenzon, 2006; Almeida et al., 2011).

Pyramidal structures facilitate agency problems and allow controlling shareholders to extract private benefits from firms, an strategic behavior the literature refers to as “tunneling” (Johnson et al., 2000; Morck et al., 2005; Lin et al., 2011). Given the nature of tunneling it is, however, difficult to find evidence of it. We attempt to indirectly test for its existence by looking at firm performance, an approach used by Fisman and Wang (2014) which links the effect of corrupt privatizations on performance with the existence of value destroying related party transactions. We follow the previously described approach and use return over equity as dependent variable in the last three rows of Table 6. The estimated coefficients show that controversial firms had worse and deteriorating performance in the 15 years after the political transition. More precisely, we find that the return over equity was 3-6 percentage points lower among controversial firms. Because the average return over equity in this time period is 19% for uncontroversial privatizations, we can conclude that these differences are economically large. Note that there were no statistically or economically significant differences between firms at the beginning of democracy (see column 4 in Table 5).

5.2 Political connections, campaign finance, and tax avoidance

Are controversial firms influencing the political world in democracy? We focus on three dimensions that have been suggested as sources of distortions within democracies: the hiring of politicians, the financing of political campaigns, and tax avoidance. We begin by studying hiring of politicians as board members. Firms with political connections are associated with significant rent extraction (e.g., Khwaja and Mian 2005; Goldman et al. 2013) and are, therefore, an important source of misallocation in the economy (e.g., Cingano and Pinotti 2013; Colonelli and Prem 2017). Because the misallocation of resources is an important factor behind total factor productivity (Hsieh and Klenow, 2009), understanding the formation of political connections is critical.

We study the evolution of political connections in a dynamic fashion. We estimate equation (3) using as dependent variable an indicator for firms that hired at least one politician for their board. To capture the dynamic nature of these connections, we measure the hiring of politicians in different points in time and use three types of politicians: (i) former politicians of the Pinochet regime – who enjoyed significant political power at the beginning of democracy – who we call “politicians of the old regime”; (ii) politicians of the new democratic incumbent coalition called *Concertación*, who we call “politicians of the new regime”; and (iii) any of the previous politicians, who we call “any politician.”

Table 7 shows that controversial firms formed links with the political world. These firms were 25 percentage points more likely to hire any politician in the decades after the dictatorship, 25 percentage points more likely to hire a politician from the Pinochet regime at the beginning of democracy, and 40 percentage points more likely to hire politicians of the new regime after 15 years of democracy. These coefficients represent economically large magnitudes and the dynamic patterns are revealing. Indeed, a plausible interpretation is that controversial firms *substituted* political connections from the old to the new regime after a decade in democracy. These connections reverted almost perfectly and in 2005 we observe more than half of controversial firms in our data having connections to the new democratic coalition. In contrast, politicians of the old regime were no longer working in these firms by 2005. In sum, these results are consistent with controversial firms forming dynamic political connections that are usually associated with significant distortions.

Beyond the potential misallocation caused by politically connected firms in the market, controversial firms may also distort the political arena, via, for example financing political campaigns. This is the case studied in Claessens et al. (2008), which shows that Brazilian firms that contributed to political campaigns had higher stock returns because they benefited from preferential access to bank financing. Although perhaps intuitive, this type of analysis has been relatively scarce because data on campaign contributions is usually difficult to obtain. We study the relationship between controversial firms and campaign finance using recently declassified information.

The list of firms that *illegally* financed political campaigns was revealed after an extensive investigation by the Chilean tax authority. The motivation behind that investigation was accusations of illegal campaign financing before the presidential election of 2013. The illegality of these transfers took the form of monetary payments from firms to politicians for “services” that were never delivered. These interactions were summarized, and the list of firms participating was publicized in the press. Besides illegal campaign finance, we also observe the list of firms that contributed to campaigns in a legal way between 2005 and 2013. We matched these firms with our data of firms privatized by the Pinochet regime to construct two indicator variables, one for illegal and another one for legal financing of political campaigns. We observe that 46% of firms in our data legally contributed to political campaigns in the period between 2005 and 2013, and 22% contributed

illegally in 2013.

We follow the same econometric strategy as before and estimate equation (3) using legal or illegal financing as dependent variable including pre-privatization variables and industry fixed effects as covariates. The last rows in Table 7 present results. Estimated coefficients show that controversial privatizations were 31 percentage points more likely to legally finance political campaigns (p -value <0.05) and 19 percentage points more likely to contribute illegally, although the latter result is not statistically significant at conventional levels (p -value 0.19). These differences are economically meaningful because, on one hand, only 37 and 19% of uncontroversial privatizations contributed legally and illegally (see column 3) while, on the other hand, more than 68 and 37% of controversial privatizations did. These results suggests that controversial firms indeed seem to have attempted to exert influence in the political arena, further increasing the distortionary consequences of controversial privatizations.

The last row in Table 7 shows that firms with controversial privatizations hired board members in democracy who were 36 percentage points more likely to appear in the Panama Papers (p -value 0.02). The magnitude of this difference is large, as more than half of controversial firms hired at least one board member who appeared in these documents. In contrast, only 18 percent of uncontroversial firms hired a board member from the list. We highlight that this is a *legal* behavior, but it nevertheless decreases tax revenues and it is therefore an important margin to study.

6 Discussion and Interpretation

The first part of this section discusses the results' robustness to additional controls, estimation techniques, methods to classify privatizations, and the effects of omitted variables. Then we provide empirical evidence suggesting both underpricing *and* buyer identities are behind the patterns we have documented.

6.1 Robustness and omitted variables

A variety of econometric exercises suggest our findings are robust and the effect of unobservables is minimal. We begin by showing similar estimates when we include additional control variables – besides pre-privatization controls and industry fixed effects – or exclude particular firms from estimation. Additionally, the effects of controversies are similar, and if anything are larger, if we use the processes studied by Mönckeberg (2001) to define controversial privatizations. Finally, we show results are also robust to the use of modern matching estimators and econometric techniques that adjust for the effect of unobservables, suggesting omitted variables are not driving our results.

Table 8 presents all additional results.

We begin showing robustness to additional controls. The Pinochet regime privatized firms in two waves, one in the 1970s and another in the 1980s (see Figure 2). Some scholars have argue these two waves are different from each other, as the former aimed to privatize firms nationalized by Salvador Allende during 1970–1973, and the latter aimed to privatize long-standing state owned firms. To check for this potential confounding factor, we constructed an indicator that identifies the “privatization wave” of a firm and included it as an additional control. Column 4 shows that the results controlling by wave are similar. Another potential confounder could be a change in the controller of a firm. Although theoretically plausible, column 5 shows similar results if we eliminate the few firms that changed controllers between 1990 and 2005 from the estimation sample.²²

Two additional exercises, namely a different firm classification and the robustness of results to the exclusion of single firms from estimation provide complementary evidence. First, our clustering algorithm could have captured unobservable variables, so it is important to check if results are driven by the procedure we chose. Besides using two other clustering algorithms, we also classified firms as controversial if these were mentioned as “corrupt” by Mönckeberg (2001), who argues 8 of our 50 firms were sold underpriced.²³ Column 7 in Table 8 shows results are larger using her classification. This finding suggests Mönckeberg (2001) analyzed a selected sample of firms that are associated with particularly negative future outcomes. Second, we checked if results changed when we exclude one firm at the time from the estimation. Results are presented in Figure A.2 and confirm that our estimates are not driven by single observations, a concern in small samples.

The main statistical threat to previous results is the omission of variables that could be correlated with controversies and explain the outcomes of interest. We use two econometric techniques that suggest the estimates are robust and the effect of omitted variables is minimal. First, we use matching procedures with the goal of performing improved comparisons. Operationally, we calculate the probability of controversies in a privatization using pre-privatization variables and industry fixed effects. Then we perform three estimations, one in which we follow Crump et al. (2009) and restrict the sample to firms that have similar probabilities of controversies (Table 8, column 1), another in which we simply control for the probability of controversies (column 2), and a last one in which we create a counterfactual for each firm using the k -nearest neighbors (column 3).²⁴ The second strategy uses the predictive power of observable variables to adjust the coefficient of

²²Donelli et al. (2013) show that changes in control are rather unusual in Chile, with most firms having the same controlling shareholder since 1990.

²³Hence, we classify these 8 firms as controversial and use the remaining 42 as uncontroversial. Importantly, we emphasize that the clustering algorithm in section 3.1 indeed defines these 8 firms as controversial.

²⁴The first matching technique omits six firms from estimation and the second and third techniques drop two firms without a counterfactual in the same industry (see Table A.1).

interest by considering the effect of unobservables. This “coefficient stability approach” – first proposed by Altonji et al. (2005) and refined by Oster (2017) – again delivers similar estimates (Table 8, column 6). Hence, this additional econometric evidence suggests that our comparisons are appropriate and the effect of unobservables is minimal.

Overall, based on this evidence we conclude that, in the short-run, the credit market patterns constitute evidence of a preferential treatment flowing from the regime to controversial privatizations and, in the long-run, controversial privatizations evolved in a way that is consistent with these firms attempting to extract rents from the private and public sectors.

6.2 Unbundling controversies

Why are firms with controversial privatization process attempting to extract rents after being privatized? What is the controversy that explains their differential behavior? The answer to these questions is important because it illuminates how privatization processes should be regulated in practice. The context of our study is – at least partially – well suited to shed some light on this issue because we can estimate the relative importance of underpricing and the identity of buyers. On one hand, if underpricing is more relevant, it would suggest that policies attempting to accurately price firms when they are sold are one way to minimize the negative consequences of privatizations. On the other hand, if the identity of buyers is relatively more important, it would suggest that privatization processes should restrict *who* is allowed to buy state owned firms by, for example, requiring minimal guarantees to participate in the sale process.

To estimate the relative importance of privatization characteristics, we estimate a version of equation (3) in which we unbundle controversies into their components:

$$Y_{ijt} = \beta_1 \cdot \text{Buyer}_i + \beta_2 \cdot \text{Underpricing}_i + \delta X_{ij} + \gamma_j + \epsilon_{ijt} \quad (4)$$

where Y_{ijt} is one of the economic or political outcomes from previous sections, X_{ij} is a vector of pre-privatization controls, γ_j are industry-specific fixed effects, and ϵ_{ijt} is a robust error term with a mean of zero. The variables that characterize privatizations are underpricing and buyer identity, the latter measured as the closeness-to-the-regime variable in the x -axis of Figure 3. When estimating equation (4) our goal is to gauge the relative importance of β_1 and β_2 . To accomplish this goal, we compare the statistical significance and magnitude of these estimates. For the former, we simply test if β_1 and β_2 are statistically different from zero. For the latter, we use standardized effects, i.e. we compare the response of each outcome to a change of one standard deviation in each of these variables. The standard deviation of underpricing is 0.45 and the standard deviation of the closeness-to-the-regime variable is 0.27.

Table 9 presents estimation results of β_1 (column 1) and β_2 (column 2) for all outcomes in the paper, the p -value testing if $\beta_1 = \beta_2$ (column 3), and the p -value for the hypothesis that both $\beta_1 = 0$ and $\beta_2 = 0$ (column 4). We observe that both underpricing and buyers with close ties are negatively associated with outcomes, both in the dictatorship and in the long-run in democracy. When trying to gauge their relative importance, however, a mixed picture emerges. On one hand, the parameter that measures the relative importance of privatization characteristics is generally larger in magnitude for underpricing. On the other hand, the coefficient associated with buyer identity is a more precise estimate, as we observe more statistically significant results at conventional levels for this variable. In sum, we conclude that the evidence suggests both privatization characteristics matter.

7 Conclusion

What are the consequences of controversial privatization processes? We have studied the privatization program implemented by the Pinochet regime in Chile and found significant evidence of rent seeking behavior among firms privatized in controversial processes. While Pinochet was still in power, we found that firms with controversial privatizations had higher stock market valuation and had access to more loans from state banks, evidence of benefits flowing from the regime. After Pinochet left power, controversial firms evolved in a way consistent with tunneling, formed dynamic political connections, financed political campaigns, and decreased tax revenues by avoiding taxes. These findings are important because they reveal how authoritarian regimes can extract wealth from the state and influence the economy and politics even after a regime change.

These results have at least two implications. First, they suggest that benefits from regulating privatization processes may be greater than previously thought. There may be significant benefits from policies that increase competition among potential buyers or demand minimum requirements to buy state owned firms. Second, our findings suggest caution when interpreting the effects of democratizations. Indeed, a transition from dictatorship to democracy does not imply that distortions from dictatorships will disappear. Democratization effects on the economy depend on how distortions (endogenously) persist. We focused on privatizations but there could also be persistence of laws or regulations for example.

We believe our findings open new and interesting questions about privatization. For example, although we have shown how privatizations implemented in dictatorship can influence politics and the economy even after democratization, it is still an open question if and when these effects will disappear. Recent scandals in campaign finance in Chile have made incumbent politicians design regulations that attempt to decrease the influence of firms in politics. In addition, we believe that by improving our understanding of how privatization programs are implemented “on the ground” we

can potentially design allocation mechanisms among buyers to minimize negative consequences. Finally, we emphasize that Chile represents a single case and more research is needed to understand the implications of controversial privatizations outside of the context of Chile.

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Figure 1: Reports

Balances Generales Consolidados al 31 de Diciembre de 1987 y 1986

(En miles de dólares estadounidenses - M.U.S\$)

	1987	1986
	M.U.S\$	M.U.S\$
Activos		
Activo Circulante		
Disponibles	6.003	2.969
Depósitos a plazo	21.146	47.135
Valores negociables (neto)	4	4
Deudores por venta (neto)	17.135	13.624
Documentos por cobrar (neto)	6.760	6.424
Deudores varios (neto)	5.513	2.860
Existencias (neto)	36.730	26.412
Impuestos por recuperar	1.152	808
Gastos pagados por anticipado	485	1.119
Impuestos diferidos	1.063	702
Otros activos circulantes	13.030	12.343
TOTAL ACTIVOS CIRCULANTES	109.081	114.400
Activo Fijo		
Terrenos	13.612	13.337
Construcciones y obras de infraestructura	69.293	66.598
Maquinarias y equipos	39.579	37.158
Otros activos fijos	4.065	3.409
Depreciación (menos)	(90.514)	(85.998)
TOTAL ACTIVOS FIJOS	36.035	34.504

(a) Balance sheet

Estados de Resultados Consolidados

Por los años terminados al 31 de Diciembre de 1987 y 1986
(En miles de dólares estadounidenses - M.U.S\$)

	1987	1986
	M.U.S\$	M.U.S\$
Resultados Operacionales		
Ingresos de explotación	173.692	154.265
Costo de explotación	(131.594)	(115.017)
Margen de explotación	42.098	39.248
Gastos de administración y ventas	(9.805)	(9.434)
RESULTADO OPERACIONAL	32.293	29.814
Resultados No Operacionales		
Ingresos financieros	3.916	3.698
Utilidad inversión empresas relacionadas	2	2
Otros ingresos fuera de explotación	9.449	5.763
Amortización mayor valor de inversiones	11	12
Gastos financieros	(2.609)	(2.141)
Otros egresos fuera de explotación	(5.407)	(3.492)
RESULTADO NO OPERACIONAL	5.362	3.869
Utilidad antes de impuesto a la renta y partidas extraordinarias	37.655	33.683
Gasto tributario	(2.978)	(3.600)
Utilidad antes de partidas extraordinarias	34.677	30.083
Partidas extraordinarias:		
Pago del seguro en exceso al valor libro de bienes dañados en incendio	774	--
Reconocimiento del beneficio tributario asociado con la realización de una pérdida tributaria acumulada	144	--
UTILIDAD DEL EJERCICIO	35.595	30.083

(b) Income statement

Banco o Institución Financiera	1987	1986
	M.U.S\$	M.U.S\$
Sociedad Matriz		
Lloyds Bank Int. N. York	5.110	5.042
Irving Trust Co.	2.048	4.075
Australian & N. Zealand Bank	5.194	5.068
Morgan Guaranty Trust	1.000	3.000
Citibank New York	--	2.500
Bank of America	1.875	5.028
Banco do Brasil	613	604
Banco Español - Chile	--	21
Banco Santiago	1.044	--
First National Bank of Boston	--	353
Banco de Boston	43	--
Citibank N.A.	815	--
Bank American Express	450	--
Citibank Leasing	2.749	--
The Chase Manhattan Bank	1.003	--
Filial N.C.C.		
Morgan Guaranty Trust	--	8.400
First National Bank of Minneapolis	--	781
Totales	21.944	34.872
Monto capital adeudado	21.539	34.727
Tasa interés promedio anual	8,63914%	7,28863%

b) Obligaciones a largo plazo con bancos e instituciones financieras. (Incluye porción corto plazo).
Al 31 de Diciembre de 1987 y 1986 son las siguientes:

Bancos e Instituciones Financieras	Moneda o Reajuste	Porción Corto Plazo	AÑOS AL VENCIMIENTO		Total al 31.12.87	Tasa de Interés Anual Promedio	Monto de Adecuado al 31.12.87		Porción Corto Plazo	Porción Largo Plazo
			Desde 1 Hasta 2	Desde 2 Hasta 3			Capital	Porción		
Citibank	M.U.S\$	958	958	--	1.916	Libor-1%	1.916	958	1.917	
Totales		958	958	--	1.916		1.916	958	1.917	

La amortización de los intereses de los créditos a largo plazo es efectuada semestralmente.

(c) Debt with banks

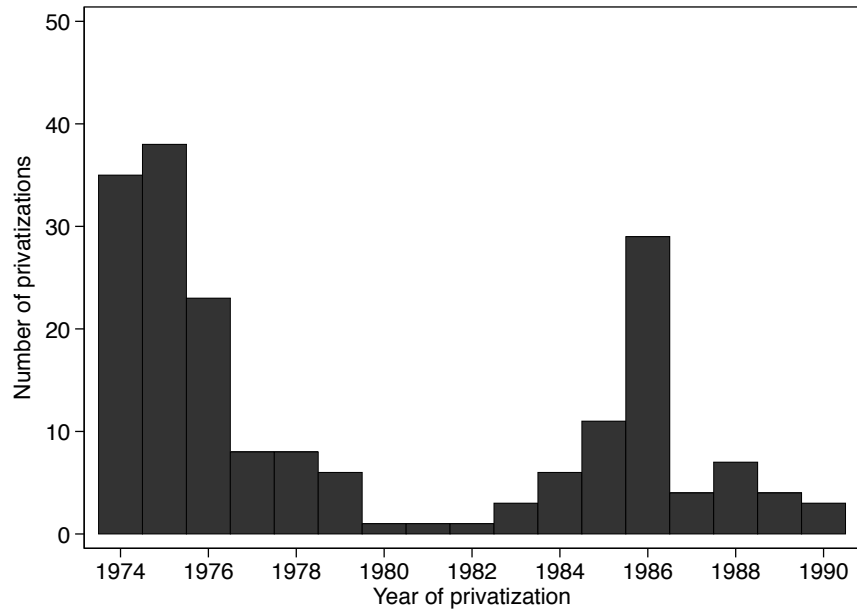
Propiedad al 31 de diciembre de 1987

Nombre	Nº de Acciones	Porcentaje
Corporación de Fomento de la Producción	22.210.907	17,99%
Soc. de Inversiones Pampa Calichera S.A.	15.233.481	12,34%
Inversiones ICC Chile Ltda.	7.574.291	6,13%
Capricorn Holding Inc. y Cia. Ltda.	7.445.000	6,03%
A.F.P. Provida S.A. para Fondo de Pensiones	6.231.288	5,05%
A.F.P. Santa María S.A. para Fondo de Pensiones	6.044.318	4,89%
A.F.P. Habitat S.A. para Fondo de Pensiones	5.946.343	4,82%
A.F.P. Unión S.A. para Fondo de Pensiones	4.876.280	3,95%
Cia. de Seguros de Vida Consorcio Nac. de Seg. S.A.	3.920.713	3,17%
Tanner y Cia. S.A.	2.867.528	2,32%
A.F.P. Cuprum S.A. para Fondo de Pensiones	2.010.000	1,63%
A.F.P. Summa S.A. para Fondo de Pensiones	1.962.106	1,59%
Otros Accionistas	2.393	86.322.255
Total Accionistas	2.405	37.168.844
		123.491.099
		100,00%

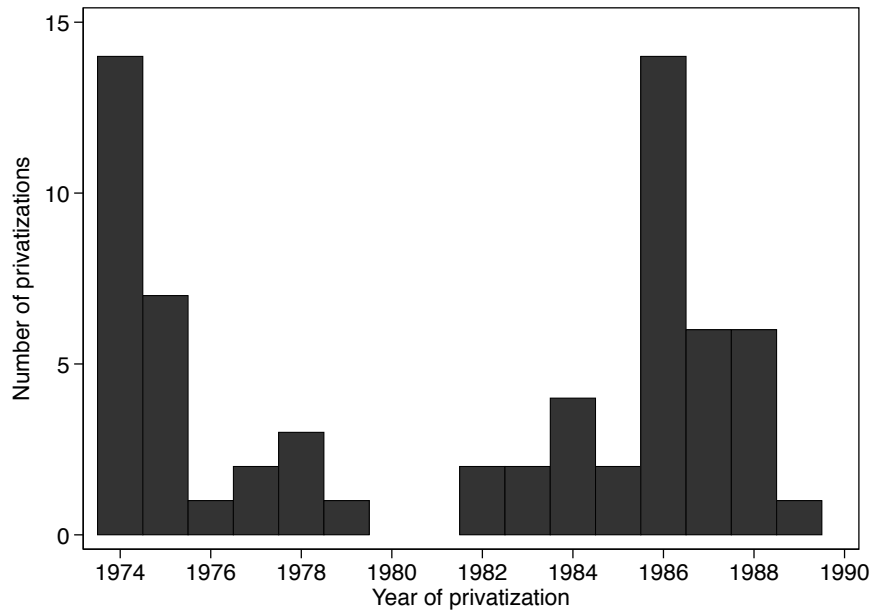
(d) Owners of the firm

Notes: This is an example of a firm's annual report to Chile's regulatory agency. In this example, all data in panels (a) through (d) are part of the 1987 report submitted by the Chemical and Mining Society of Chile, a firm that our algorithm detects as a controversial privatization because it was sold underpriced to Pinochet's son-in-law.

Figure 2: Privatizations by year



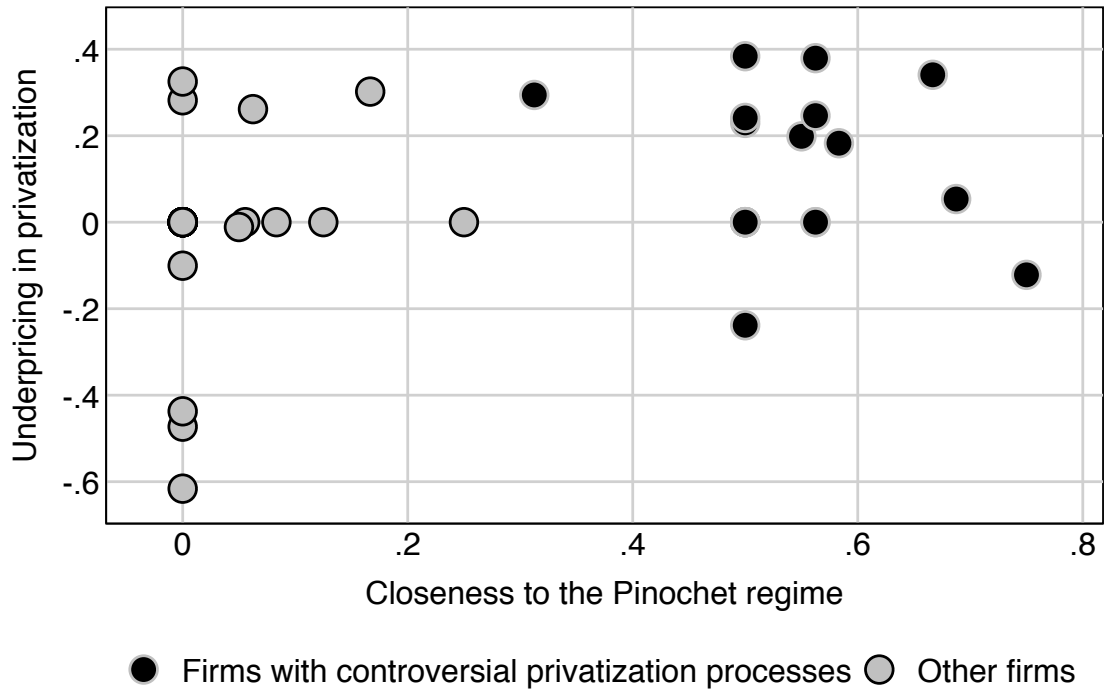
(a) All firms privatized by the Pinochet regime



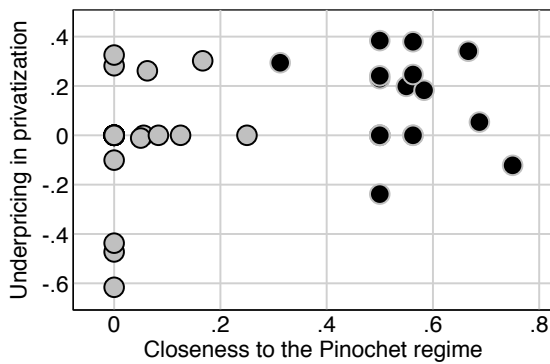
(b) Our data of privatized firms

Notes: This figure shows the distribution of privatizations by year during the Pinochet dictatorship (1973–1990). The upper panel shows all privatizations implemented by the regime as presented in CEME (2004). The lower panel shows the distribution of privatizations in our dataset.

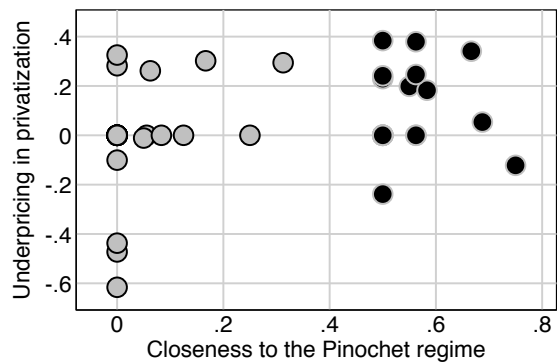
Figure 3: Detecting controversial privatization processes



(a) *k*-means clustering algorithm



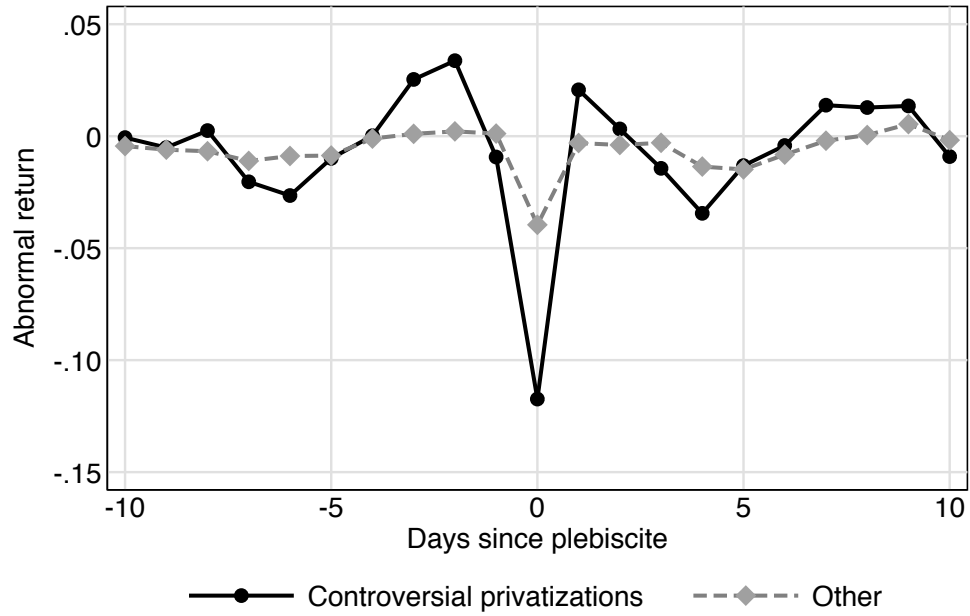
(b) Spectral clustering



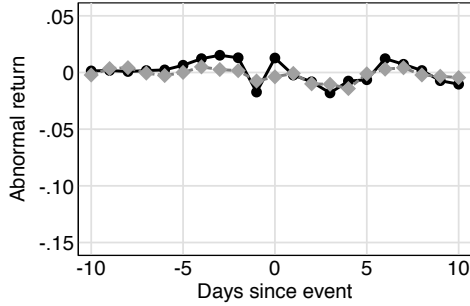
(c) Agglomeration clustering

Notes: We classify firms using different clustering algorithms. See section 3.1 for details.

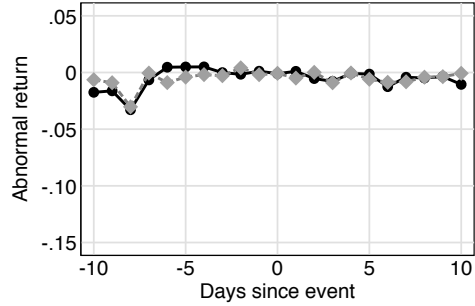
Figure 4: The stock market



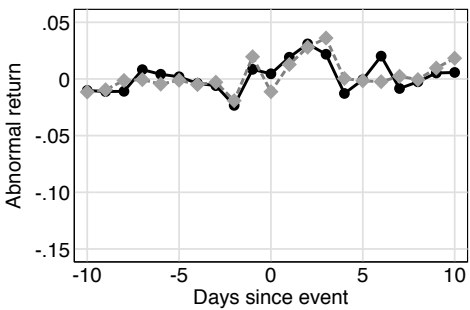
(a) Announcement of transition



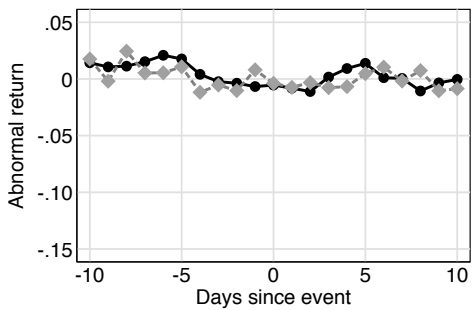
(b) Pinochet gets nominated



(c) Constitutional reform



(d) 1989 Presidential Election



(e) New government takes office

Notes: Own construction using stock price data hand-collected from contemporary newspaper El Mercurio, available at Chile's National Library. See section 4.1 for details.

Table 1: Characterization of privatization processes

	Subsample of firms			Difference (2)-(3)
	All firms	With controversial processes	Without controversial processes	
	(1)	(2)	(3)	(4)
Share of board with links to regime	0.08 (0.15)	0.12 (0.18)	0.06 (0.12)	0.06 [0.16]
Buyer has links to the regime	0.42 (0.50)	0.96 (0.21)	0.00 (0.00)	0.96*** [0.00]
Closeness to the regime	0.25 (0.27)	0.54 (0.09)	0.03 (0.06)	0.51*** [0.00]
Underpricing in privatization	0.08 (0.45)	0.23 (0.39)	-0.03 (0.48)	0.26** [0.04]
Number of firms	50	22	28	

Notes: Averages and standard deviation (in parentheses) in columns 1-3 and p -values for a double size t -test in square brackets in column 4. Significance level: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 2: Firm-level differences before privatization

	Controversial privatizations	Uncontroversial privatizations	Difference	
			<i>p</i> -value	<i>p</i> -value (perm. test)
	(1)	(2)	(3)	(4)
Logarithm of total assets	20.76 (1.06)	23.89 (1.39)	0.10	0.10
Logarithm of sales	18.97 (1.40)	23.17 (1.41)	0.04	0.04
Return over equity	0.15 (0.05)	0.19 (0.03)	0.41	0.40
Leverage	0.42 (0.05)	0.42 (0.05)	0.99	0.99
Years since established	40.09 (5.44)	48.46 (6.77)	0.36	0.36
Year of privatization	1983 (1.0)	1981 (1.1)	0.09	0.10
Number of firms	22	28		

Notes: Are there observable differences between firms with controversial and uncontroversial privatization processes *before* privatization? This table provides evidence by presenting averages of variables in the reports before the year each firm was privatized. We present standard deviations in parenthesis and *p*-values with and without correction for inference in small sample. More details in sections 3.1 and 4.1.

Table 3: The stock market*Dependent variable is the cumulative abnormal stock return of a firm*

Days after the plebiscite:	1 day	3 days	5 days	8 days	10 days
	(1)	(2)	(3)	(4)	(5)
PANEL A: without controls					
Controversial privatization	-0.08*** (0.03) [0.00]	-0.06*** (0.02) [0.00]	-0.09*** (0.03) [0.01]	-0.06* (0.03) [0.08]	-0.06* (0.03) [0.09]
Number of firms	41	41	41	41	41
R-squared	0.18	0.16	0.17	0.08	0.08
Pre-privatization controls (X_i)	No	No	No	No	No
Industry fixed effects (η_j)	Yes	Yes	Yes	Yes	Yes
PANEL B: with controls					
Controversial privatization	-0.08*** (0.03) [0.01]	-0.07*** (0.02) [0.01]	-0.10*** (0.03) [0.00]	-0.06 (0.04) [0.07]	-0.06 (0.04) [0.09]
Number of firms	41	41	41	41	41
R-squared	0.29	0.31	0.28	0.16	0.15
Pre-privatization controls (X_i)	Yes	Yes	Yes	Yes	Yes
Industry fixed effects (η_j)	Yes	Yes	Yes	Yes	Yes

Notes: Does the value of firms with controversial privatization processes changes after the unexpected announcement of Chile's transition to democracy in October 5th of 1988? Each column in this table provides evidence by presenting OLS estimates of the following regression equation:

$$CAR_{it} = \beta_t \cdot Controversial_i + \delta_t X_i + \eta_{jt} + \epsilon_{ijt}$$

where $CAR_{it} \equiv \sum_{k=0}^t AR_{ik}$ is the cumulative abnormal return of firm i from the day of the plebiscite up to the t following days. The variable $Controversial_i$ is an indicator for controversial firms, X_i represent pre-privatization controls, η_{jt} is a set of industry fixed effects, and ϵ_{ijt} is a mean zero error term. Cumulative abnormal returns correspond to the sum of daily abnormal returns. We collected data on stock prices from newspaper *El Mercurio*. Our sample decreases from 50 to 41 firms because in order to calculate CAR_{it} we need to observe stock prices four months before the event we study, and we do not observe these for 9 firms. More details in section 4.1. Robust standard errors in parentheses and p -values correcting for small sample inference in square brackets. Significance level: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 4: The credit market during Chile's transition to democracy

	Indicator for loans with Banco del Estado	Average interest rate with Banco del Estado	Leverage
	(1)	(2)	(3)
<hr/> PANEL A: years 1988–1990 <hr/>			
Controversial privatization	0.30** (0.14) [0.05]	-0.04 (0.02) [0.04]	0.00 (0.04) [0.93]
Number of firms	50	12	50
R-squared	0.44	0.38	0.47
Pre-privatization controls (X_i)	Yes	No	Yes
Industry fixed effects (η_j)	Yes	No	Yes
Avg. uncontroversial privatizations	0.19	0.13	0.33
<hr/> PANEL B: years 1986–1987 <hr/>			
Controversial privatization	0.14 (0.11) [0.30]	-0.02 (0.01) [0.17]	-0.11 (0.11) [0.20]
Number of firms	50	20	50
R-squared	0.57	0.10	0.18
Pre-privatization controls (X_i)	Yes	No	Yes
Industry fixed effects (η_j)	Yes	No	Yes
Avg. uncontroversial privatizations	0.11	0.10	0.37

Notes: Each column in this table presents OLS estimates of the following equation:

$$Y_{ijt} = \beta_t \cdot \text{Controversial}_i + \delta_t X_i + \eta_{jt} + \epsilon_{ijt}$$

where we measure Y_{ijt} in 1988-1990 (Panel A) or in 1986-1987 (Panel B). Dependent variables measuring loans and interest rates from Banco del Estado, and leverage (debt over assets) are own construction from firm-level reports. Banco del Estado is the main state owned bank in Chile. The variable Controversial_i is an indicator for controversial firms, X_i represent pre-privatization controls, η_{jt} is a set of industry fixed effects, and ϵ_{ijt} is a mean zero error term. More details in section 4.2. Robust standard errors in parentheses and p -values correcting for small sample inference in square brackets. Significance level: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 5: The beginning of democracy*Dependent variables are measured in 1990, the first year after Chile's return to democracy*

	Logarithm assets	Logarithm sales	Leverage	Return over equity
	(1)	(2)	(3)	(4)
Controversial privatization	1.62*** (0.35) [0.00]	0.92 (0.67) [0.00]	0.04 (0.05) [0.57]	0.01 (0.05) [0.87]
Number of firms	50	50	50	50
R-squared	0.48	0.44	0.45	0.34
Pre-privatization controls (X_i)	Yes	Yes	Yes	Yes
Industry fixed effects (η_j)	Yes	Yes	Yes	Yes
Avg. uncontroversial privatizations	17.77	17.21	0.32	0.16

Notes: Each column in this table presents OLS estimates of the following equation:

$$Y_{ijt} = \beta_i \cdot \text{Controversial}_i + \delta_i X_i + \eta_{jt} + \epsilon_{ijt}$$

where Y_{ij} is an outcome variable for firm i in industry j at the beginning of democracy, i.e. at the end of year 1990. The variable Controversial_i is an indicator for controversial firms, X_i represent pre-privatization controls, η_{jt} is a set of industry fixed effects, and ϵ_{ijt} is a mean zero error term. More details in section 5. Robust standard errors in parentheses and p -values correcting for small sample inference in square brackets. Significance level: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 6: Ownership structure and performance in democracy

Dependent variable:	Coefficient controversial privatization (β)	p -value permutation test	Average uncontroversial privatizations	R-squared
	(1)	(2)	(3)	(4)
Pyramidal ownership structure in 1995	0.40*** (0.14)	[0.01]	0.41	0.39
Pyramidal ownership structure in 2000	0.41*** (0.13)	[0.01]	0.48	0.45
Pyramidal ownership structure in 2005	0.41*** (0.13)	[0.01]	0.48	0.45
Wedge in 1995	0.27 (0.16)	[0.07]	0.22	0.37
Wedge in 2000	0.32** (0.15)	[0.04]	0.37	0.38
Wedge in 2005	0.36** (0.15)	[0.02]	0.37	0.43
Return over equity in 1995	-0.03 (0.03)	[0.50]	0.21	0.37
Return over equity in 2000	-0.06** (0.02)	[0.09]	0.20	0.49
Return over equity in 2005	-0.06*** (0.02)	[0.05]	0.19	0.43
Number of firms	50			
Pre-privatization controls (X_i)	Yes			
Industry fixed effects (η_j)	Yes			

Notes: Each row in this table presents OLS estimates of β in the following equation:

$$Y_{ijt} = \beta_t \cdot \text{Controversial}_i + \delta_t X_i + \eta_{jt} + \epsilon_{ijt}$$

where Y_{ijt} is an outcome variable for firm i in industry j in year $t = \{1995, 2000, 2005\}$ of democracy. The variable Controversial_i is an indicator for controversial firms, X_i represent pre-privatization controls, η_{jt} is a set of industry fixed effects, and ϵ_{ijt} is a mean zero error term. More details in section 5.1. Robust standard errors in parentheses and p -values correcting for small sample inference in square brackets. Significance level: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 7: Politics in democracy

Dependent variable:	Coefficient controversial privatization (β)	p -value permutation test	Average uncontroversial privatizations	R-squared
	(1)	(2)	(3)	(4)
Hired any politician in 1995	0.25* (0.14)	[0.07]	0.15	0.25
Hired any politician in 2000	0.28* (0.15)	[0.05]	0.30	0.29
Hired any politician in 2005	0.27 (0.18)	[0.11]	0.27	0.24
Hired politician of the <i>old regime</i> in 1995	0.25* (0.14)	[0.03]	0.11	0.33
Hired politician of the <i>old regime</i> in 2000	0.23 (0.15)	[0.10]	0.22	0.27
Hired politician of the <i>old regime</i> in 2005	-0.09 (0.13)	[0.94]	0.23	0.29
Hired politician of the <i>new regime</i> in 1995	-0.02 (0.06)	[0.79]	0.07	0.05
Hired politician of the <i>new regime</i> in 2000	0.09 (0.11)	[0.43]	0.11	0.17
Hired politician of the <i>new regime</i> in 2005	0.40*** (0.15)	[0.00]	0.08	0.33
Legally financed political campaigns	0.31** (0.15)	[0.05]	0.37	0.37
Illegally financed political campaigns	0.18 (0.14)	[0.19]	0.19	0.21
Appeared in the Panama Papers	0.36** (0.15)	[0.02]	0.18	0.28
Number of firms	50			
Pre-privatization controls (X_i)	Yes			
Industry fixed effects (η_j)	Yes			

Notes: Each row in this table presents OLS estimates of β in the following equation:

$$Y_{ijt} = \beta_i \cdot \text{Controversial}_i + \delta_t X_i + \eta_{jt} + \epsilon_{ijt}$$

where Y_{ijt} is a binary outcome variable for firm i in industry j in year $t = \{1995, 2000, 2005\}$ of democracy. The variable Controversial_i is an indicator for controversial firms, X_i represent pre-privatization controls, η_{jt} is a set of industry fixed effects, and ϵ_{ijt} is a mean zero error term. The “old regime” corresponds to the Pinochet regime (1973–1990) and the “new regime” corresponds to the period after 1990. More details in section 5.2. Robust standard errors in parentheses and p -values correcting for small sample inference in square brackets. Significance level: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 8: Robustness of results and omitted variables

	Truncate matching (Crump et al. 2009)	Matching controls pscore controversial	Matching using k -nearest neighbor	Adds control for privatization wave	Drops firms with takeovers	Coefficient stability (Oster 2017)	Journalistic investig. (Mönckeborg 2001)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
<hr/> Short-run dictatorship <hr/>							
Cumulative abnormal returns (5 days)	-0.10*** (0.03)	-0.08** (0.03)	-0.11*** (0.04)	-0.09*** (0.03)	-0.11*** (0.04)	-0.03	-0.07* (0.04)
Indicator for loans with state bank	0.29** (0.14)	0.31** (0.14)	0.27 (0.20)	0.31** (0.15)	0.13 (0.15)	0.16	0.46** (0.17)
Leverage	0.01 (0.04)	0.01 (0.04)	0.09 (0.07)	0.00 (0.04)	0.01 (0.05)	-0.01	0.06 (0.04)
<hr/> Long-run democracy <hr/>							
Pyramid 2005	0.41*** (0.12)	0.39*** (0.13)	0.41*** (0.16)	0.40*** (0.13)	0.48*** (0.16)	0.40	0.23** (0.11)
Wedge 2005	0.36** (0.15)	0.35** (0.15)	0.46*** (0.17)	0.33** (0.15)	0.52*** (0.16)	0.33	0.14 (0.17)
Return over equity 2005	-0.06*** (0.02)	-0.06** (0.02)	-0.05 (0.03)	-0.06*** (0.02)	-0.06** (0.03)	-0.07	-0.08** (0.02)
Hired any politician 1995	0.29** (0.13)	0.27** (0.13)	0.18 (0.18)	0.26* (0.14)	0.27* (0.14)	0.60	0.53** (0.23)
Hired any politician 2005	0.28 (0.17)	0.26* (0.15)	0.40*** (0.20)	0.27 (0.18)	0.23 (0.23)	0.40	0.40* (0.23)
Hired politician of <i>old</i> regime 1995	0.29** (0.12)	0.28** (0.13)	0.27** (0.12)	0.26* (0.14)	0.22* (0.13)	0.50	0.41* (0.21)
Hired politician of <i>old</i> regime 2005	-0.09 (0.13)	-0.09 (0.13)	0.05 (0.10)	-0.08 (0.14)	-0.11 (0.20)	-0.14	-0.02 (0.13)
Hired politician of <i>new</i> regime 1995	-0.02 (0.07)	-0.01 (0.06)	-0.09 (0.13)	-0.03 (0.06)	0.03 (0.07)	0.09	0.09 (0.17)
Hired politician of <i>new</i> regime 2005	0.41*** (0.14)	0.40*** (0.14)	0.40*** (0.13)	0.39*** (0.14)	0.41** (0.18)	0.70	0.52** (0.21)
Legal financed political campaign	0.32** (0.15)	0.33** (0.15)	0.36** (0.18)	0.29* (0.15)	0.38** (0.17)	0.46	0.35* (0.19)
Illegal financed political campaign	0.16 (0.13)	0.19 (0.13)	0.00 (0.16)	0.14 (0.13)	0.14 (0.13)	0.51	0.51*** (0.18)
Appeared in the Panama Papers	0.34** (0.16)	0.33** (0.15)	0.27 (0.19)	0.33** (0.16)	0.30 (0.19)	0.67	0.50** (0.21)
Number of firms	44	48	48	50	43	50	50

Notes: Each estimate comes from a different estimation strategy. See section 6.1 for details. Significance level: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 9: Unbundling the importance of privatization characteristics

	Closeness to the regime	Underpricing in sale	<i>p</i> -value (1) = (2)	<i>p</i> -value (1) = 0 & (2) = 0
	(1)	(2)	(3)	(4)
<u>Short-run dictatorship</u>				
Cumulative abnormal returns (5 days)	-0.03** (0.02)	-0.03 (0.02)	0.86	0.02
Indicator for loans with state bank	0.12 (0.08)	0.11 (0.08)	0.95	0.03
Average interest rate with state bank	-0.01 (0.01)	-0.02 (0.01)	0.87	0.09
Leverage	0.00 (0.02)	0.01 (0.03)	0.77	0.92
<u>Long-run democracy</u>				
Pyramidal structure in 2005	0.18*** (0.06)	0.11* (0.06)	0.50	0.00
Wedge in 2005	0.15* (0.08)	0.14** (0.07)	0.95	0.01
Return over equity in 2005	-0.03** (0.01)	0.00 (0.02)	0.29	0.03
Hired any politician 1995	0.09 (0.07)	0.17* (0.09)	0.51	0.05
Hired any politician 2005	0.14 (0.08)	-0.04 (0.11)	0.24	0.26
Hired politician of <i>old regime</i> 1995	0.08 (0.07)	0.15* (0.08)	0.58	0.04
Hired politician of <i>old regime</i> 2005	-0.02 (0.07)	-0.05 (0.09)	0.83	0.81
Hired politician of <i>new regime</i> 1995	-0.02 (0.03)	0.06 (0.06)	0.26	0.53
Hired politician of <i>new regime</i> 2005	0.17 (0.07)	0.07 (0.07)	0.36	0.02
Legally financed political campaigns	0.15** (0.07)	0.02 (0.10)	0.31	0.11
Illegally financed political campaigns	0.12* (0.07)	-0.07 (0.09)	0.12	0.20
Appeared in the Panama Papers	0.15* (0.08)	0.05 (0.07)	0.41	0.11

Notes: Each row in this table presents two OLS estimates from a single regression that includes pre-privatization controls and industry fixed effects. Robust standard errors in parentheses. Significance level: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Online Appendix

Take the Money and Run? The Consequences of Controversial Privatizations

Felipe González, Mounu Prem, and Francisco Uzúa I.

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A More details about data construction

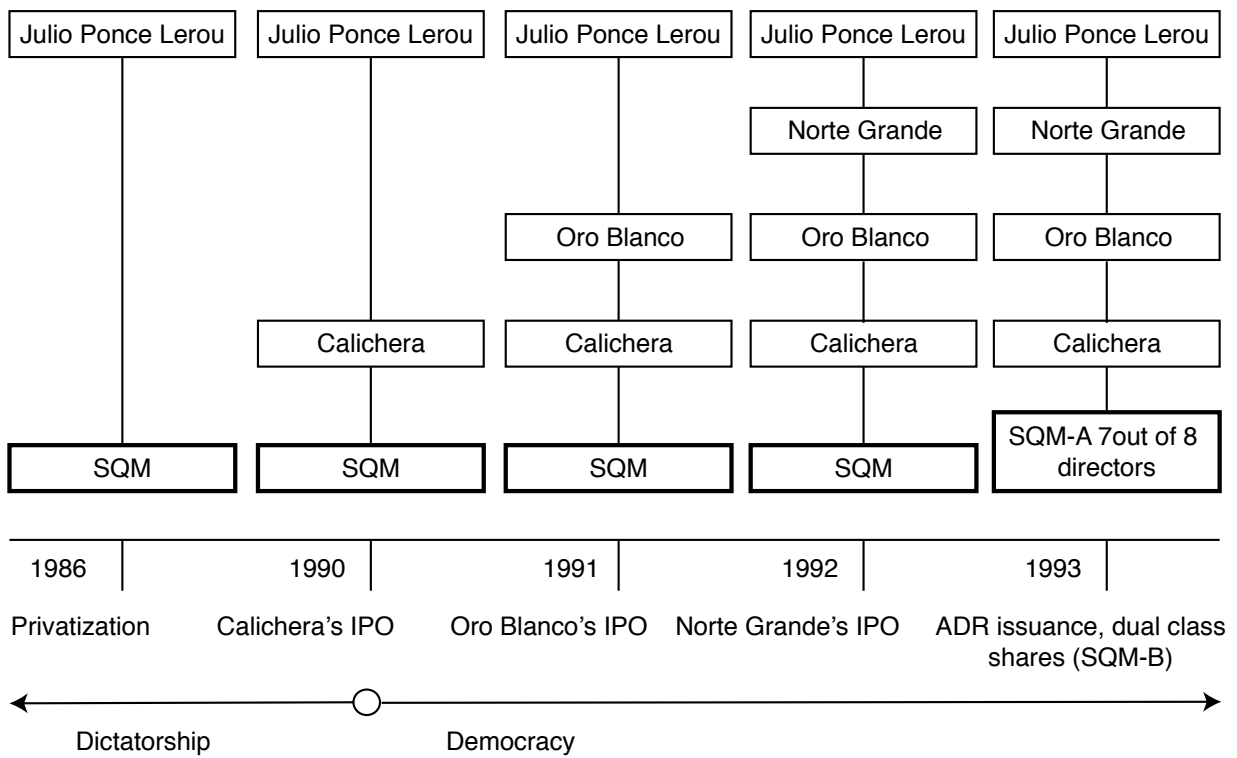
A.1 Procedure to detect links

This section provides more details about how we detect links between individuals and regime “RRR,” i.e. the Pinochet regime or the new democratic regime. Suppose we want to know if a person with the name of “AAA BBB CCC” (first name, first last name, second last name) had any links to regime “RRR” in year T . Then, we use the following procedure:

1. Open Chile’s version of Google (i.e. `www.google.cl`) in incognito mode, enabling replication.
2. Search for the query “AAA BBB CCC.”
3. Check all hits in the first page of results. Three possible paths arise:
 - 3.1 If we detect “AAA BBB CCC” worked for regime “RRR” *before* year T , then:
 - ⇒ Person is classified as having a link to the regime and we stop.
 - 3.2 If we detect “AAA BBB CCC” worked for regime “RRR” *after* year T , then:
 - ⇒ Proceed to step 4.
 - 3.3 If we did not find links between “AAA BBB CCC” and “RRR”, then:
 - ⇒ Proceed to step 4.
4. Search for the queries “AAA BBB CCC” and “RRR” at the same time.
5. Check all hits in the first page of results. Three possible paths arise:
 - 3.1 If we detect “AAA BBB CCC” worked for regime “RRR” *before* year T , then:
 - ⇒ Person is classified as having a link to the regime and we stop.
 - 3.2 If we detect “AAA BBB CCC” worked for regime “RRR” *after* year T , then:
 - ⇒ Person is classified as *not* having links to the regime and we stop.
 - 3.3 If we did not find links between “AAA BBB CCC” and “RRR”, then:
 - ⇒ Person is classified as *not* having links to the regime and we stop.

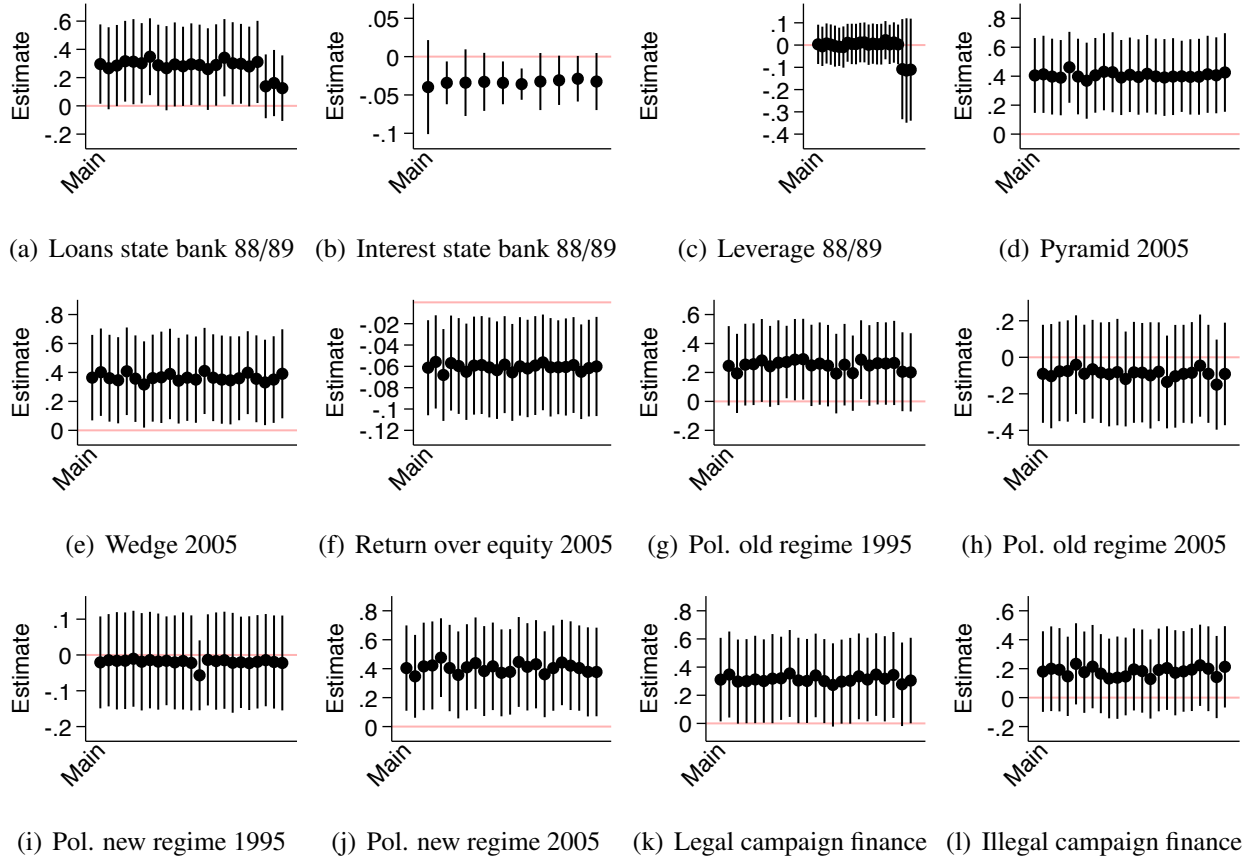
We repeat these steps every time we want to detect links between a person or a firm with a regime in year T . In the case of the Pinochet regime, the queries return historical sources that document the identities of individuals who participated in the regime. In particular, we are able to detect militaries and the following “high-level” politicians: secretaries, sub-secretaries, and leaders of important state offices (e.g. Planning Office, Production Development Corporation).

Figure A.1: Example for the evolution of ownership structures



Notes: Ownership evolution of SQM, a controversial privatization in our dataset.

Figure A.2: Robustness of results to excluding single firms



Notes: Each black dot is an estimate and each black line is the corresponding 95% confidence interval. Estimates in all panels are calculated using OLS and represent the β_t in the following equation:

$$Y_{ijt} = \beta_t \cdot \text{Controversial}_i + \delta_t X_i + \eta_{jt} + \epsilon_{ijt}$$

where Y_{ijt} is an outcome variable for firm i in industry j in year t . The variable Controversial_i is an indicator for controversial firms, X_i represent pre-privatization controls, η_{jt} is a set of industry fixed effects, and ϵ_{ijt} is a mean zero error term. More details in section 5.1. Confidence intervals were calculated using robust standard errors. In all panels, the y-axis measures the estimated coefficient and the x-axis identifies the estimate using our full sample (“Main”) and 22 additional estimates in which we exclude a single controversial privatization at the time.

Table A.1: Privatizations by industry

Industry	All firms	Firms with controversial processes
	(1)	(2)
Agriculture, forestry and fishing	3	2
Construction	1	0
Electricity and gas	12	5
Information and communication	4	2
Manufacturing	20	9
Mining and quarrying	5	3
Transportation and storage	4	1
Wholesale and retail trade	1	0
Number of firms:	50	22

Notes: Number of privatizations in our dataset by industry. We classify privatized firms into industries using Standard Industry Classification (four-digit SIC) codes.

Table A.2: Firm differences before privatization, subsample of firms in second wave

	Controversial privatizations	Uncontroversial privatizations	Difference	
			<i>p</i> -value	<i>p</i> -value (perm. test)
	(1)	(2)	(3)	(4)
Capital investment	-0.02 (0.09)	0.04 (0.04)	0.51	0.56
Short-term leverage	0.17 (0.03)	0.18 (0.04)	0.92	0.92
Long-term leverage	0.25 (0.04)	0.29 (0.07)	0.64	0.62
Liquidity	0.27 (0.04)	0.21 (0.03)	0.26	0.27
Cash-flow	0.04 (0.03)	0.08 (0.02)	0.38	0.37
Number of firms	16	15		

Notes: This table compares averages across firms with different types of privatization using additional observable variables that are available for the 31 firms privatized in the second wave (1980s). We present standard deviations in parentheses and *p*-values with and without correction for inference in small samples. These additional variables are defined as follows. *Capital investment* is defined as the change in fixed capital assets between $t + 1$ and t over fixed capital assets in t , *Short-term leverage* is defined as short-term debt over total assets, *Long-term leverage* is defined as long term debt over total assets, *Liquidity* is defined as short-term assets over total assets, and *Cash-flow* is defined as EBITDA over total assets. More details in sections 3.1 and 4.1.