The Privatization Origins of Political Corporations[*]

Felipe González Mounu Prem Francisco Urzúa I.[†]

We show that the sale of state owned firms in dictatorships can help political corporations to emerge and persist over time. Using new data, we characterize Pinochet's privatizations in Chile and find that some firms were sold underpriced to politically connected buyers. These newly private firms benefited financially from the Pinochet dictatorship. Once democracy arrived, they formed connections with the new government, financed political campaigns, and were more likely to appear in the Panama Papers. These findings reveal how dictatorships can influence young democracies using privatization reforms.

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[†]González: Pontificia Universidad Católica de Chile, Instituto de Economía; fagonza4@uc.cl. Prem: Universidad del Rosario, Department of Economics. Urzúa: City University of London, Cass Business School.

Firms with political influence are important in today's democracies (Zingales, 2017). These political corporations affect policies and increase resource misallocation (Faccio, McConnell and Masulis, 2006; Claessens, Feijen and Laeven, 2008; Goldman, Rocholl and So, 2013; Colonelli and Prem, 2017; Faccio and Hsu, 2017). But how these firms emerge and persist over time is currently unknown. We study the case of political corporations in Chile and show that these can be traced back in time to the sale of state owned firms during the Pinochet dictatorship (1973–1990). In contrast to the idea suggested by Boycko, Shleifer and Vishny (1996, 1997), privatizations may politicize instead of "depoliticize" firms.

The core of our analysis is based on the fact that the sale of state owned firms is plagued by controversies regarding prices and the identity of buyers. In Russia, for example, firms were sold underpriced to people who stripped them down and used the money to bribe politicians and block reforms (Black, Kraakman and Tarassova, 2000). Similar controversies are found in Argentina, China, India, Mexico, Serbia, Turkey, Uganda, and the U.K.[1] Despite their ubiquity, research studying controversial privatizations is scarce.[2] Finding an appropriate context is challenging because we need to observe comparable firms with different privatization processes, and measure their behavior over an extended period.

Pinochet's privatizations were also controversial because of prices and the identity of buyers (Mönckeberg, 2001). For example, one of the largest mining companies in the world was sold underpriced to Pinochet's son-in-law. Using new data, we characterize Pinochet's privatizations and find that some firms were sold underpriced to politically connected buyers. We then compare *similar* firms that were privatized differently and find that those sold to connected buyers benefited financially from Pinochet. Once democracy arrived, they formed connections with the new government, financed political campaigns, and were more likely to appear in the Panama Papers. These findings reveal how dictatorships can influence young democracies and document how privatization reforms may help political corporations to persist over time.

We begin the analysis by constructing several datasets. Listed firms were required to annually

[1]For details about these privatization processes see Saba and Manzetti (1997); Celarier (1997); Baran (2000); Tangri and Mwenda (2001); Green and Haskel (2004); Milovanović (2007); Fisman and Wang (2014).

[2]An exception is Fisman and Wang (2014), which studies corruption in Chinese privatizations. The original literature emphasizes how the state obtains revenues from selling state owned assets and firms experience economic changes and increased productivity (Barberis, Boycko, Shleifer and Tsukanova, 1996; La Porta and López-de-Silanes, 1999; D'Souza and Megginson, 1999; Frydman, Gray, Hessel and Rapaczynski, 1999). Megginson and Netter (2001) and Estrin, Hanousek, Kocenda and Svejnar (2009) provide excellent surveys of the literature.

report their activities to a regulatory agency. We digitize these reports including balance sheets, income statements, debt with banks, and the names of owners and board members. These are the largest firms in the country. Then, using the names of firms privatized by Pinochet, we identify those with annual reports. To characterize their privatization, we collect data on buyers and sale prices. Finally, we use the names of owners, board members, and politicians, to detect connections to the new democratic governments (1990–), to identify firms engaged in campaign finance, and to measure tax avoidance revealed by the Panama Papers.

We classify firms into types of privatizations 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 Pinochet. The former reveals differences in sale prices. The latter shows different people involved in the sales, from those closely connected to Pinochet to those without relationship. These variables allow us to employ a clustering algorithm to detect two groups of firms. When comparing these, we find that a group of firms that was sold underpriced using people close to Pinochet, i.e. "controversial privatizations."[3] We crosscheck the classification delivered by the algorithm using the names of firms mentioned in two well known investigations (Marcel, 1989; Mönckeberg, 2001).

After constructing the data, we compare firms with controversial privatizations to other privatized firms *before* they were sold. The two types of firms had similar indebtedness and performance. This similarity suggests that controversies were unrelated to firm behavior and industry dynamics. There are, however, differences in firm size for which we control. The day after the 1988 referendum – which ended the Pinochet regime – firms with controversial privatizations experienced an 8 percentage points decrease in abnormal stock returns. This pattern suggests investors perceived that controversial firms lost value after this event. This result is consistent with controversial firms obtaining benefits from Pinochet (Fisman, 2001).

Motivated by the reaction of investors, we study the evolution of economic and political outcomes by comparing controversial and otherwise *similar* uncontroversial privatizations within industries. 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

[3]Examples of other articles using clustering algorithms include Brocas, Carrillo, Wang and Camerer (2014), which classifies subjects using their revealed choices, and Crone (2005), which constructs an alternative definition of regions in the U.S.

these institutions to extract rents.[4] Second, we study the political behavior of firms after Pinochet left power (1990–2005) by analyzing the relationship between controversial firms, political connections, campaign finance, and tax avoidance.

Our analysis reveals that firms with controversial privatizations acquired more loans from state owned banks towards the end of the regime (1988-1990). In contrast, we do *not* observe these differential interactions between controversial firms and other types of banks. 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 1988 referendum and an analysis of loans from the main state bank, private banks, and international banks before and after the referendum. In addition, controversial firms grew faster than other privatized firms in the same industry during the dictatorship.

Next, we show that firms with controversial privatizations formed connections with the new governments, financed political campaigns, and were more likely to appear in the Panama Papers. Controversial firms employed politicians 25 percentage points more often and *substituted* connections from the *old* to the *new* democratic regime after democratization: in 2005 controversial firms employed 40 percentage points more politicians of the new government. This finding is important because political connections increase resource misallocation (Cingano and Pinotti, 2013) and produce rents for connected individuals (Blanes i Vidal, Draca and Fons-Rosen, 2012). Finally, controversial firms were 31 percentage points more likely to engage in campaign finance and 36 percentage points more likely to appear in the Panama Papers.

Our findings are robust and driven by the connections of *buyers*. Results are robust to different classification methods, estimation techniques, additional control variables, and robust to account for the effect of unobservable variables using methods that rely on coefficient stability across specifications (Altonji, Elder and Taber, 2005; Oster, 2019). In addition, results are explained by the political connections of the *buyers* of firms. In contrast, the pre-privatization connection of *firms* is empirically unrelated to the financial benefits during the dictatorship and the political behavior in democracy. However, given that we cannot fully discard the presence of unobserved characteristics driving both controversies and political behaviors, we cannot distinguish between privatization reforms creating or facilitating the persistence of political corporations.

[4]Khwaja and Mian (2005) show that politically connected firms in Pakistan used government banks to extract rents. See also Claessens, Djankov, Fan and Lang (2002), Sapienza (2004), Lucca, Seru and Trebbi (2014), and González and Prem (2019).

The main contribution of this paper is to show how privatization reforms can help political corporations to emerge and persist over time. Previous research has shown that corrupt privatizations have a negative effect on firm performance (Fisman and Wang, 2014), that political reasons are usually behind the origins of these reforms (Boycko, Shleifer and Vishny, 1994; López-de-Silanes, Shleifer and Vishny, 1997), and that privatizations might be used as a tool to gain political support (Bel, 2010). However, there is little empirical work outside of these contributions and the role of firms as vehicles to preserve economic and political power has been relatively overlooked. We add to this literature showing how firms sold to politically connected buyers may extract rents from the state using the credit market and avoiding taxes, and attempt to influence politics forming new connections and engaging in campaign finance.

This paper also constitutes an example of how authoritarian regimes can affect the functioning of young democracies, namely using privatization policies to take control of firms and use these as vehicles to transmit their economic and political power. The theoretical argument of authoritarian regimes affecting how democracies work has a long tradition in the social sciences (O'Donnell and Schmitter, 1986; Linz and Stepan, 1996; Acemoglu and Robinson, 2008; Acemoglu, Ticchi and Vindigni, 2010). But only recently scholars have been able to empirically document the legacies of non-democracies. Previous research emphasizes the importance of local politicians inherited from a dictatorship (Martínez Bravo, 2014; Martínez Bravo, Mukherjee and Stegmann, 2017), and the role of elites during transition (Albertus and Menaldo, 2014, 2018). Nevertheless, similar legacies could arise not only from authoritarian regimes but also from corrupt democracies.

This paper also contributes to the literature studying political corporations (Zingales, 2017), the persistence of elites (Acemoglu and Robinson, 2008), and the "revolving door" in politics (Blanes i Vidal, Draca and Fons-Rosen, 2012). As emphasized by Zingales (2017, p. 113), large firms are important political actors throughout the world but "the commonly prevailing view of the firm ignores all elements of politics and power." We contribute to this literature by showing the origins of political corporations. In doing so, our analysis constitutes an example of the dictatorial origins of elites attempting to capture a democracy (Grossman and Helpman, 1994; Ellman and Wantchekon, 2000; Acemoglu and Robinson, 2008; Acemoglu, Ticchi and Vindigni, 2011). Our results emphasize the importance of the "revolving door" to explain the persistence of elites and provide one policy-related mechanism behind the "iron law of oligarchy" (Michels, 1915).

Finally, our work sheds light on mechanisms that businesspeople linked to authoritarian regimes

may use to extract rents from the state. Earlier theoretical work has provided foundations to rationalize 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, Jedwab, Miguel, Morjaria and Padró-i-Miquel, 2015). More closely related, Atanasov (2005) shows that as much as 85% of firm value was extracted during Bulgaria's mass privatization process in the 1990s. We contribute to this literature by showing evidence of rent extraction using state owned banks, political connections, electoral campaigns, and tax avoidance. Our analysis highlights how market and institutional structures can influence firm behavior by affecting the marginal returns and costs of lobbying in new democracies. Dictatorships create economic rents to be protected and political connections lower the costs of exerting influence.

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. Pinochet remained in power until March 1990, 17 months after citizens rejected his 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. The opposition won that election and Chile returned to democracy after 17 years of dictatorship. Despite contentious debates about Pinochet's legacies, there is little evidence testing the persistent effects of his policies.[5]

The economic policies implemented by Pinochet aimed to decrease government spending, control the high inflation experienced since the beginning of the 1970s, decrease trade tariffs, and sell state owned firms. These policies were designed by 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 policies. Critics point to corruption during the Pinochet years and the currently high income inequality. One of the most important controversies lies around privatizations.

[5]Huneeus (2006) provides a detailed analysis of the Pinochet regime, and Cavallo, Salazar and Sepúlveda (2011) provides detailed accounts of important events. According to data collected by Treisman (2017), Chile's democratization is a common one: elections have ended almost half of dictatorships in the last two-hundred years.

The privatization process had several objectives. First, the regime was influenced by economists who believed in the efficiency of private property, a popular sentiment – especially among right-wing parties – after the economic instability under Allende's socialist government (1970–1973). One of the regime's goals was to privatize firms 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.[6] There is limited evidence suggesting that privatizations were used as a financing tool.

Mass privatizations are difficult to implement. 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" (Huneeus, 2006, p. 314).[7] The regime sold firms in two rounds. The first came in the second half of the 1970s, was organized by the Production Development Corporation, and aimed at re-privatizing companies expropriated by Allende. The second round used the "popular capitalism" strategy and began after the 1982 economic crisis. In this period the state gained control of firms that were privatized afterwards. Figure 2-A plots the number of privatizations per year, where these two waves of privatizations are visible.

Information about the implementation of the privatization process is limited. The most detailed account was produced by a research comission called by the Congress after the return to democracy (Congress Report, 2004). The second chapter of this report highlights three characteristics of the implementation. First, information about the firms being sold and their sale prices was scarce, debilitating the quality of the process. Second, firms were sold using different methods, and the explanation for the method chosen is mostly unclear. Some firms were sold using public auctions, prequalifying interested buyers, negotiating prices, and allowing buyers to use credit, but data on interested buyers, prequalifications, and bids is unfortunately missing. In cases when the number of buyers was expected to be low the firm was sold using a direct sale (Hachette and Lüders, 1992). Packages of shares of these firms were also sold gradually in the stock market "to avoid concentration of economic power and unjustified subsidies" (Marcel, 1989, p. 31). And third, the

[6]Huneeus (2006, ch. 9) provides a nice summary of the privatization process. Other accounts include Hachette and Lüders (1992) and Hachette (2001). Bel (2010) shows a similar political use of privatizations in Nazi Germany.

[7]The 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).

report emphasizes that the legal framework in charge of regulating the process allowed the sales to unfold the way they did: almost everybody was legally able to buy shares and the procedure was loose enough for people to buy them by negotiating the price and the method of payment.

Although Pinochet's privatizations are perceived as relatively successful (Galal, 1994), some sales have generated controversies, permeating the debate about Pinochet's legacies. Given the amount of state assets sold – 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 buyers who were close to Pinochet. On the other hand, supporters argue that privatizations increased firm performance and benefited the economy. We gather the most comprehensive firm-level data to shed light on this debate.

DATA CONSTRUCTION

We use annual firm-level data 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. These firms are among the largest in the country.

The reports reveal balance sheets, income statements, debts, and the names of board members and owners. The information was standardized in 1985 and thus firms report the same variables since then. Before that year, however, firms reported balance sheets, income statements, and other scattered information. We digitize all variables from the reports and standardize the monetary ones to 1998 Chilean pesos using the consumer price index of the Central Bank. Figure 1 presents an example of a report. All reports were audited by international firms and have been used by well-known investigations of the period.[8]

Next, we match the names of firms with reports with the list of 387 firms privatized by Pinochet.[9] The latter list is publicly available and it was produced by the Congress in the 1990s (Congress

[8]Examples 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 (2018*a*,*b*, 2019), 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, Stöhr and Quiroga (2007).

[9]There were 725 firms privatized by Pinochet, but 338 of these were being nationalized and the regime re-privatized them immediately after the 1973 coup.

Report, 2004). We found 50 firms in our data and the Congress' list. The remaining 337 firms were small, unlisted private companies with only a few shareholders. Therefore, they were unfortunately not mandated to submit reports and their information remains undisclosed. Nevertheless, among the 50 firms with reports we find popular companies sold underpriced to buyers connected to Pinochet. For example, the data includes the Chemical and Mining Society of Chile, sold to Pinochet's son-in-law and recently involved in corruption scandals; and the National Electricity Company, sold to a former dictatorship collaborator. The data also includes the companies mentioned by Marcel (1989) and Mönckeberg (2001), the latter a best selling book studying Pinochet's privatizations. Although data limitations prevent us from a thorough comparison of firms with and without reports, we know the latter were privatized on average three years earlier and the former were presumably larger and relatively more important in the economic history of the country.

Controversial privatizations

We classify firms into types of privatizations using information about the sale process and a clustering algorithm, quantization technique from signal processing. More precisely, we use a k-means cluster analysis with two variables that characterize the privatization process of a firm. First, we collect information about the people involved in the sale and construct a measure of "social distance" to the Pinochet regime. Second, we use multiple historical sources to recover sale prices for each privatization and construct a measure of underpricing that can be compared across firms. We say a privatization was controversial if a firm was sold relatively underpriced and the transaction involved people connected to Pinochet.

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

The second variable measures the extent of underpricing. There are unfortunately no records of auctions, participants, and bids in these sales. Therefore to construct it we compare the price per share paid in the privatization 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, 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 bankrupt companies, we assume that the price per share and book value per share coincide. Thus our underpricing variable is the ratio between the difference in book value and privatization price per share over the book value per share. Hence, higher positive values indicate more underpricing. This underpricing measure is ordinal because it allows us to compare prices across privatizations. Table 1 presents descriptive statistics.

To provide some validation for this underpricing variable, we constructed two alternative measures. The first one combines the prices paid by buyers with the present value of future cash flows. To estimate future cash flows we use the pre-privatization ones, available only for a subset of firms. The second measure combines the same prices with estimates of firm value, available for a small number of firms. These estimates were calculated by contemporaneous consulting companies or by other researchers. Reassuringly, our underpricing variable is positive correlated with both of these alternative measures (p-values of 0.09 and <0.01 respectively). We interpret these correlations as providing some validity for the underpricing variable we use throughout the analysis.

The last step employs a k-means clustering algorithm (Steinhaus, 1957) using underpricing and closeness-to-the-regime as inputs. This algorithm is an unsupervised learning approach that classifies firms in groups. We choose it due to its simplicity and wide use in empirical research. Figure 3-A presents results. The y-axis measures relative underpricing and the x-axis the closeness-to-the-regime. As can be seen – and confirmed statistically in Table 1 – there is a group of firms that were sold underpriced and those involved in the sale had close ties to the regime.[10] The algorithm finds 22 firms that had, under our definition, controversial privatization processes. All privatizations classified as controversial have been mentioned by Marcel (1989) and Mönckeberg (2001) as "corrupt" due to underpricing, which serves as a partial check to the approach.

[10]Figures 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. We also detect similar groups of firms when we use multi-clustering techniques. We detect two groups for simplicity; techniques to estimate the number of clusters (Tibshirani, Walther and Hastie, 2001) deliver a non-robust and large number of clusters.

Politics in democracy

To study how firms with different types of privatizations evolved, we first analyze firm-level economic outcomes. We then look at the dynamic formation of political connections, campaign finance, and tax avoidance, three important dimensions that research has found can be affected by firms (Fisman, 2001; Claessens, Feijen and Laeven, 2008; Zucman, 2013).

We construct datasets that measure: (i) which firms formed political connections, (ii) which firms contributed to political campaigns, and (iii) which board members appeared in the Panama Papers. The first uncovers the employment of politicians as board members and their political affiliations in the dictatorship and democracy periods. We collect the names of all people working as Ministers and similar high-level positions during the Pinochet dictatorship, calling them "politicians of the *old* regime." We also gather the names of all Ministers and similar high-level positions of *La Concertación*, coalition in power in the 1990s and politically opposed to Pinochet, calling them "politicians of the *new* regime." Then we gather the names of all board members in our data and identify politicians using a probabilistic record-matching algorithm.[11] Using this approach, we create an indicator for firms with political connections to the old and new regimes.

Another source we use are recently declassified documents that identified which firms contributed to political campaigns and who avoided taxes using tax havens. We observe legal and illegal campaign contributions *separately*. The latter is a list of firms that illegally financed the political campaigns of candidates in the 2013 presidential election. The Chilean tax authority made it public in 2014 due to irregularities in campaign financing.[12] The list reveals, for example, that SQM – firm with a controversial privatization – transferred resources to candidates before the election. Overall, 37% and 19% of firms in our data financed political campaigns legally and illegally respectively. Less than 1% of privatized firms outside of our data contributed to political campaigns legally and none contributed illegally.

To measure tax avoidance, we match the list of board members in democracy with the list of

[11]The algorithm produces a similarity index with support at the unit interval. We checked case by case manually among high 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.

[12]The 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.

people who appeared in the Panama Papers using the same probabilistic record-matching algorithm. We found 13 board members who worked in 15 firms, 10 of which were controversial.

RESULTS

This section presents five findings. First, there were few differences in balance sheets and income statements across firms with and without controversies *before* their privatization, suggesting that controversies were unrelated to firms' observed behavior. Second, the stock market value of firms with controversies decreased temporarily after the announcement of the transition from dictatorship to democracy. Third, firms with controversies obtained more loans from state banks before the transition. Fourth, firms with controversial privatizations grew at a higher rate during the dictatorship than other privatized firms in the same industry. Five, controversial firms formed political connections with the new regime, engaged in campaign finance, and their boards were more likely to appear in the Panama Papers. The last part shows the robustness of these findings.

Before and during privatization

How different were firms with different types of privatization processes before privatization? To answer this question, we compare variables in the reports before the privatization year of each firm. To gain statistical accuracy about firms' fundamentals, we take three-year averages for each of four variables: logarithm of assets, logarithm of sales, return over equity, and leverage. We choose these variables because they were available in the reports for all firms. In addition, we constructed the changes in these variables by taking the difference between year one and three before privatization to study pre-trends, we constructed Tobin's q, and we also collected the dates when firms were established. We compare these 10 variables and the year the process started.

Table 2 compares types of firms. In addition to firms in our data, we also include descriptive statistics for two other groups: firms without privatization but with annual reports, and firms with privatization but without reports. For the former group we present summary statistics before the average privatization year in the firm's industry, but the patterns are similar if we use nearby years. For the latter group there is unfortunately very little systematic information and, therefore, we can only observe their privatization year and industry. Figure A.1 plots the distribution of firms by

industry in our data and for all privatizations. From this figure it is clear that privatizations in our data overrepresent the manufacturing industry and underrepresent the wholesale and retail trade industry. However, other industries such as electricity and mining are well represented.

Each row in Table 2 presents the average and standard deviation of one of 11 variables. Columns 1 and 2 examine controversial and uncontroversial privatizations separately. Column 3 presents p-values for differences in means across groups, without and with correction for small sample inference.[13] Column 4 uses the Kolmogorov-Smirnov test to compare the distributions of the same variables across groups (Kolmogorov, 1933; Smirnov, 1933). Columns 1-4 show little statistically significant differences in profitability, growth prospects as measured by Tobin's q and asset growth, indebtedness, or firm age before privatization. The exception is firm size; we observe controversial firms were on average smaller. Although our ability to detect differences across firms may be affected by the sample size, the majority of differences are also of relatively small economic magnitude.[14] When compared to firms in our data, column 5 reveals that firms privatized by the regime were significantly larger, older, and had lower performance, but had similar debt compared to other firms with reports but not privatized.

To improve our understanding of privatization characteristics Table 3 presents different regression specifications using underpricing (columns 1-4) and closeness-to-the-regime (columns 5-7) as separate dependent variables, and pre-privatization variables and industry fixed effects as predictors. All in all, we observe that firms sold in the 1980s exhibited significantly more underpricing (p-value<0.05) and when the buyers of these firms were close to the regime the underpricing was larger (p-value<0.10). In contrast, the magnitude of estimates associated to pre-privatization variables is economically smaller. These results suggest that there might be an important relationship between both privatization characteristics which we discuss below.

In sum, we interpret results in Tables 2 and 3 as evidence that, although the privatization decision may have been driven by firm dynamics, the *type* of privatization – i.e. controversial versus uncontroversial – seems not to have been driven by firms' behavior. In what follows we present

[13] See 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.

[14] All of these differences are similar when we use within-industry comparisons. Table A.1 presents industries by privatization type. Table A.2 shows the similarity across firms *within* the first and second waves of privatizations in the 1970s and 1980s respectively. Table A.3 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 data section).

several econometric exercises related to this and alternative interpretations.

The stock market

We use Fisman (2001) framework to test if firms with controversial processes benefited financially from Pinochet. We study the stock market value of controversial firms after an exogenous shock that increased the probability of political transition.[15] If controversial firms benefited from the dictatorship, we expect a decrease in their value after the announcement of a democratization. We exploit the unexpected outcome of the referendum that ended the dictatorship. The referendum 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 in office and the regime's acknowledgement of negative results were unexpected.[16]

To measure changes in the stock market after the 1988 plebiscite, we digitize 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 – of stock i on day t:

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

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 details). The usage of pre-plebiscite transaction data leaves us with 41 privatized firms, 20 of which were controversial. We present the evolution of abnormal returns graphically and as estimates of the following regression:

$$CAR_{ijt} = \beta_t \cdot \text{Controversial}_i + \delta_t X_i + \eta_{jt} + \epsilon_{ijt} \tag{2}$$

[15] Fisman (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, Kaplan and Naidu (2011), Fisman, Fisman, Galef, Khurana and Wang (2012), and Luechinger and Moser (2014) among many others.

[16] González and Prem (2019, 2018*a*) 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.

where $CAR_{ijt} \equiv \sum_{k=0}^{t} AR_{ik}$ is the cumulative abnormal return for firm i, which operates in industry j, 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 – i.e. assets, sales, return over equity, and leverage – η_{jt} is a set of industry fixed effects, and ϵ_{ijt} is a mean zero error term. The parameter of interest is β_t 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 by type of privatization, and Table 4 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 4-A, column 1, p-value<0.01), it lasts for at least ten days, and it is robust to the inclusion of pre-privatization controls. Moreover, these results are similar when accounting for a potential non-normality in the distribution of abnormal returns and the cross-sectional correlation between stocks in the day of the event (Kolari and Pynnönen, 2010). When compared to prominent estimates in the literature, we calculate that this drop in stock returns is larger than the one in Fisman (2001) and similar to those in Ferguson and Voth (2008) and Acemoglu, Johnson, Kermani, Kwak and Mitton (2016).

Importantly, Figures 4-B through 4-D show that these patterns are particular to the announcement of the transition. 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 controversial firms receiving benefits from the regime.

The credit market under dictatorship

The credit market is useful to study because it can reveal if firms with and without controversial privatizations were receiving a differential treatment from the regime. When compared to the previous stock market analysis, it also 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 – and other types of banks.[17] We study firm debt financing with these banks 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 debt financing and interest rates across firm-bank pairs. In particular, we estimate the following regression before and after the plebiscite:

$$Y_{ijt}^{k} = \beta_{t}^{k} \cdot \text{Controversial}_{ij} + \delta_{t}^{k} X_{ij} + \eta_{jt}^{k} + \epsilon_{ijt}^{k} \tag{3}$$

where i indexes firms, j industries, t periods, and k the type of bank, i.e. state-owned, private, or international. The dependent variable Y_{ijt}^{k} is an indicator for firms with outstanding debt with bank of type k 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} – i.e. assets, sales, return over equity, and leverage – and industry fixed effects by period, η_{jt}. The coefficients of interest are β_{t}^{k} and measure the within-industry differences among controversial privatizations in the outcome of interest while controlling for pre-privatization differences. Note that when estimating equation (3), we allow coefficients of pre-privatization variables and industry fixed effects to differ by period and type of bank.

Table 5-A presents estimates of equation (3) after the plebiscite. Column 1 shows that controversial privatizations were 30 percentage points more likely to have loans 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 in González and Prem (2019), which finds that firms in the Pinochet's social network obtained more loans from state owned banks between 1988 and 1990. Column 4 shows that these loans had 4 percentage points lower interest rates, but this estimate relies on a smaller sample and it is only statistically significant when using small sample inference. In contrast, we do not observe any of these patterns between controversial firms and private or international banks and point estimates are significantly

[17] Anecdotally, the financial operations of the state owned bank before the transition have been a source of controversy. For 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.

smaller in terms of economic relevance (see columns 2, 3 ,5, and 6). Finally, column 7 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 probably not the case. Table 5-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, most point estimates are economically smaller than in panel A and patterns with other banks are again similar across types of firms. However, although the interactions between controversial firms and the state bank seem to have changed over time, we can only reject the similarity of coefficients in column 1 of panels A and B with a p-value of 0.11 when we use a pooled panel specification. Because of this and other potential concerns below we discuss additional robustness checks.

The beginning of democracy

Controversial privatizations differed significantly from uncontroversial ones at the very beginning of democracy. To show 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, we consider the same four firm-level outcomes – i.e. assets, sales, return over equity, and leverage – and also stock returns since the year of privatization. Note that we again control for pre-privatization variables and include industry fixed effects in our estimation.

Table 6 presents results. Columns 1 and 2 show that controversial firms grew faster than other firms in the same industry during the dictatorship. Given that we are controlling for previous size and these firms were smaller, this result means that controversial firms partially caught up in terms of size. Results using the logarithm of sales as dependent variable confirm this faster growth, although the point estimate is only significant when using small sample inference. 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). Finally, column 5 shows that stock returns between the year of privatization and the beginning of democracy were statistically similar between controversial and uncontroversial firms, although the point estimate suggests that the stock returns

of uncontroversial firms were lower.

Overall, results in this table reveal that firms with controversial privatizations grew significantly more in dictatorship when compared to other uncontroversial firms in the same industry, but they experienced little improvement in their profitability.

Politics in democracy

Are controversial firms influencing politics in democracy? We focus on three dimensions suggested as sources of distortions within democracies: the employment of politicians, the financing of political campaigns, and tax avoidance. We begin by studying employment 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). 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 employed at least one politician for their board. To capture the dynamic nature of these connections, we measure the employment 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 opposed to Pinochet 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 employ any politician in the decades after the dictatorship, 25 percentage points more likely to employ a politician from the Pinochet regime at the beginning of democracy – both only marginally significant with a p-value<0.10 – and 40 percentage points more likely to employ politicians of the new regime after 15 years of democracy. These coefficients represent economically large magnitudes and the dynamic patterns are revealing. 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.

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, Feijen and Laeven (2008), which shows that Brazilian firms that contributed to political campaigns had higher stock returns because they benefited from preferential access to bank financing. In addition, political contributions have also been found to affect public procurement (Baltrunaite, 2019). Although perhaps intuitive, this type of analysis has been relatively scarce because data on campaign contributions is usually difficult to obtain.

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. We also observe the list of firms that contributed to campaigns in a legal way between 2005 and 2013. We match these firms with our data of firms privatized by Pinochet to construct two indicator variables, one for illegal and another one for legal campaign finance. 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 an indicator for legal or illegal campaign finance 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. On one hand, only 37 and 19% of uncontroversial privatizations contributed legally and illegally (see column 3). 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.

The last row in Table 7 shows that firms with controversial privatizations employed 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 employed at least one board member who appeared in these documents. In contrast, only 18 percent of uncontroversial firms employed a board member from the list. We highlight that this is a *legal* behavior, but it nevertheless decreases tax revenues and it is therefore important to study.

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 the estimation. Additionally, the effects of controversies are similar, and if anything larger, if we use the processes studied by Marcel (1989) and 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 of these 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). Scholars have argued these two waves were 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.[18]

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 Marcel (1989) or Mönckeberg

[18]Donelli, Larraín and Urzúa (2013) show that changes in control are rather unusual in Chile, with most firms having the same controlling shareholder since 1990.

(2001), who argue 8 of our 50 firms were sold underpriced.[19] Column 7 in Table 8 shows results are larger using their classification. 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 valid 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, Hotz, Imbens and Mitnik (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).[20] The second strategy uses the predictive power of observable variables to adjust the coefficient of interest by considering the effect of unobservables. This "coefficient stability approach" – first proposed by Altonji, Elder and Taber (2005) and refined by Oster (2019) – 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.

Based on this evidence we conclude that, in dictatorship, the credit market patterns constitute evidence of a preferential treatment flowing from the regime to controversial privatizations and these firms operated as political corporations in the democracy period.

DISCUSSION AND INTERPRETATION

Are results explained by characteristics of the buyers or by characteristics of the firms being bought? The former would mean that buyers were able to use whatever firm they could buy to channel their economic and political objectives. The latter would mean that firms had some characteristic – e.g. they were politically connected before privatization – that made them obtain benefits

[19]Hence, we classify these 8 firms as controversial and use the remaining 42 as uncontroversial. Importantly, we emphasize that the clustering algorithm indeed classifies these 8 firms as controversial.

[20]The 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).

from Pinochet, grew more, and be more political after the return to democracy.

This section begins by providing some evidence suggesting that both privatization characteristics – i.e. underpricing and closeness-to-the-regime – appear to be statistically relevant. However, we emphasize that a potential causal relationship between these two characteristics makes it difficult to gauge their relative contribution. The section ends with a discussion of potential interpretations using an econometric decomposition of previous estimates. Our conclusion is that the political connections of the buyers are more likely to explain our results.

Privatization characteristics

The context of our study is partially well suited to estimate the relative importance of underpricing and the identity of buyers. However, as we highlight below, the potential causal relationship between these privatization characteristics leads to some difficulties. To estimate their importance, we use a version of equation (3) in which we unbundle controversies:

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

where Y_{ijt} is one of the economic or political outcomes from previous sections, X_{ij} is a vector of pre-privatization controls, η_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 closeness-to-the-regime and underpricing (see Figure 3). When estimating equation (4) our goal is to gauge the relative importance of β_1 and β_2. To accomplish this, 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). Both privatization characteristics are negatively associated with outcomes. When trying to gauge their relative importance, however, a mixed picture emerges. On one hand, the coefficient is generally larger in magnitude for underpricing. On the other hand, the coefficient associated with closeness-to-the-regime is a more precise estimate, as we observe more

statistically significant results at conventional levels for this variable.

The main challenge to interpret the similar econometric importance of privatization characteristics is the potential causal relationship between them. It is entirely plausible that a firm was sold underpriced *because* the people involved in the sale were linked to the Pinochet regime. This is why the effects of controversial processes need to be interpreted with caution. In particular, there are two possible interpretations. First, people involved in an underpriced sale had an arguably tighter connection and this is why prices were low. If true, then the characteristics of buyers should be the main explanation for our results. Second, there is some characteristic of these firms that made them attractive for individuals linked to Pinochet. Are findings driven by those involved in the sale or by some firm characteristic? We now discuss these alternatives.

Politically connected buyers and politically connected firms

We now examine the relative importance of politically connected buyers versus pre-privatization political connectedness of firms. Figure 3 makes it clear that all firms classified as controversial had people closed to Pinochet involved in the sale. This "closeness-to-the-regime" variable is composed by board members and buyers. Table 1 shows that controversial firms had significantly more politically connected *buyers*: 96% versus none. In contrast, the share of board members linked to the regime before privatization is similar across firms before privatization. To study the relative importance of buyers and firms we omit the underpricing variable – which could be contaminated by the buyers and hence be a "bad control" – and estimate the following regression:

$$Y_{ijt} = \omega_1 \cdot \text{Buyer connection}_i + \omega_2 \cdot \text{Board connection}_i + \delta X_{ij} + \eta_j + \epsilon_{ijt} \quad (5)$$

where "Buyer connection$_i$" is an indicator that takes the value of one for firms bought by someone linked to Pinochet, and "Board connection$_i$" is an indicator that takes the value of one for firms with board connections to Pinochet before the corresponding privatization process. The latter is our definition of political connections in the previous section and the one used in González and Prem (2019). The remaining variables are defined as before and therefore we always compare firms in the same industry while controlling for pre-privatization characteristics.

Before presenting estimates, it is useful to provide some descriptive statistics and check for pre-privatization differences across firms. On one hand, and as previously argued, the set of firms

bought by connected buyers is almost the same than the set of controversial firms. On the other hand, there are 18 firms with political connections and 32 unconnected firms before privatization. Tables A.4 and A.5 compare pre-privatization characteristics between firms with and without politically connected buyers, and between firms with and without political connections before privatizations respectively. The comparison in the former is almost identical to the one in Table 2. The comparison in the latter reveals that politically connected firms had lower leverage and were more likely to have been privatized during the second wave in the 1980s.

Table 10 presents estimates of equation (5). We begin by discussing $\widehat{\omega}_1$, i.e. the empirical importance of buyers' connections. There are two clear econometric patterns across outcomes. First, the benefits firms obtained during the dictatorship period seem to be entirely explained by the political connections of the buyers. Notably, their connections are able to explain the decrease in the stock market value and the additional loans these firms obtain from the state bank. Second, the formation of connections to the new democratic regime and the appearance in the Panama Papers is also driven by buyers' connections. In particular, firms with a connected buyer are 37 percentage points more likely to employ a politician of the new regime towards 2005 and 34 percentage points more likely to hire board members with money in tax havens.

The same table presents $\widehat{\omega}_2$, i.e. the importance of the political connections of a firm before privatization. Two patterns emerge from the analysis. In the first place, none of the coefficients associated to benefits during the dictatorship is statistically different from zero and the point estimates are of small economic magnitude. Firms with political connections before privatization are also not more likely to appoint board members who appeared in the Panama Papers. In addition, there is a significant persistence in the connections to the old regime. In particular, these firms were 39 percentage points more likely to be connected to a politician of the old regime in 1995 and this number decreases only to 28 percentage points in 2005. This pattern is in stark contrast to the one among firms with politically connected buyers.

What would have happened if politically connected buyers bought a different set of firms? This is of course a very difficult question to answer. Although the patterns in Table 10 suggest that buyers would have behave similarly in other firms, it might be the case that unobserved firm characteristics *explain* why buyers bought the firms they bought. This is, our analysis cannot fully rule out characteristics of firms that are unobserved to us as econometricians but observed by the buyers of firms. If politically connected buyers were acquiring certain firms precisely because they were

political in the past, then our findings reveal how privatization reforms facilitate the *persistence* of these firms over time. Because political connections prior to the privatization cannot explain our results, the evidence suggests that controversial firms *transformed* into political corporations. Unfortunately we cannot fully rule out other unobserved political characteristics of firms.

Finally, we would like to highlight potential explanations for the behavior of connected buyers after the dictatorship period ended. Why were they exerting influence in the new democratic period? We believe there are at least two reasons. First, connected buyers seemed to have benefited from the dictatorship. If these benefits translated into a better position of their firms in the market, then they acquired economic rents that needed to be protected. An example would be the acquisition of government contracts during the dictatorship that are not guaranteed in the new democratic period. Lobbying could help to perpetuate these contracts, making the returns to lobbying potentially higher for controversial firms. Second, the political connections of controversial firms can be particularly valuable in new democracies that are still under the influence of the previous regime. Augusto Pinochet remained a powerful political force in the years after the transition, acting as Commander-in-Chief of the Army (1973-1998) and then Senator for life (1998-2002). The institutional framework made the cost of exerting influence lower for controversial firms, at least until 1998 when Pinochet was detained in London. Both of these explanations imply that controversial firms were more likely to make efforts to influence politics than uncontroversial firms.

CONCLUSION

We have studied the privatization program implemented by the Pinochet dictatorship in Chile and found evidence of firms sold to politically connected buyers transforming into political corporations operating in democracy. While Pinochet was still in power, we found that these firms had higher stock market valuation and had access to more loans from state banks. After Pinochet left power, firms sold to connected buyers 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 transfer their economic and political power using firms as vehicles and in that way affect the functioning of young democracies.

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, the functioning of a new democracy depends on how and if dictatorships manage to transfer their economic and political power across regimes.

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 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.

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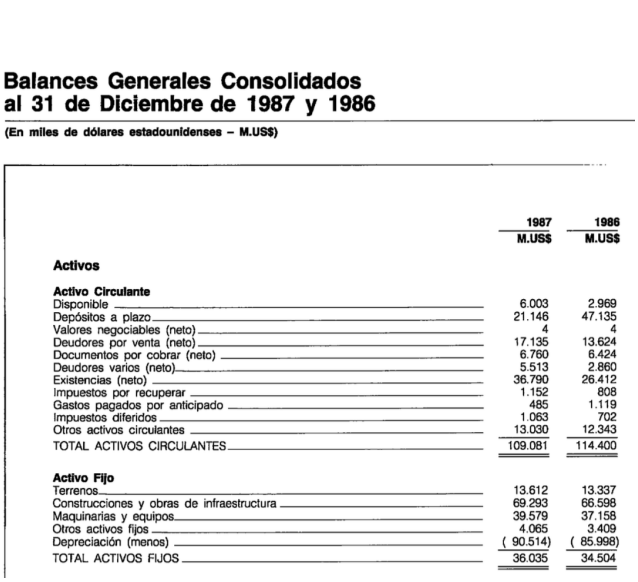
FIGURE 1: Reports



Balances Generales Consolidados al 31 de Diciembre de 1987 y 1986

(En miles de dólares estadounidenses – M.US$)

	1987 M.US$	1986 M.US$
Activos		
Activo Circulante		
Disponible	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)	36.790	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

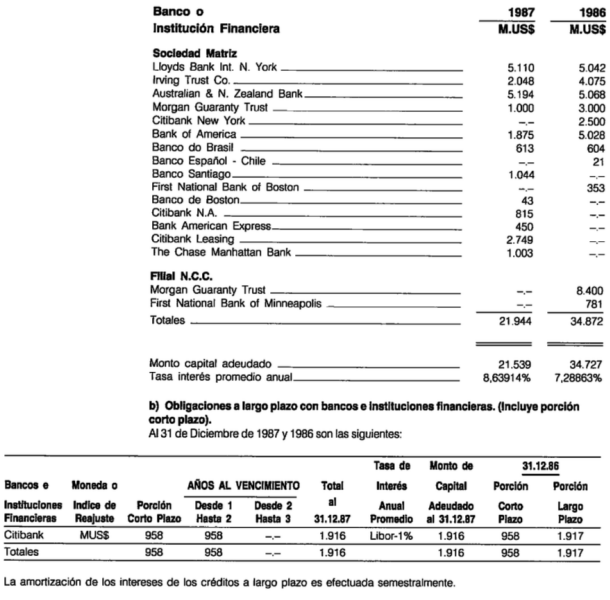
(a) Balance sheet

Estados de Resultados Consolidados

Por los años terminados al 31 de Diciembre de 1987 y 1986
(En miles de dólares estadounidenses – M.US$.)

	1987 M.US$	1986 M.US$
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)	(2.114)
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



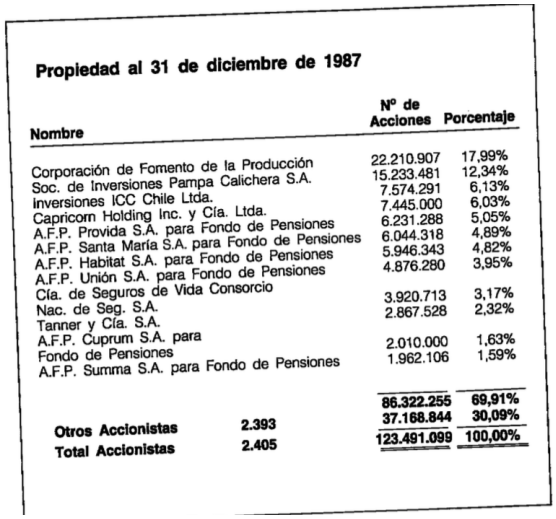
Banco o Institución Financiera	1987 M.US$	1986 M.US$
Sociedad Matriz		
Lloyds Bank Int. N. York	5.110	5.042
Irving Trust Co.	2.048	4.075
Australian & N. Zealand Bank	5.194	5.068
Morgan Guaranty Trust	1.000	3.000
Citibank New York	–.–	2.500
Bank of America	1.875	5.028
Banco do Brasil	613	604
Banco Español - 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 Indice de Reajuste	AÑOS AL VENCIMIENTO Porción Corto Plazo	Desde 1 Hasta 2	Desde 2 Hasta 3	Total al 31.12.87	Tasa de Interés Anual Promedio	Monto de Capital Adeudado al 31.12.87	31.12.86 Porción Corto Plazo	Porción Largo Plazo
Citibank	MUS$	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



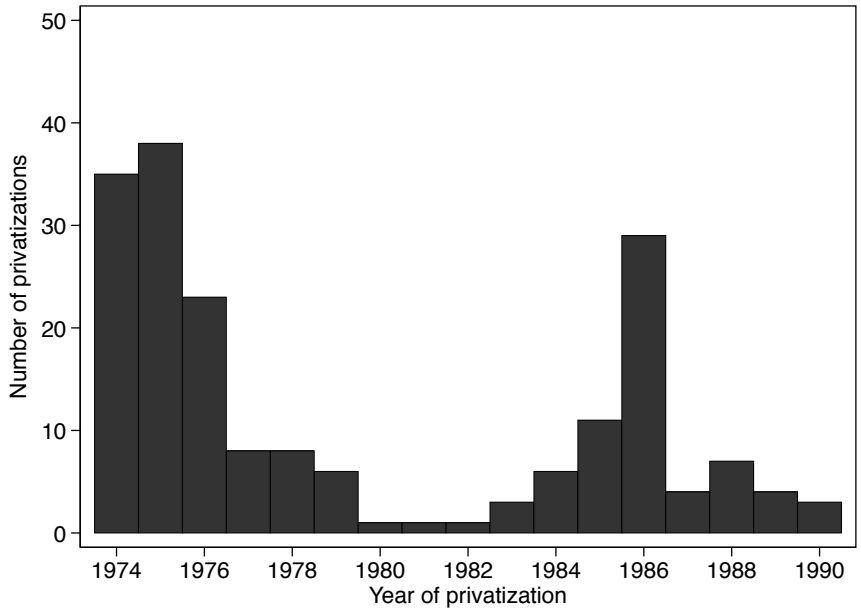
Propiedad al 31 de diciembre de 1987

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 Cía. 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%
Cía. de Seguros de Vida Consorcio	3.920.713	3,17%
Nac. de Seg. S.A.	2.867.528	2,32%
Tanner y Cía. S.A.		
A.F.P. Cuprum S.A. para	2.010.000	1,63%
Fondo de Pensiones	1.962.106	1,59%
A.F.P. Summa S.A. para Fondo de Pensiones		
	86.322.255	69,91%
	37.168.844	30,09%
Otros Accionistas 2.393	123.491.099	100,00%
Total Accionistas 2.405		

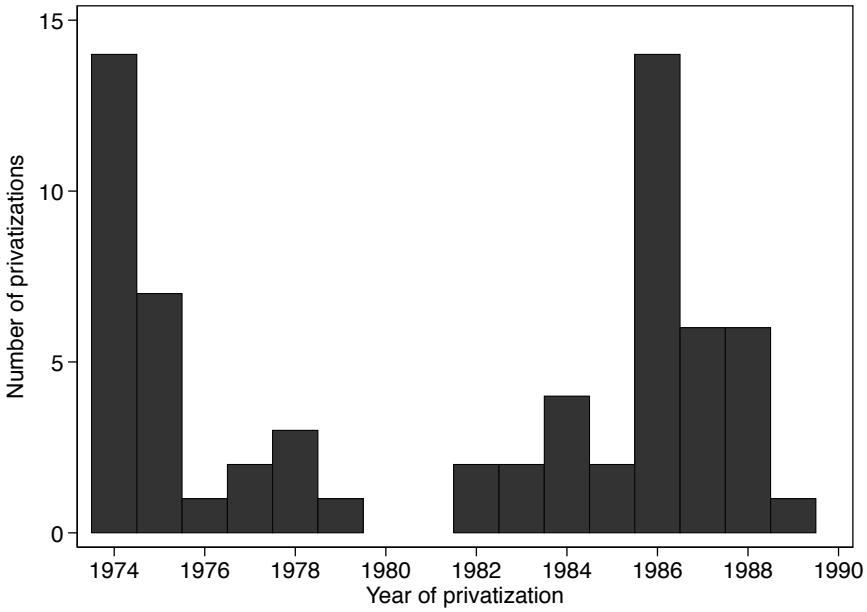
(d) Owners of the firm

Notes: This is an example of a firm's annual report to Chile's regulatory agency. In this example, panels (a) through (d) are part of the 1987 report submitted by the Chemical and Mining Society of Chile, firm sold underpriced to Pinochet's son-in-law.

FIGURE 2: Privatizations by year



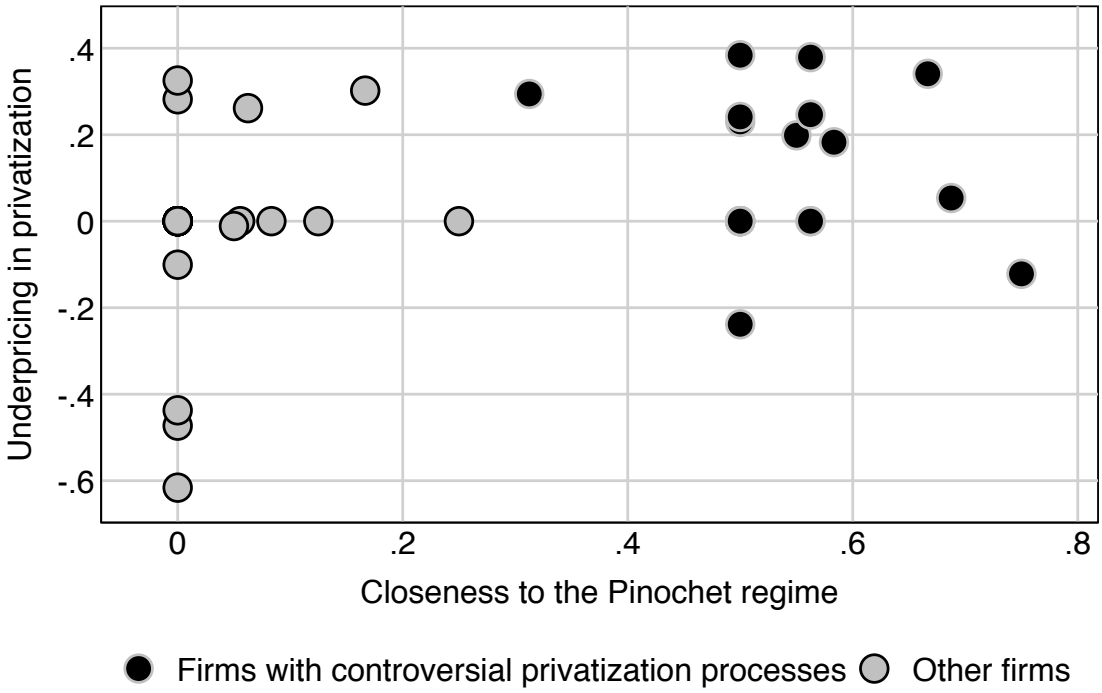
(a) All firms privatized by the Pinochet regime



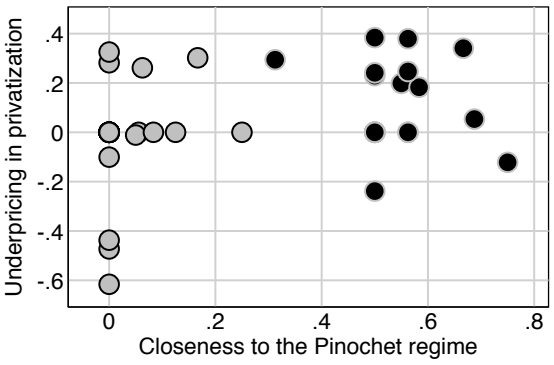
(b) Our data of privatized firms

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 Congress Report (2004). The lower panel shows the distribution of privatizations in our dataset.

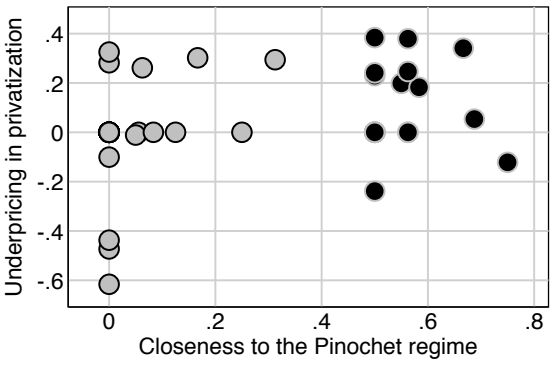
FIGURE 3: Detecting controversial privatization processes



(a) *k*-means clustering algorithm



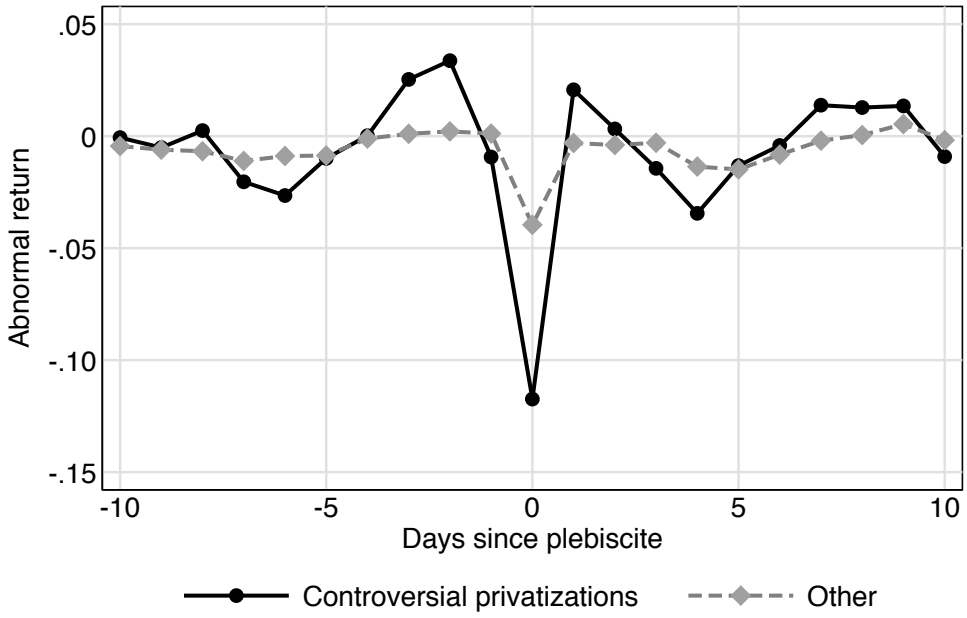
(b) Spectral clustering



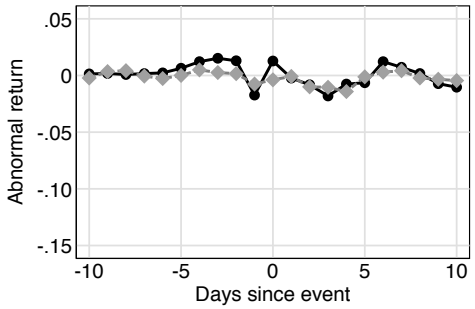
(c) Agglomeration clustering

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

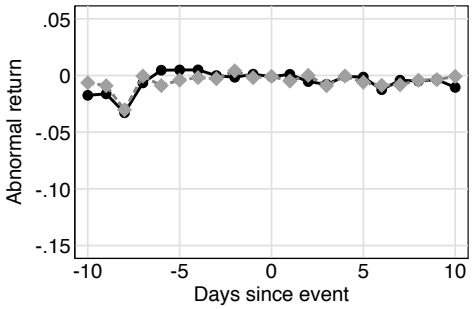
FIGURE 4: The stock market



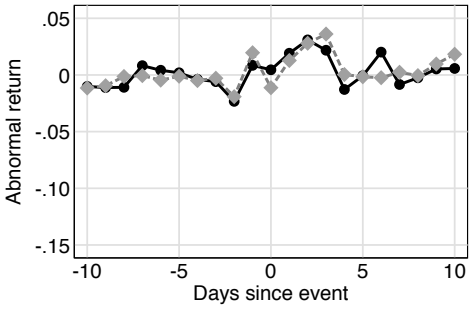
(a) Announcement of transition



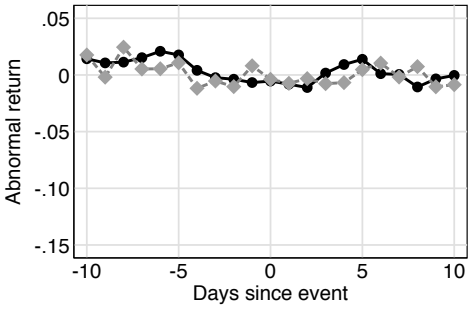
(b) Pinochet gets nominated



(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 the results section for details.

TABLE 1: Characterization of privatization processes

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

	Firms with controversial privatizations	Firms with uncontroversial privatizations	Difference between (1) and (2): Means *p*-value [perm. test]	Difference between (1) and (2): Distributions K-S *p*-value	Firms without privatization but with reports	Firms with privatization but without reports
	(1)	(2)	(3)	(4)	(5)	(6)
Logarithm of assets	20.8	23.9	0.10	0.14	16.2	–
	(1.1)	(1.4)	[0.10]		(1.3)	
Logarithm of sales	19.0	23.2	0.04	0.12	15.1	–
	(1.4)	(1.4)	[0.04]		(1.8)	
Return over equity	0.15	0.19	0.41	0.30	0.38	–
	(0.05)	(0.03)	[0.40]		(0.62)	
Leverage	0.42	0.42	0.99	0.96	0.36	–
	(0.05)	(0.05)	[0.99]		(0.22)	
Δ Logarithm of assets	0.02	0.01	0.82	0.30	-0.02	–
	(0.05)	(0.06)	[0.81]		(0.24)	
Δ Logarithm of sales	0.05	0.07	0.89	0.69	0.01	–
	(0.10)	(0.12)	[0.90]		(0.40)	
Δ Return over equity	0.02	-0.13	0.46	0.85	-0.34	–
	(0.17)	(0.14)	[0.44]		(0.63)	
Δ Leverage	0.08	0.10	0.86	0.40	0.29	–
	(0.06)	(0.05)	[0.85]		(0.77)	
Tobin's $q^{\dagger}$	0.58	0.57	0.92	0.86	–	–
	(0.08)	(0.06)	[0.91]			
Years since established	40	48	0.36	0.90	31	–
	(5)	(7)	[0.99]		(21)	
Year of privatization	1983	1981	0.09	0.14	–	1979
	(1)	(1)	[0.10]			(5)
Number of firms	22	28			25	188

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. Column 3 presents the *p*-value for differences in means across groups in columns 1 and 2. Column 4 compares distributions in columns 1 and 2 and presents the *p*-value from the Kolmogorov-Smirnov (K-S) test (Kolmogorov, 1933; Smirnov, 1933). For reference, column 5 presents descriptive statistics for firms that were not privatized and have annual reports; we use the average privatization year in the firm's industry. Column 6 presents the privatization year for firms without reports. We present standard deviations in parenthesis and *p*-values with and without correction for inference in small sample. †Subsample of 41 firms. More details in the data and results sections.

TABLE 3: Understanding privatization characteristics

Dependent variable:	Underpricing *(average of 0.08)*				Closeness-to-the-regime *(average of 0.25)*		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Logarithm of assets	0.00	-0.01	0.03	0.02	0.01	0.01	0.02
	(0.02)	(0.02)	(0.02)	(0.02)	(0.01)	(0.01)	(0.02)
Logarithm of sales	0.00	0.00	0.00	0.02	-0.02***	-0.03***	-0.02***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Leverage	0.07	0.25	0.04	0.16	-0.08	-0.21	-0.27
	(0.20)	(0.28)	(0.28)	(0.27)	(0.13)	(0.17)	(0.18)
Return over equity	-0.06	0.06	0.19	0.27	-0.06	-0.21	-0.16
	(0.20)	(0.33)	(0.33)	(0.36)	(0.18)	(0.23)	(0.23)
1980s privatization wave			0.67**	0.57**			0.21
			(0.30)	(0.26)			(0.23)
Closeness-to-the-regime				0.46*			
				(0.24)			
Number of firms	50	50	50	50	50	50	50
R-squared	0.02	0.13	0.21	0.27	0.15	0.22	0.25
Industry fixed effects	No	Yes	Yes	Yes	No	Yes	Yes

Notes: What pre-privatization variables predict privatization characteristics? This table presents estimates from cross-sectional regressions using privatization characteristics as dependent variable – i.e. underpricing or closeness to the regime – and pre-privatization variables as predictors. More details in the data section. Robust standard errors in parentheses. Significance level: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 4: 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***	-0.06***	-0.09***	-0.06*	-0.06*
	(0.03)	(0.02)	(0.03)	(0.03)	(0.03)
	[0.00]	[0.00]	[0.01]	[0.08]	[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***	-0.07***	-0.10***	-0.06	-0.06
	(0.03)	(0.02)	(0.03)	(0.04)	(0.04)
	[0.01]	[0.01]	[0.00]	[0.07]	[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:

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

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 the results section. 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 credit market

	Indicator for loans with			Average interest rate with			
	Banco del Estado	Private banks	International banks	Banco del Estado	Private banks	International banks	Leverage
Panel A: years 1988–1990	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Controversial privatization	0.30**	-0.01	0.03	-0.04	-0.01	-0.01	0.00
	(0.14)	(0.06)	(0.07)	(0.02)	(0.01)	(0.01)	(0.04)
	[0.05]	[0.88]	[0.68]	[0.04]	[0.59]	[0.27]	[0.93]
Number of firms	50	50	50	12	33	32	50
R-squared	0.44	0.19	0.22	0.38	0.01	0.04	0.47
Pre-privatization controls (X_i)	Yes	Yes	Yes	No	No	No	Yes
Industry fixed effects (η_j)	Yes	Yes	Yes	No	No	No	Yes
Avg. uncontroversial privatizations	0.19	0.96	0.93	0.13	0.09	0.10	0.33
Panel B: years 1986–1987							
Controversial privatization	0.14	0.03	0.10	-0.01	-0.01	0.01	-0.01
	(0.11)	(0.06)	(0.09)	(0.02)	(0.01)	(0.01)	(0.06)
	[0.30]	[0.78]	[0.25]	[0.80]	[0.70]	[0.44]	[0.91]
Number of firms	50	50	50	10	32	33	50
R-squared	0.57	0.49	0.25	0.01	0.01	0.02	0.64
Pre-privatization controls (X_i)	Yes	Yes	Yes	No	No	No	Yes
Industry fixed effects (η_j)	Yes	Yes	Yes	No	No	No	Yes
Avg. uncontroversial privatizations	0.11	0.93	0.89	0.08	0.08	0.08	0.41
Avg. firms without privatization	0.10	0.82	0.82	0.06	0.10	0.09	0.46

Notes: Each column in this table presents OLS estimates of the equation $Y_{ijt} = \beta_t \cdot Controversial_i + \delta_t X_i + \eta_{jt} + \epsilon_{ijt}$, where we measure Y_{ijt} in 1988-1990 (Panel A) or in 1986-1987 (Panel B). Dependent variables measuring loans, interest rates, 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 the results section. 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: 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	Stock returns since year of privatization
	(1)	(2)	(3)	(4)	(5)
Controversial privatization	1.62***	0.92	0.04	0.01	-0.11
	(0.35)	(0.67)	(0.05)	(0.05)	(0.09)
	[0.00]	[0.00]	[0.57]	[0.87]	[0.36]
Number of firms	50	50	50	50	43
R-squared	0.48	0.44	0.45	0.34	0.58
Pre-privatization controls (X_i)	Yes	Yes	Yes	Yes	Yes
Industry fixed effects (η_j)	Yes	Yes	Yes	Yes	Yes
Avg. uncontroversial privatizations	17.77	17.21	0.32	0.16	0.23
Avg. firms without privatization	16.36	15.56	0.33	0.42	0.43

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

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

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 the results section. 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) (1)	p-value permutation test (2)	Average uncontroversial privatizations (3)	R-squared (4)
Employed any politician in 1995	0.25*	[0.07]	0.15	0.25
	(0.14)			
Employed any politician in 2000	0.28*	[0.05]	0.30	0.29
	(0.15)			
Employed any politician in 2005	0.27	[0.11]	0.27	0.24
	(0.18)			
Employed politician of the *old regime* in 1995	0.25*	[0.03]	0.11	0.33
	(0.14)			
Employed politician of the *old regime* in 2000	0.23	[0.10]	0.22	0.27
	(0.15)			
Employed politician of the *old regime* in 2005	-0.09	[0.94]	0.23	0.29
	(0.13)			
Employed politician of the *new regime* in 1995	-0.02	[0.79]	0.07	0.05
	(0.06)			
Employed politician of the *new regime* in 2000	0.09	[0.43]	0.11	0.17
	(0.11)			
Employed politician of the *new regime* in 2005	0.40***	[0.00]	0.08	0.33
	(0.15)			
Legal campaign finance	0.31**	[0.05]	0.37	0.37
	(0.15)			
Illegal campaign finance	0.18	[0.19]	0.19	0.21
	(0.14)			
Appeared in the Panama Papers	0.36**	[0.02]	0.18	0.28
	(0.15)			
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:

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

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 the results section. 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. (Mönckeberg 2001)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Dictatorship							
Cumulative abnormal returns (5 days)	-0.10***	-0.08**	-0.11***	-0.09***	-0.11***	-0.03	-0.07*
	(0.03)	(0.03)	(0.04)	(0.03)	(0.04)		(0.04)
Indicator for loans with state bank	0.29**	0.31**	0.27	0.31**	0.13	0.16	0.46**
	(0.14)	(0.14)	(0.20)	(0.15)	(0.15)		(0.17)
Leverage	0.01	0.01	0.09	0.00	0.01	-0.01	0.06
	(0.04)	(0.04)	(0.07)	(0.04)	(0.05)		(0.04)
Democracy							
Employed any politician 1995	0.29**	0.27**	0.18	0.26*	0.27*	0.60	0.53**
	(0.13)	(0.13)	(0.18)	(0.14)	(0.14)		(0.23)
Employed any politician 2005	0.28	0.26*	0.40***	0.27	0.23	0.40	0.40*
	(0.17)	(0.15)	(0.20)	(0.18)	(0.23)		(0.23)
Employed politician of *old* regime 1995	0.29**	0.28**	0.27**	0.26*	0.22*	0.50	0.41*
	(0.12)	(0.13)	(0.12)	(0.14)	(0.13)		(0.21)
Employed politician of *old* regime 2005	-0.09	-0.09	0.05	-0.08	-0.11	-0.14	-0.02
	(0.13)	(0.13)	(0.10)	(0.14)	(0.20)		(0.13)
Employed politician of *new* regime 1995	-0.02	-0.01	-0.09	-0.03	0.03	0.09	0.09
	(0.07)	(0.06)	(0.13)	(0.06)	(0.07)		(0.17)
Employed politician of *new* regime 2005	0.41***	0.40***	0.40***	0.39***	0.41**	0.70	0.52**
	(0.14)	(0.14)	(0.13)	(0.14)	(0.18)		(0.21)
Legal campaign finance	0.32**	0.33**	0.36**	0.29*	0.38**	0.46	0.35*
	(0.15)	(0.15)	(0.18)	(0.15)	(0.17)		(0.19)
Illegal campaign finance	0.16	0.19	0.00	0.14	0.14	0.51	0.51***
	(0.13)	(0.13)	(0.16)	(0.13)	(0.13)		(0.18)
Appeared in the Panama Papers	0.34**	0.33**	0.27	0.33**	0.30	0.67	0.50**
	(0.16)	(0.15)	(0.19)	(0.16)	(0.19)		(0.21)
Number of firms	44	48	48	50	43	50	50

Notes: Each estimate comes from a different estimation strategy. See the results section for details. Robust standard errors in parentheses. 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	*p*-value (1) = (2)	*p*-value (1) = 0 & (2) = 0
	(1)	(2)	(3)	(4)
Dictatorship				
Cumulative abnormal returns (5 days)	-0.03**	-0.03*	0.86	0.02
	(0.02)	(0.02)		
Indicator for loans with state bank	0.12	0.11	0.95	0.03
	(0.08)	(0.08)		
Average interest rate with state bank	-0.01	-0.02	0.87	0.09
	(0.01)	(0.01)		
Leverage	0.00	0.01	0.77	0.92
	(0.02)	(0.03)		
Democracy				
Employed any politician 1995	0.09	0.17*	0.51	0.05
	(0.07)	(0.09)		
Employed any politician 2005	0.14	-0.04	0.24	0.26
	(0.08)	(0.11)		
Employed politician of *old regime* 1995	0.08	0.15*	0.58	0.04
	(0.07)	(0.08)		
Employed politician of *old regime* 2005	-0.02	-0.05	0.83	0.81
	(0.07)	(0.09)		
Employed politician of *new regime* 1995	-0.02	0.06	0.26	0.53
	(0.03)	(0.06)		
Employed politician of *new regime* 2005	0.17	0.07	0.36	0.02
	(0.07)	(0.07)		
Legal campaign finance	0.15**	0.02	0.31	0.11
	(0.07)	(0.10)		
Illegal campaign finance	0.12*	-0.07	0.12	0.20
	(0.07)	(0.09)		
Appeared in the Panama Papers	0.15*	0.05	0.41	0.11
	(0.08)	(0.07)		

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

TABLE 10: The importance of politically connected buyers

	Politically connected buyers during privatization	Politically connected firm before privatization	p-value (1) = (2)	p-value (1) = 0 & (2) = 0
	(1)	(2)	(3)	(4)
Dictatorship				
Cumulative abnormal returns (5 days)	-0.09***	-0.03	0.22	0.01
	(0.03)	(0.04)		
Indicator for loans with state bank	0.32***	-0.03	0.11	0.08
	(0.14)	(0.18)		
Average interest rate with state bank	-0.03**	0.03***	0.02	0.04
	(0.01)	(0.01)		
Leverage	0.01	-0.05	0.47	0.70
	(0.05)	(0.06)		
Democracy				
Employed any politician 1995	0.09	0.43**	0.13	0.02
	(0.12)	(0.16)		
Employed any politician 2005	0.17	0.21	0.92	0.22
	(0.19)	(0.19)		
Employed politician of *old regime* 1995	0.10	0.39**	0.10	0.03
	(0.11)	(0.15)		
Employed politician of *old regime* 2005	-0.16	0.28*	0.03	0.10
	(0.12)	(0.16)		
Employed politician of *new regime* 1995	-0.03	0.02	0.78	0.94
	(0.08)	(0.10)		
Employed politician of *new regime* 2005	0.37**	-0.03	0.14	0.07
	(0.16)	(0.16)		
Legal campaign finance	0.25*	0.25	0.99	0.09
	(0.14)	(0.17)		
Illegal campaign finance	0.20	0.11	0.73	0.29
	(0.14)	(0.19)		
Appeared in the Panama Papers	0.34***	-0.06	0.12	0.12
	(0.16)	(0.18)		

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

ONLINE APPENDIX

The Privatization Origins of Political Corporations

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A PROCEDURE TO DETECT POLITICAL LINKS

This section provides more details about how we detected links between individuals and regime "RRR," i.e. the Pinochet regime or the new democratic regime.

A.1 Algorithm

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:
     $\Rightarrow$ 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:
     $\Rightarrow$ Proceed to step 4.
   - 3.3 If we did not find links between "AAA BBB CCC" and "RRR", then:
     $\Rightarrow$ 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:
     $\Rightarrow$ 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:
     $\Rightarrow$ 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:
     $\Rightarrow$ 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 and regime "RRR" 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).

A.2 Replicability

To ensure replicability we use Google in incognito mode and we make sure the URL only includes the country (i.e. "`.cl`" instead of "`.com`") and the query (i.e. Julio Ponce Lerou). For example, when constructing the link between the Pinochet regime and Pinochet's son-in-law Julio Ponce Lerou the URL looks like this:

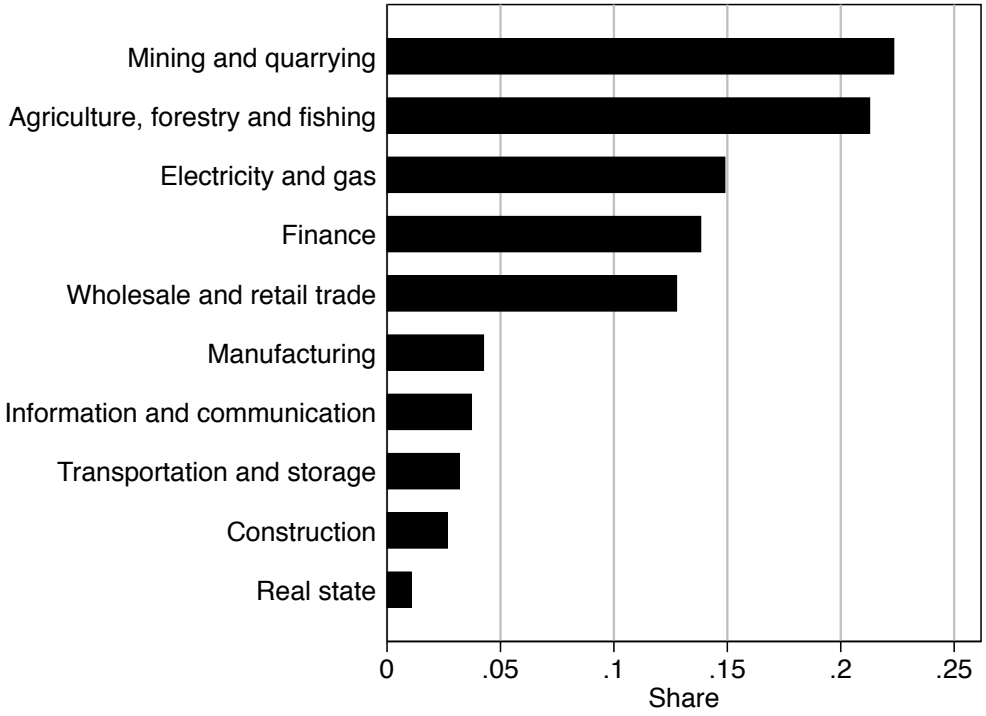
`www.google.cl/search?&q=julio+ponce+lerou`

If we did not clean the URL it would have look something like this:

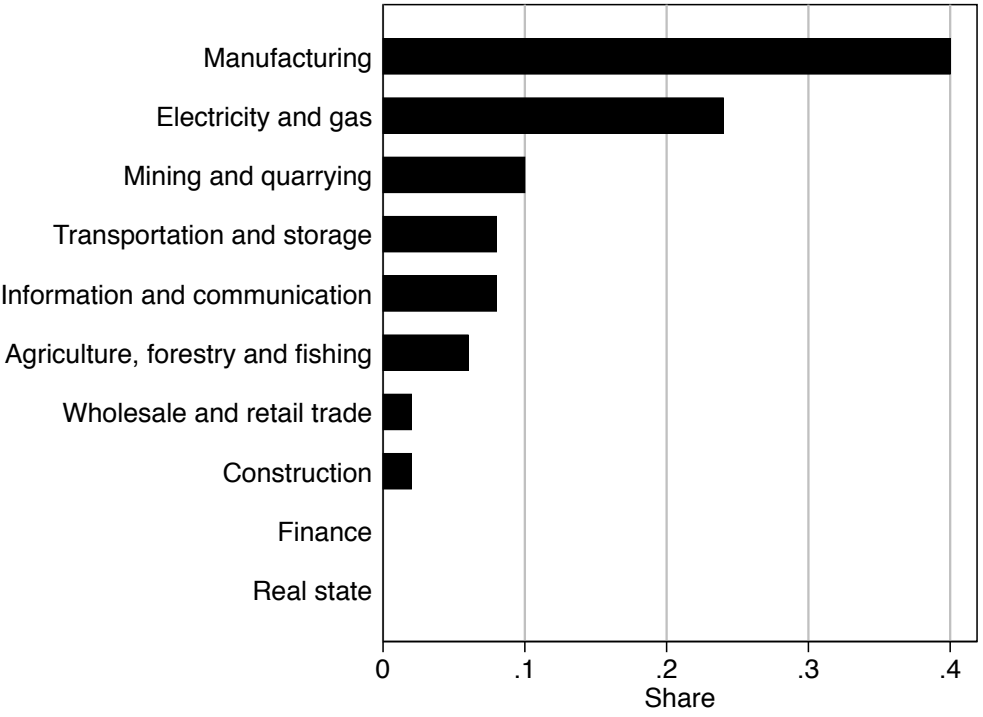
`www.google.cl/search?source=hp&ei=JJMIW7TfL7aYCA&q=julio+ponce+lerou&...`

which would have made replication impossible because the search returns computer-specific documents. The only threat to replication is the appearance of new documents that could make it into the first page of results. Given that the first page contains multiple hits and we are measuring historical links, we believe the appearance of new documents is unlikely to affect replication.

FIGURE A.1: Distribution of firms by industry

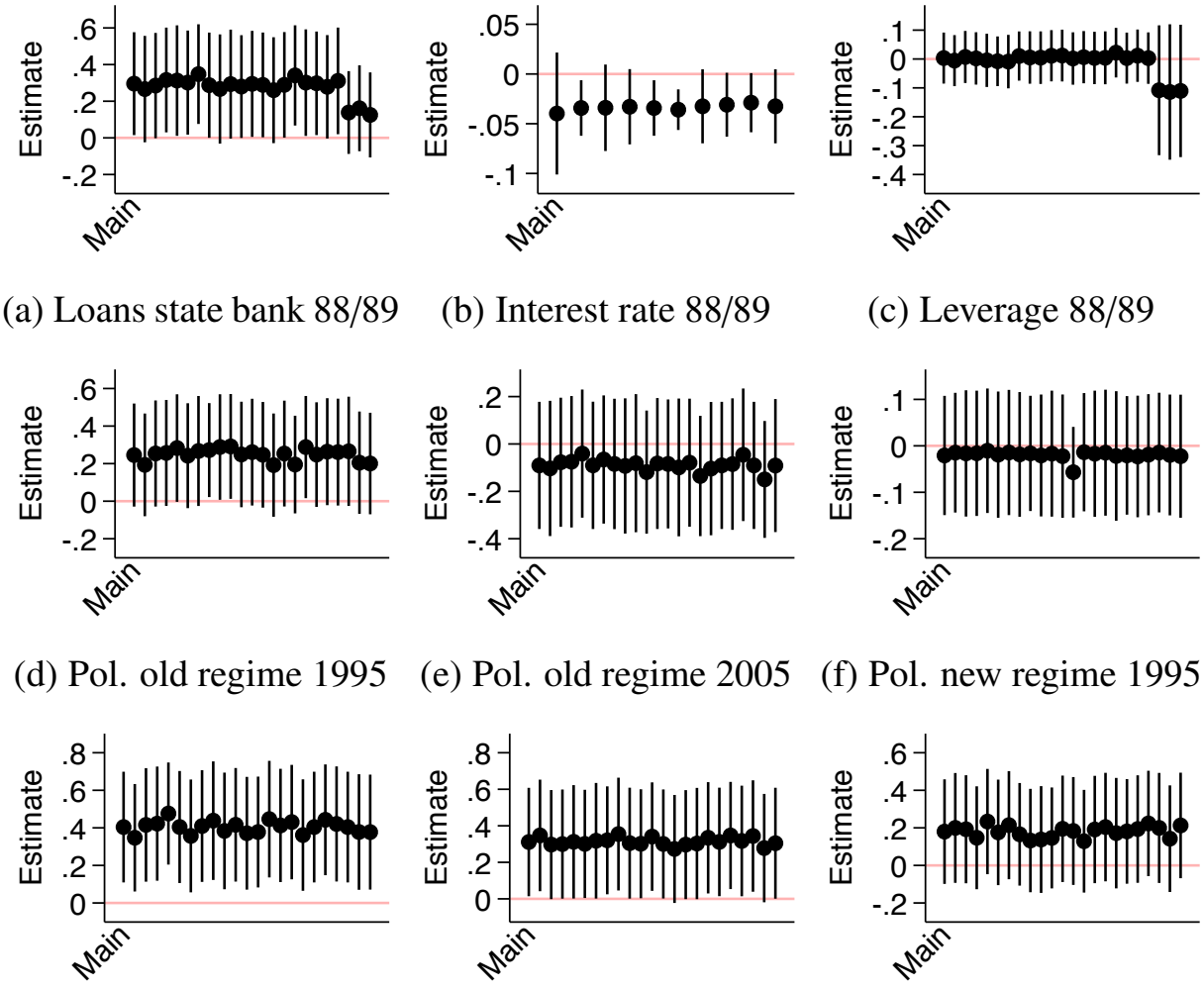


(a) All privatizations



(b) Firms in our data

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



(a) Loans state bank 88/89 (b) Interest rate 88/89 (c) Leverage 88/89

(d) Pol. old regime 1995 (e) Pol. old regime 2005 (f) Pol. new regime 1995

(g) Pol. new regime 2005 (h) Legal camp. finance (i) Illegal camp. finance

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:

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

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. 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: Firms before privatization by privatization wave

	First wave of privatizations in the 1970s			Second wave of privatizations in the 1980s		
	Firms with controversial privatizations	Firms with uncontroversial privatizations	Difference (2) - (1) *p*-value [perm. test]	Firms with controversial privatizations	Firms with uncontroversial privatizations	Difference (5) - (4) *p*-value [perm. test]
	(1)	(2)	(3)	(4)	(5)	(6)
Logarithm of assets	25.2	31.1	0.04	19.1	17.6	0.02
	(3.3)	(1.0)	[0.04]	(0.31)	(0.52)	[0.02]
Logarithm of sales	24.4	30.4	0.05	17.0	17.0	0.99
	(3.3)	(1.1)	[0.06]	(1.2)	(0.5)	[0.99]
Return over equity	0.31	0.26	0.70	0.09	0.13	0.36
	(0.13)	(0.06)	[0.70]	(0.05)	(0.02)	[0.36]
Leverage	0.40	0.40	0.99	0.43	0.44	0.92
	(0.11)	(0.05)	[0.98]	(0.06)	(0.09)	[0.92]
Years since established	37.3	53.8	0.23	41.1	43.8	0.83
	(10.6)	(7.7)	[0.25]	(6.5)	(10.9)	[0.81]
Year of privatization	1976.2	1974.9	0.16	1986.0	1985.7	0.68
	(0.87)	(0.42)	[0.18]	(0.27)	(0.59)	[0.68]
Number of firms	6	13		16	15	

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. Columns 1-3 present differences in the first wave of privatizations and columns 4-6 present the same differences in the second wave. We present standard deviations in parenthesis and *p*-values with and without correction for inference in small sample. More details in the data and results sections.

TABLE A.3: Firm differences before privatization, subsample of firms in the second wave of privatizations

	Controversial privatizations	Uncontroversial privatizations	Difference	
			p-value	*p*-value (perm. test)
	(1)	(2)	(3)	(4)
Capital investment	-0.02	0.04	0.51	0.56
	(0.09)	(0.04)		
Short-term leverage	0.17	0.18	0.92	0.92
	(0.03)	(0.04)		
Long-term leverage	0.25	0.29	0.64	0.62
	(0.04)	(0.07)		
Liquidity	0.27	0.21	0.26	0.27
	(0.04)	(0.03)		
Cash-flow	0.04	0.08	0.38	0.37
	(0.03)	(0.02)		
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 assets, *Long-term leverage* is defined as long term debt over assets, *Liquidity* is defined as short-term assets over assets, and *Cash-flow* is defined as EBITDA over assets. More details in the data and results sections.

TABLE A.4: Firm differences before privatization, by politically connected *buyer*

	Buyer was politically connected to Pinochet	Buyer was unconnected to Pinochet	Difference	
			p-value	*p*-value (perm. test)
	(1)	(2)	(3)	(4)
Logarithm of assets	20.8 (1.1)	23.8 (1.4)	0.12	0.12
Logarithm of sales	19.0 (1.5)	23.0 (1.4)	0.05	0.04
Return over equity	0.15 (0.05)	0.20 (0.03)	0.39	0.39
Leverage	0.42 (0.06)	0.42 (0.05)	0.98	0.98
Years since established	39 (6)	49 (7)	0.30	0.28
Year of privatization	1983 (1)	1981 (1)	0.18	0.17
Indicator politically connected *firm*	0.43 (0.11)	0.31 (0.09)	0.40	0.54
Number of firms	21	29		

Notes: Are there observable differences between firms bought by politically connected buyers *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 the data and results section.

TABLE A.5: Firm differences before privatization, by politically connected *firm*

			Difference	
	Firm was politically connected to Pinochet	Firm was unconnected to Pinochet	*p*-value	*p*-value (perm. test)
	(1)	(2)	(3)	(4)
Logarithm of assets	19.5 (0.8)	24.2 (1.3)	0.01	0.01
Logarithm of sales	17.9 (1.3)	23.2 (1.3)	0.01	0.01
Return over equity	0.16 (0.03)	0.18 (0.04)	0.80	0.78
Leverage	0.34 (0.04)	0.47 (0.05)	0.08	0.07
Years since established	36 (7)	50 (6)	0.16	0.16
Year of privatization	1985 (1)	1980 (1)	<0.01	<0.01
Indicator politically connected *buyer*	0.50 (0.12)	0.38 (0.09)	0.40	0.57
Number of firms	18	32		

Notes: Are there observable differences between firms with and without political connections *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 the data and results section.