Political Connections of Newly Public Firms: The Nurturing and Certification Roles of Venture Capitalist Investors

Wan Wongsunwai

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Abstract

This paper examines the relationship between venture capital backing of newly public firms in the U.S. and the political connections established by these firms around their initial public offering. The main findings are: (1) Venture-backed firms make campaign contributions to politicians which are on average almost twice the amounts contributed by nonventure-backed firms. This effect is mainly present during the periods immediately preceding and immediately following the date of IPO, while the VC is present. After the VC exits, the differential disappears. (2) Venture-backed firms do not contribute to politicians’ campaigns using corporate-sponsored political action committees (PACs) as much as nonventure-backed firms. Instead, venture-backed firms’ executives contribute directly in their own names to politicians’ campaigns. (3) After going public, venture-backed firms are awarded government contracts for amounts which are on average 53% larger than for nonventure-backed firms. The difference persists even after the departure of the backing VCs. (4) Politicians’ ownership of shares of venture-backed IPO firms is 15% lower, on average, than their ownership of nonventure-backed firms. This effect is observed only when the backing VC is present. After VC exit, politicians own venture and nonventure-backed firms in similar amounts. The results in this paper suggest both nurturing and certification roles for venture capital investors in the period immediately surrounding the IPO.

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1. Introduction

This paper examines the relationship between political connections of newly public U.S. firms in the years around going public and the presence of venture capitalist (VC) backers. A large literature on venture capital has highlighted the role played by VC investors in helping portfolio companies establish business networks (e.g., Hochberg et al. 2007). The literature on businesses’ political connections has also established that political connections can be advantageous to firms. For example, Claessens et al. (2008) document the role of campaign contributions in Brazil in facilitating contributing firms’ access to bank financing sources and in producing higher stock returns around elections. In a U.S. setting, Shon (2010) and Cooper et al. (2010) find evidence consistent with campaign contributions affecting market prices and returns.1

Prior research has examined the role played by venture capital on IPO firms’ long-run stock return performance (Brav and Gompers 1997, Nahata 2008), corporate governance (Hochberg 2012), financial reporting behaviors (Morsfield and Tan 2006, Wongsunwai 2013), and board of director characteristics (Baker and Gompers 2003, Wongsunwai 2007). However, its impact on how newly public firms develop political connections is, to my knowledge, unexplored. This paper takes a first look at the differences between venture and nonventure-backed firms in their formative years before and after going public. VCs have also been shown to

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1 The exact nature of the political connection may also be detrimental to shareholders. For example, Fan et al. (2007) find that firms in China with politically-connected CEOs have significantly lower stock returns after their initial public offering (IPO) and also report weaker subsequent growth in post-IPO earnings and sales.
play a certification role in IPOs (Megginson and Weiss 1991), and a natural question is whether their certification role in financial markets extends to the market for political favors.

I examine a sample of firms conducting IPOs in the U.S. during the period 1997 to 2012. I examine measures of political connections for each firm starting from four years preceding the IPO date until eight years later (i.e., a total of up to 12 years for each firm), using data from the Center for Responsive Politics (CRP) which itself collects, codes, and develops standardized names for data from several sources that are obtainable thanks to various federal election and ethics laws.

These sources include the Federal Election Commission (FEC), which administers and enforces federal campaign finance laws, under which campaigns and political committees are required to file timely reports about their financial activities. The individual contributions file maintained by the FEC records all contributions of $200 or above, including the contributor’s name, occupation, and employer, as well as the date and amount. In most cases, the responsibility for filing these disclosures will fall upon the recipients of the funds, i.e., political action committees (PACs) set up by the candidates themselves.

In addition, the FEC also keeps records of contributions made by other PACs to the candidates’ PACs. Although direct contributions from corporations (i.e., direct payments from the corporation’s treasury funds) to candidates’ campaigns are prohibited by law, it is common for corporations to set up corporate-sponsored PACs to channel contributions from the firm’s managers to politicians (e.g., Gaikwad 2013). In this way, corporations are allowed to make use of some corporate resources to set up and administer the PAC (such as office space, telephone

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2 Campaign finance laws stipulate that any US citizen or permanent resident alien may contribute to a corporate PAC, but the PAC can solicit only its “restricted class” for contributions (essentially, management-level employees, shareholders, and spouses of these parties).
and other utilities, mailing costs, payment of legal set-up fees, staff time, etc.). One advantage to setting up a corporate PAC, as commonly encountered in lawyers’ pamphlets advising about such matters, is that the corporate PAC can aggregate multiple donations from executives and employees, and thus gain higher visibility when contributing to politicians’ election campaigns than if the executives and employees make individually smaller donations on their own.

Historically, and for most of the sample period studied in this paper, contribution amounts have been subject to maximum limits for any given two-year election cycle which vary depending on the donor and recipient. I use campaign contributions made by corporate PACs and by the firms’ executives to proxy for political support by firms to politicians.

IPOs represent important exit events for VCs (Lerner 1994). However, VCs do not typically immediately sell all of their shares at the IPO, instead subjecting the shares to a lockup period of typically six months. Even after lockup expiration, we continue to observe substantial shareholding by VCs in their portfolio companies. A full year after lockup expiration (i.e., one and a half years after the IPO date for a typical firm), VCs continue to own up to one third of their total original holdings (Wongsunwai 2013). We may therefore expect the influence that VCs have on their portfolio companies to continue to persist for several years after IPO. In the long run, however, after VCs have completely sold off all of their shares, we expect VCs’ influence to dissipate. I therefore conduct separate analyses to examine the period before IPO (when VCs’ influence is strongest), the first four years after IPO (when VCs’ influence is still

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3 For example, the 2013-14 overall biennial limit for individuals’ contributions to all recipients was $48,600 to all candidates, and $74,600 to all political parties and political action committees (PACs) other than “independent-expenditure only” PACs (the so-called “Super PACs”). These are aggregate combined limits. For specific contributions to a particular candidate for a given election, the maximum is $2,600. In a recent development, the Supreme Court voted in April 2014 to remove these limits on direct contributions to candidates and political parties. Unlimited contributions to Super PACs have been allowed since mid 2010.
present but weakening), and the fifth to eighth years after IPO (when it is reasonable to assume that VCs’ influence has dissipated). For brevity, these periods are referred to as periods 1, 2 and 3 in the rest of the paper.

Since the disclosure requirements for political contributions do not depend on a firm’s public status, this setting provides an opportunity to study the behavior of firms before they become public. The analysis reveals several interesting patterns.

In the period before their firms go public, VC-backed firms’ executives make significantly more contributions to candidates’ campaigns, but these same firms’ corporate PACs make significantly less political contributions. In other words, the two groups of firms differ in the mix of means by which their political contributions reach politicians’ campaigns. After going public, this effect continues to be observed, but weakens considerably starting five years after going public, when the original backing VC is likely to have completely exited. In terms of economic significance, across all years examined, the average marginal dollar amount of contributions made by a VC-backed firm is almost twice that for a non-VC-backed firm.

The same pattern is observed when analyzing the number of candidates to whom firms’ corporate PACs and executives donate, instead of the dollar amount of political contributions. In terms of economic magnitude, the differential amounts to a 10% greater number of candidates being supported by firms, and this support is again mainly achieved by executives making direct contributions rather than through the firms’ corporate PACs. Thus, it appears that VC-backed firms donate to the election campaigns of a greater number of politicians and amounting to greater dollar amounts, but the executives of these firms tend to donate directly to candidates’ campaigns rather than channel their donations through firm-sponsored corporate PACs.
This pattern is potentially indicative of a nurturing role played by VCs in helping their portfolio companies establish political connections. However, still unanswered is the question of how helpful such political connections are with respect to the newly public firms’ financial performance. To provide insights on this question, I follow prior literature (e.g., Tahoun 2014) and I explore the potential benefits of political connections by examining the pattern of awards of government contracts to firms. I obtain the necessary data from www.USAspending.gov, a publicly accessible “official web site of the United States Government” which collects procurement contract transactions data from the Federal Procurement Data System (FPDS), and provides information about the identity of the vendor, the date of the contract, and the amounts involved.

The results of this analysis show that VC and non-VC-backed firms receive similar (low) amounts of government contracts initially, and subsequently the differential starts to increase post-IPO in favor of VC-backed firms. This differential continues to be maintained after the initial four years after IPO. This pattern holds after controlling for several factors that may be related to the award of government contracts, such as firm age, size, book-to-market, profitability, capital expenditures, cost efficiency, industry, and industry concentration.

As additional corroboration for the nurturing role of VCs, I also run cross-sectional tests which exploit variations in contribution intensity within the venture-backed group of firms. I find a positive correlation between VCs’ own political contributions patterns and those of their portfolio companies, especially in periods 2 and 3. Since VCs themselves are often major donors to politicians’ election campaigns, this pattern is consistent with VCs playing a nurturing role and influencing the contributions patterns of their portfolio companies.

In Tahoun (2014), ownership by politicians in firms serves as a mechanism (which he terms “insurance”) to ensure that politicians and firms will not renege on past promises and allows for the establishment of long-term relationships between politicians and firms. Contributions by firms to politicians’ election campaigns constitute benefits to politicians and the receipt of government contracts constitutes benefits to firms.
The pattern observed suggests that VC-backed firms are able to generate greater volume of business via government contracts. Whether there is a causal effect between their political donations activities and the awards of such contracts is of course a much harder question to answer. Interestingly, though, if we hypothesize such a relationship, the persistence of greater amounts of government contracts for VC-backed firms in period 3, when the backing VCs have most likely completely exited from their portfolio companies, would suggest that the nurturing role played by the VCs has long-term effects. Alternatively (and not necessarily mutually exclusive from the nurturing role explanation), there could be a natural tendency for government procurement officers to continue to award contracts to firms with whom they have had prior dealings.

Regardless of the exact mechanism, the data suggest that VC-backed firms receive a disproportionately bigger share of government contracts awarded, all else being equal. In terms of economic magnitude, the marginal effects obtained from a tobit regression of \( \log(1+\text{government contracts}) \) indicates that VC-backed firms benefit from government contracts which are approximately 53% larger than those awarded to non-VC-backed firms, as measured in dollar amounts.

I next focus on potential mechanisms for politicians, as recipients of campaign contributions, to commit to acting in the donating firms’ interest in the future. As explained in Tahoun (2014), explicit written contracts are not possible in this context, because such contracts would constitute bribery (Kroszner and Stratmann, 1998, 2000). In such an environment where explicit contracting is not possible, politician’s ownership of firms’ securities can serve as a commitment mechanism to ensure the continued flow of mutual benefits.
I make use of ownership data which is available thanks to ethics laws which require financial disclosure forms to be filed by members of the U.S. House of Representatives and the U.S. Senate on an annual basis, covering all transactions which exceed $1,000 in value, and covering not only the politicians, but also their immediate family (spouses and dependent children). The CRP collect these data and additional reports for the executive branch (president, vice president, presidential cabinet and other officials).

I construct annual holdings by all incumbent politicians in each of the firms in the sample. For this analysis, unsurprisingly, there is hardly any shareholding by politicians in yet-to-be-public firms, i.e., in the years pre-IPO, so I restrict the analysis to the two periods post-IPO. In the first four years after going public, VC-backed firms are owned to a lesser extent than non-VC-backed firms. In terms of economic magnitude, the marginal effects following a tobit regression indicate that politicians’ ownership of VC-backed firms is approximately 15% lower than for non-VC-backed firms.

If share ownership by politicians serves as a commitment mechanism, this pattern points to a certification role played by VCs. The mere presence of a VC investor may serve to overcome uncertainties about how the parties to the arrangement (the so-called “market for political favors”) will fulfil their promises and not renge. This certification role for VCs would be analogous to their role in reducing information asymmetries in newly public portfolio firms, thus requiring lower underpricing at IPO (Barry et al. 1990, Megginson and Weiss 1991). In the long run, the results show similar shareholdings by politicians in both VC and non-VC-backed firms. By then, the backing VCs have completely exited, and it would therefore be reasonable to expect that any certification role they may have played in the earlier time period to no longer apply.
The paper contributes to both the venture capital and political economy literatures by shedding some light on the hitherto unexplored influence of venture capital investors on newly public firms’ political connections. It also documents a certification role for VCs in a nonfinancial setting. The paper thus links investor activism to political activism and its findings are of relevance not only to scholars, but also to regulators and firms themselves.

The rest of the paper is as follows. Section 2 summarizes the institutional setting. Section 3 presents the data used in this study. Section 4 discusses the results and empirical analyses, and section 5 concludes.

2. Institutional Setting

2.1 Corporate political activism

Corporate political activities cover a wide spectrum, including direct campaign contributions using cash resources, providing benefits to politicians in kind, such as their use of corporate jets and other assets, membership of trade associations, lobbying, hiring former public officials (the so-called “revolving door”), etc. Several studies have documented the benefits of political connections measured through corporate PAC contributions. Cooper et al. (2010), for example, find a strong and robust correlation between the number of candidates supported over the past five years by firms’ corporate PACs and future abnormal returns of the firm: a one-standard deviation increase in candidates supported is associated with a 2.6% higher annual abnormal return. Goldman et al. (2013) likewise document the impact of political connections of board members on the allocation of government procurement contracts.

Politicians also benefit from their connections with business firms. Studies have found abnormal returns from investments in common stock for members of both the U.S. Senate and
House of Representatives (Ziobrowski et al. 2004, 2011), which is ascribed to politicians’ privileged access to early information about financial markets giving them an informational advantage. Moreover, these abnormal returns have been shown to be driven by politically-connected investments, as evidenced by geographical proximity and campaign contributions received (Eggers and Hainmuller 2013).

Furthermore, Tahoun (2014) proposes that, in the absence of explicit contracts, stock ownership by politicians serves as a mechanism to ensure the flow of benefits between politicians and firms. Politicians’ stock ownership is positively related to firms’ contributions to the politicians’ election campaigns, and the stronger the relationship, the greater the economic and financial benefits to the firm, in the form of profitable government contracts. These findings provide an initial motivation to examine newly-public firms’ contributions to politicians’ election campaigns, politicians’ ownership in those firms, and government contracts awarded to the firms.

While the literature has documented determinants and consequences of political connections made by firms with politicians in a cross-sectional fashion, not much is known about how these relationships get started in the first place. Initial public offerings by firms entering public capital markets for the first time provide an opportunity to examine the evolution of these political ties over time as firms mature. It is of course possible and even likely that firms may seek such ties even before reaching the public markets.

2.2 Venture capital and initial public offerings

When examining initial public offerings, it is unavoidable not to consider the important role played by venture capital (e.g., Lerner 1994). IPOs represent successful exits by venture
capitalists from their investments and it is therefore to be expected that value-added contributions by venture capitalists will be found in the portfolio companies that have successfully gone public. These value-added contributions cover a range of services which are facilitated by the venture capitalist’s network of contacts (Hochberg et al. 2007) which include head hunters, investment bankers, lawyers, suppliers, etc. (Gorman and Sahlman 1989, Hellman and Puri 2002).

Once a portfolio company has been taken public, a venture capitalist’s involvement may persist for a few years, typically with the venture capitalist continuing to sit on the board of directors (Gompers 1995). Even a full year after lock-up expiration, venture capitalists continue to own on average up to a third of their initial shareholdings in the portfolio company (Wongsunwai 2013). Thus, the guidance provided by venture capital investors, although reduced once the firm becomes public, continues for several years post-IPO.

After going public, both venture and nonventure-backed firms face new pressures from several sources, including public scrutiny of their affairs and the need to periodically furnish information about their business activities to regulators and to members of the public. It may be desirable for these firms to seek new opportunities, which may involve the establishment of valuable political connections.

In addition, several venture capitalists have prominent links to politicians, sometimes running for public office themselves. To the extent that venture capitalists are able to pass on some of the skills involved in establishing and maintaining successful political connections, we would expect that venture-backed firms will exhibit better political connections than their nonventure-backed counterparts.
Among the benefits that firms expect from politicians when contributing to their election campaigns are access to public officials and legislators, but also more tangible and direct benefits such as sales of their products and services to the government. If VC-backed firms are more adept at building political connections, we would expect to observe greater benefits accruing to this group of firms compared to their non-VC-backed counterparts.

Another important role played by VCs in financial markets is their certification role. In particular, when VCs’ portfolio companies first reach the public markets in IPOs, they incur lower costs of going public compared to nonventure-backed firms (Barry et al. 1990, Megginson and Weiss 1991). If VCs perform a similar certification role in the market for political favors, their presence may serve to reassure firms and politicians of the continued future flows of benefits and hence both firms and politicians should be more willing to provide their side of the bargain absent other commitment mechanisms such as stock ownership as documented in Tahoun (2014).

Since VCs may continue to retain some ownership stake in their companies for some time after IPO (Megginson and Weiss 1991, Wongsunwai 2013), it is likely that the effects of their certification role will be observed in the period immediately after the IPO date. After a few years, VCs sell the majority of their pre-IPO stakes (Wongsunwai 2013). As their influence dissipates, it is likely that firms and politicians will turn to alternative mechanisms to substitute for the VCs’ certification role.

2.3 Political connections before going public

One benefit of studying political connections empirically by taking advantage of the various mandated disclosure rules is that these rules apply equally to public and non-public
entities. It is therefore possible to observe firms’ behaviors even if they are not public. If venture capitalists are influential in determining how their portfolio companies establish and benefit from political connections, there is no reason why these firms have to wait to reach the public markets before engaging in building political connections. It would be instructive therefore to examine whether venture and nonventure-backed firms differ in their political connection measures prior to going public.

3. Data

3.1 Data sources

I start by identifying from Securities and Data Corporation (SDC) a sample of companies going public in the U.S. between 1997 and 2012, excluding unit investment trusts, closed end offerings, and leveraged buyout deals. For each IPO firm, I collect its name, CUSIP and Dun and Bradstreet identifiers, the date of the IPO, the amount of capital raised, and information about whether the company was backed by venture capital firms and, if so, the identity of the backing VC firms.

I obtain data on campaign contributions and politicians’ ownership in firms from the publicly accessible website maintained by the Center for Responsive Politics (www.opensecrets.org). CRP collects data from several sources. Campaign Finance data are from the Federal Election Commission (FEC), and Personal Finances data are collected from the Senate Office of Public Records, the Office of the Clerk of the House, and the U.S. Office of Government Ethics. There are advantages to using the CRP compiled data instead of the original sources, the main one for the purpose of this study being that CRP staff have spent considerable effort to standardize the names of contributing organizations and apply common identifiers
across multiple sources. This facilitates substantially the matching of companies between the
FEC data, the politicians’ personal finances dataset, and SDC, from which the data on firms
conducting IPOs in the U.S. are obtained.

I match each IPO company in SDC to a corresponding organization name in the CRP
datasets. I follow a similar procedure to Gaikwad (2013) to match companies. First, I identify
exact matches on names between SDC and CRP. I then account for variations in the way the two
databases capture company names, for example, “1-800-Flowers.com Inc” is shown as “1-800-
Flowers.com” in CRP. If no match is found between SDC and CRP, I assume that the company
did not make any campaign contributions, nor did politicians hold shares in the company over
the period covered by the CRP datasets. I construct measures of campaign contributions made by
each firm, and of politicians’ stockholdings in each firm, over a period starting from four years
before until eight years after the date of IPO.

The availability of political contributions data by firms and their executives does not
depend on the firms’ public status. This setting therefore provides an opportunity to examine
firms’ behaviors while still private. Since one of the primary questions is whether VC and non-
VC-backed firms behave differently, a caveat is in order here. It is possible that very young firms
go public quickly and they may not have a full four-year history prior to going public. This is
particular true for venture-backed firms since venture capitalists are under time pressure to exit
investments as part of their business model (e.g., Lerner 1994). An example is Groupon Inc.
which was venture-backed, launched in November 2008 and held an IPO in November 2011.
Nevertheless, in order to maintain a level playing field, I assume that all firms in the sample had
a four-year history pre-IPO and code each firm-year for the existence and amount of political
connection measures. The assumption that all firms in the sample have a four-year history and
coding the firm-years before firms went public with zero values for the dependent variable is likely to bias against finding an effect for venture-backed firms since many of their earlier firm-years will contain zeroes.

The data on government contracts are obtained from the [www.USAspending.gov](http://www.USAspending.gov) website which is mandated by the Federal Funding Accountability and Transparency Act of 2006. CRP does not unfortunately track government contracts, and so a separate matching exercise between SDC and the government contracts dataset needs to be performed. For the contracts data, there is a common identifier used by both SDC and FPDS, a proprietary identifier developed by Duns and Bradstreet. Unfortunately, this field is not always populated in the SDC database (it is available for approximately half of the IPO firms in the sample). Nevertheless, the partial availability of this identifier aids considerably in identifying matches between the two databases, and I supplement by using name matching for the remaining cases, using a similar procedure to that described above. If no match is found, I assume that the firm in question received no government contracts during the sample period.

3.2 Descriptive statistics

Table 1 shows the distribution of firm-year observations in the sample by year of IPO. As expected, the number of observations is lowest in the post dot-com bust (2001-2003) and financial crisis years (2008-2009). On average, over the entire sample period, approximately 42% of the IPOs were backed by venture capital. The politicians’ ownership data maintained by CRP only cover the years 2004 to 2013, and therefore I only consider firm-year observations falling in those years. Since I follow each firm from IPO to at most eight years later, the earliest
IPO firm went public at the beginning of 1997. This procedure yields a total number of 8,104 firm-year observations.

Panel A of Table 2 reports descriptive statistics of dependent variables of interest. We observe campaign contributions made by IPO firms through their corporate PACs in only 4% of the firm-years examined. When such contributions were made, they were on average for a total amount of $27,000 in a given year, with the donations going to 15 politicians. In contrast, for these newly public firms, donations made by company-related individuals directly to politicians’ campaigns are observed in almost one third of the sample of firm-years, and they were for smaller amounts of $7,600 for all individuals associated with a given firm, and went to a much smaller number of politicians.

Table 2 Panel A also shows the total value of government contracts being awarded to the firms in the sample. The mean value when firms are awarded these contracts is $1.1 million, and 7.7% of firm-years were recipients of such contracts during the sample period.

Stockholdings by politicians are typically reported in ranges of values, but occasionally exact values are available. I use the exact value if reported by CRP, otherwise I use the mid-range value as a point estimate.13.2% of the firm-years in the sample exhibit share ownership by politicians. The mean value of shares held by politicians in a firm in a given year amounts to $67,000.

All measures display large variations as can be seen from the standard deviation values, which translates into significant right skewness, since all variables are bounded below by zero. In the regression analyses, all continuous variables are winsorized at 1% in the upper tail in order to mitigate the potentially undue influence of outliers and are log-transformed to reduce skewness.
4. Analysis

4.1 Univariate comparisons of VC and non-VC-backed firms across different time periods

Table 3 reports the results of univariate comparisons between VC and non-VC-backed firms, conducted separately in each time period (four years pre-IPO, first four years post-IPO, and years five to eight after IPO) for each of the four dependent variables examined.

Panel A of Table 3 shows the proportions of firm-years in which a positive campaign contribution is made by a firm’s corporate PAC. As we would expect, the proportion increases steadily as the firm ages for both groups, but we also note systematically lower likelihood of corporate PAC donations for the VC-backed group of firms. Across all time periods examined, the difference is statistically significant. In particular, in periods 1 and 2, the VC-backed firms contribute proportionally much less through their corporate PACs compared to non-VC-backed firms. When considering donations made by individuals related to the firm, on the other hand, we observe a flipped picture. In panel B, we find that individually-made direct contributions are much more likely for the VC-backed group of firms in periods 1 and 2. In period 3, there is no longer a statistically different proportion of individual donations from the executives of the two groups of firms.

In panel C of Table 3, the univariate comparison of likelihood of being awarded government contracts shows that VC-backed firms are consistently more likely to be awarded government contracts, across all time periods examined.

Finally, panel D of Table 3 compares the post-IPO stockholdings of politicians in the equity of the newly-public firms (pre-IPO shares are typically not available for investment) but the univariate test shows no detectable difference in politicians’ ownership of VC and non-VC-backed firms.
In the univariate comparisons, no attempt is made to control for factors which may systematically differ between the VC and non-VC-backed groups of firms. For example, it is well-know that VCs have a preference for investing in new technologies, and these factors may be driving the differences observed in the univariate comparisons. In the next section, multivariate analyses allow for the incorporation of such factors.

4.2 Multivariate regression results – Campaign contributions

Table 4 reports the results of regressions examining the relationship between venture capital backing and measures of political connections based on campaign contributions. Because of the large proportion of observations with zero values for the various measures of political connections examined, and in line with prior literature (e.g., Tahoun 2014), I use tobit regression models to conduct the multivariate analysis. For ease of interpretation, I use a specification which includes interactions of an indicator variable for VC backing and indicator variables for each time period. The main effect for VC backing is thus dropped. I also include control variables for firm size, profitability, cash flows, industry concentration, number of contributing individuals associated to the firm, and fixed effects for industry, firm age, and year. The main coefficients of interest are those on the above-mentioned interaction terms.

In panel A, the coefficients on the interaction terms between indicator variables for venture backing and for periods 1 and 2 (the four years immediately before and four years immediately following the IPO date, respectively) are negative in column 1 and positive in column 2, indicating that VC-backed firms’ corporate PACs contribute less, but the executives of

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6 Alternatively, election cycle fixed effects could be included because these cycles determine the maximum contribution limits that can be made by donors directly to candidates. Using fixed effects for election cycles instead of years does not change the conclusions.
these firms contribute more as a group, to politicians’ campaigns. Thus, there is a difference in the mix of contribution methods used by VC and non-VC-backed firms in those time periods. In the period starting five years after IPO, these differences are much reduced, and corporate PAC contributions are no different across the two groups of firms. Column 3 shows the aggregate effect of all contributions made by a firm to politicians’ election campaigns, whether made through the firm’s corporate PAC or directly by its executives.

To assess the economic significance of the differences across the two groups of firms, I calculate the marginal effect of VC on the expected value of (log of) contributions conditional on the firm making a positive contribution and on the explanatory variables. The marginal effects for VC and non-VC-backed firms are both highly statistically significant and amount to 2.62 and 1.93, respectively. Since the dependent variable is the log of (1+contributions), this translates to average marginal contributions by VC and non-VC-backed firms of USD13,700 and USD6,900, respectively. In other words, conditional on being a contributor to politicians’ election campaigns, and after accounting for the factors represented by the control variables, VC-backed firms make almost twice the total amount of contributions to the politicians supported by the firms’ executives and corporate PACs.

Table 4, panel B reports the results of similar tobit regressions where the dependent variables are now the log of (1+number of candidates supported) instead of dollar amounts of political contributions. A similar pattern is observed to that in panel A. The marginal effects for column 3 in this specification translate to VC-backed firms supporting approximately 10% more candidates compared to non-VC-backed firms. Taken together, panels A and B of Table 4 suggest that VC-backed firms donate more total dollar amounts and to a greater number of
politicians in the period immediately surrounding IPO, but their long-run behaviors are much more similar.

If we assume that VCs’ guidance is responsible for the difference in pattern observed, and if we further assume that VC-backed firms are in some (as yet undefined) sense “better” at building political connections, the findings would suggest that personal donations in individual names of a firm’s executives and managers directly to the campaign coffers of politicians is somehow more “effective” than contributions made through a corporate PAC.

It should be noted that political ideology is unlikely to play a role since prior research has shown that corporate contributions by any given firm tend to be made equally to Democrats and Republicans alike (e.g., Poole and Romer 1985). Overall, the results in Table 4 suggest a greater effort at building political connections on the part of venture-backed firms, and this is particularly true pre-IPO and in the first four years after going public, which coincide with the presence and involvement of VC investors in their portfolio companies.

4.3 Multivariate regression results – Government contracts

Government contracts can be an important source of revenue and profits for businesses. Table 5 shows the results of tobit regressions which compare the extent to which VC backing impacts the amount of government contracts which a newly public firm is awarded. A similar specification is used to that in Table 3, with the incorporation of a set of explanatory variables for government contracts awarded in addition to the interaction terms for VC backing and for the three time periods surrounding IPO. These control variables include (log of) campaign contributions made in the previous year, firm size, book-to-market ratio, and profitability, and also variables proxying for firms’ investment in capital assets (capex to sales) and in improving cost efficiency (COGS to sales), which may affect their chances of obtaining government
contracts. Same as in the previous regressions, fixed affects for industry, firm age, and year are included.

The results in Table 5 show that, during their pre-IPO years, VC and non-VC-backed are granted similar amounts of government contracts. This is a different result from that shown in the univariate comparison in Table 3. After accounting for other factors which may affect businesses’ chance of obtaining government contracts, we no longer observe a difference in period 1 (pre-IPO) between VC and non-VC-backed firms. Since these are all relatively new businesses seeking an IPO, it is not surprising that both groups would not yet have had an opportunity to attract business from government clients and customers.

After IPO, however, VC-backed firms attract more business from the government, and this effect becomes statistically stronger in the long run. Thus, although the backing VC has most likely completely exited by period 3, the VC-backed group of firms continue to obtain larger government contracts. This suggests a long-term effect of the nurturing by VCs in the early formative years of their portfolio firms, which is in line with other performance effects documented in the literature, e.g., long-term stock performance, operating profitability, etc. (Brav and Gompers 1997).

In terms of economic magnitude, the marginal effects for the tobit regression in Table 5 indicate that VC-backed firms obtain approximately 53% greater volume of government contracts than non-VC-backed firms.

4.4 Multivariate regression results – Stock ownership by politicians

Whereas campaign contributions are discretionary decisions made by firms and their employees, the extent of politicians’ ownership of shares of those firms is in turn the politicians’
discretionary choice. Recent research suggests a link between benefits received by firms and ownership in their shares by U.S. Congress members (Tahoun 2014). For instance, firms whose shares are sold by politicians tend to discontinue making contributions to the politicians, get fewer government contracts, and perform poorly in terms of subsequent earnings and stock price changes.

Table 6 shows results of tobit regressions of politicians’ ownership in an IPO firm’s shares. For this test, I exclude the pre-IPO years since shares of the as-yet private firms are not available for wider ownership than the founders and early investors such as VCs. Politicians often hold shares indirectly through funds. In addition to fixed effects for industry, firm age, and year, fixed effects for the stock exchange where the firm’s shares are listed are also included in these regressions since the listing venue may influence whether these funds make investments in the firms. The other firm-specific control variables included in the share ownership regression are taken from Tahoun (2014) and are firm size, book-to-market ratio, stock price momentum, stock return volatility, dividend yield, leverage, and profitability.

In contrast to the univariate comparisons in Table 3, which do not show appreciable differences between politicians’ ownership of either group of firms during either post-IPO time periods, Table 6 shows that, after controlling for other determinants of stockholdings, venture-backed IPO firms are less likely to have their shares owned by politicians in their first four years as public companies than nonventure-backed IPO firms. This period coincides with the time during which VCs continue to be involved with their portfolio companies. In the longer run, starting from the fifth year following IPO, politicians own the stock of VC and non-VC-backed companies equally.
Since stock ownership has been hypothesized to act as a commitment mechanism absent explicit contracting, we would have expected that VC-backed firms, making greater campaign contributions and receiving greater future benefits in the form of government contracts, would be owned to a greater degree by politicians in order to ensure the future delivery of their end of the bargain. The reverse pattern observed in the data suggests another force at work: VCs’ certification role. VCs are themselves often major contributors to politicians’ campaigns (see section 4.6). It would appear therefore that VCs’ presence is allowing for the flow of mutual benefits (“greasing the wheel”, so to speak), thus acting as a substitute to the usual commitment mechanism of stock ownership in the firm by politicians. Further support for this explanation is provided by the lack of difference in ownership across (previously) VC and non-VC-backed firms starting from the fifth year following IPO, when VC involvement is likely to have completely disappeared.

One additional aspect of politicians’ stockholdings concerns the form of the holdings, i.e., whether the stock is held directly by the politicians or indirectly through some investment fund which may in some cases be managed by professional money managers with no input from the politicians themselves. The financial disclosures of politicians separate out direct holdings from indirect holdings (e.g., through mutual funds or similar arrangements). Direct shareholdings by politicians constitute potentially stronger commitment signals. I repeat the analysis using direct holdings only, however the power of the test is somewhat reduced. The likelihood of direct ownership in shares by politicians is 8.2% (compared to 13.2% if both direct and indirect means of ownership are considered), and the untabulated results continue to indicate a tendency for

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7 In the words of Milyo et al. (2000), members of Congress are “a group not renowned for their fidelity or trustworthiness”.

22
lower direct stockholdings in VC than in non-VC-backed firms in period 2 but not in period 3, although with weaker statistical significance (the coefficient on the interaction of period 2 and VC indicator variables is -2.08, with a z-statistic of -1.52, or p-value of 0.129).

4.5 Summary of empirical findings

In summary, the empirical results so far indicate that, in their early years, both before and after they become public companies, venture-backed IPO firms make more campaign contributions than nonventure-backed IPO firms. Moreover, the two groups of firms differ in the manner in which their donations reach the candidates they support. VC-backed firms tend to contribute less through their corporate PACs and more through individual donations made by their executives and the executives’ family. During those early years, VC-backed firms begin to pull ahead in terms of obtaining government procurement contracts. Over the long run (after the first four years as public companies), the two groups of firms make similar levels of political contributions, but the VC-backed group of firms continue to attract larger values of government contracts. Taken together, these findings point to a nurturing role played by the VC investors, and benefits continue to accrue to their portfolio firms even after the VCs have exited.

The results on politicians’ stockholdings of VC and non-VC-backed newly public firms indicate lower shareholdings in VC-backed firms, but only in the first four years after IPO (during which time VCs’ involvement in their portfolio companies has not completely dissipated). Afterwards, politicians own both groups of firms equally. This finding suggests a role played by VCs akin to certification, whereby their presence and involvement as influential investors in the VC-backed group of firms serves to overcome concerns about politicians fulfilling their end of the bargain at a later point in time.
4.6 Cross-sectional variation within venture-backed firms

Next, I explore whether variation in venture capitalists’ political connections spills over to their portfolio companies. I focus on campaign contributions for this analysis because VCs are notoriously “clubby” and highly successful VCs often restrict access to their funds (e.g., Lerner et al. 2007). It is therefore highly unlikely that we will observe politicians taking equity positions in VCs’ businesses. Similarly, we do not expect venture capitalist firms to be awarded government contracts. Campaign contributions by venture capitalists, on the other hand, are common and to be expected. The CRP dataset codes the industry of contributors in the FEC compiled data, and I focus on industries F2500 (venture capital) and F2600 (private equity and investment firms) to identify political hard money contributions made by VC firms.

From SDC, I collect information on the VC firms backing the IPO firms in the sample. I then match to the FEC data to determine the amounts of campaign contributions made by the VC firms. For each firm-year in the sample, I calculate the total contributions from all backing VC firms and then form partitions for above and below median VC contribution amounts. The amounts of contributions made by VCs are substantial. For the latter category, the mean amount of contributions in a given year by VCs backing an IPO firm is approximately half a million dollars.

I then create an indicator variable taking four distinct values: 0 if the firm was nonventure-backed (4,738 firm-year observations), 1 if it was backed by VC firms with no campaign contributions (3,056 observations), 2 if it was backed by VC firms whose aggregate total contributions were below the median contribution amount (156 observations), and 3 if it was backed by VC firms with above median contributions (154 observations). Thus, the values
taken by this indicator variable represent progressively higher intensity of VC political connections as proxied by campaign contributions.

The regression results (untabulated) show that the contributions made by portfolio firms of VCs with above median contributions are higher than the contributions made by portfolio firms of VCs with below median contributions, and the effect is mainly present in periods 2 and 3. Even for VCs making no contributions, their portfolio companies contribute significantly more than nonventure-backed companies (again in periods 2 and 3).

Overall, the preceding analysis suggests that when VCs are themselves more politically connected (as proxied by the magnitude of their contributions to politicians’ election campaigns), so are their portfolio companies. These findings lend support to the idea that VCs are influential in getting their portfolio companies to establish political connections early on in their public lives.

4.7 Robustness tests

I conduct several robustness checks. First, to ensure that the time trend documented in the VC effect is not specific to the period duration of four years, I repeat the tests using three years and five years. The effect on politicians’ stock ownership is weaker for the three year specification, but all other results and conclusions continue to hold strongly.

Second, when examining the effect of venture capital backing, there is a possibility of selection bias affecting the results. Since VCs do not randomly invest in businesses, the patterns documented in this paper could be driven by some of the underlying factors which determine VC investment rather than the presence of the VCs. In order to alleviate these concerns, I also run Heckman two-state selection models in which the first stage predicts the likelihood of venture
backing using a logit regression with state in which the business operates, industry, year of IPO, and size (proxied by logarithm of IPO proceeds) as explanatory variables. The first stage selection model has a pseudo R-squared of 23.7%. The conclusions remain unaltered.

Finally, I address large contributions which were not subject to the usual federal limits (to the so-called independent expenditure-only committees, or “super PACs”). Although the super PACs can raise unlimited amounts from donors, they are still subject to the FEC reporting rules. For the campaign contributions analyses in Table 3, in order to ensure that results are not driven by large outliers, I repeat the tests excluding contributions made during the 2011-2012 election cycle. The conclusions remain unchanged.

5. Conclusion

In this paper, I examine the relationship between venture capital backing of firms going public and political connections made by these firms over a period from four years before to up to eight years after their IPO date. I exploit disclosure requirements under federal election rules to obtain data on contributions made to politicians’ election campaigns, rules under the Transparency Act of 2006 to obtain data on government contracts awarded to the firms, and rules on personal finances disclosures to obtain data on politician’s investments in public equities.

I document a strong positive association between venture capital backing and the amounts of campaign contributions made by the executives of newly public firms. I further show that the effect is mainly present in the pre-IPO period and the first four years after firms have gone public. A negative relationship is observed between VC backing and contributions

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8 Super PACs came into existence in mid-2010 following court decisions in Citizens United v. Federal Election Commission and Speechnow.org v. FEC.
made by corporate PACs. Thus, VC and non-VC-backed IPO firms appear to use different approaches when establishing political connections through donations to politicians’ election campaigns.

I also examine the association between VC backing and the award of government contracts to IPO firms both before and after they go public. In the pre-IPO period, VC and non-VC-backed firms start off with similar amounts of government contracts. But the data shows that VC-backed firms gradually pull away by generating more business from government contracts after IPO. In the long run, even after the VC investors have completely exited, these firms continue to attract substantially more government contracts than non-VC-backed firms. This suggests a nurturing role for venture capitalists which persists beyond the time period during which they are active investors in their portfolio companies.

I also document a negative association between venture capital backing and politicians’ ownership in shares of newly public firms, but only during the first four years after IPO. I interpret this finding as evidence of VCs’ certification role in the market for political favors.

The findings in this paper suggest that, when it comes to campaign contributions (which fall under firms’ control), venture-backed firms are more diligent in establishing political connections through campaign contributions both immediately before and immediately after going public. When it comes to the award of government contracts (which is not under the firms’ control), the early efforts of venture-backed firms appear to pay off in the form of greater amounts of government contracts being awarded to them after going public compared to the nonventure-backed firms. Finally, politicians’ ownership in newly-public firms is lower for VC-backed firms in the early post-IPO years, whereas VC and non-VC-backed firms appear to be owned in similar proportions by politicians after the VC investors have exited.
The results in this paper raise additional questions which can be addressed by future research. The exact mechanism by which venture capitalists influence their portfolio firms into engaging with politicians relatively earlier than nonventure-backed firms is not well understood.

Organizations also spend substantial amounts of money each year on lobbying activities, conducted either through professional lobbying firms or using in-house resources. The total amounts spent on lobbying far exceed campaign contributions, notably because there is no statutory limit on lobbying expenditure on any one firm. It may be fruitful to study the building of political connections through lobbying activities by newly public firms, although the quid pro quo mechanism of share ownership by politicians would be hard to envisage in this scenario. It is hard to argue that lobbying activities benefit politicians directly. It is much easier to argue that firms undertake lobbying activities in the pursuit of potential benefits. Data on lobbying expenditures by firms is readily available thanks to the Lobbying Disclosure Act of 1995 which requires filing of quarterly activity reports by all firms engaged in lobbying with the Clerk of the U.S. House of Representatives and the Secretary of the U.S. Senate.

Similarly, the emergence of high-profile SuperPACs in the post-2010 period presents an opportunity to examine whether and how businesses respond to the lifting of contribution limits to such entities.

I leave the examination of these and other related questions to future research.
References


Table 1. Distribution of firm-year observations by year of IPO and by VC backing

<table>
<thead>
<tr>
<th>IPO year</th>
<th>Number of firm-year obs</th>
<th>Venture-backed</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>1997</td>
<td>133</td>
<td>45</td>
<td>178</td>
</tr>
<tr>
<td>1998</td>
<td>192</td>
<td>66</td>
<td>258</td>
</tr>
<tr>
<td>1999</td>
<td>262</td>
<td>272</td>
<td>534</td>
</tr>
<tr>
<td>2000</td>
<td>223</td>
<td>404</td>
<td>627</td>
</tr>
<tr>
<td>2001</td>
<td>116</td>
<td>118</td>
<td>234</td>
</tr>
<tr>
<td>2002</td>
<td>204</td>
<td>71</td>
<td>275</td>
</tr>
<tr>
<td>2003</td>
<td>217</td>
<td>107</td>
<td>324</td>
</tr>
<tr>
<td>2004</td>
<td>597</td>
<td>485</td>
<td>1,082</td>
</tr>
<tr>
<td>2005</td>
<td>768</td>
<td>258</td>
<td>1,026</td>
</tr>
<tr>
<td>2006</td>
<td>663</td>
<td>335</td>
<td>998</td>
</tr>
<tr>
<td>2007</td>
<td>464</td>
<td>500</td>
<td>964</td>
</tr>
<tr>
<td>2008</td>
<td>108</td>
<td>51</td>
<td>159</td>
</tr>
<tr>
<td>2009</td>
<td>157</td>
<td>82</td>
<td>239</td>
</tr>
<tr>
<td>2010</td>
<td>264</td>
<td>212</td>
<td>476</td>
</tr>
<tr>
<td>2011</td>
<td>210</td>
<td>170</td>
<td>380</td>
</tr>
<tr>
<td>2012</td>
<td>160</td>
<td>190</td>
<td>350</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>4,738</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>3,366</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>8,104</td>
</tr>
</tbody>
</table>

The table shows the annual distribution of firm-year observations used in the analysis. IPO data are collected from Securities Data Corporation.
Table 2. Descriptive statistics

Panel A: Political connection measures

<table>
<thead>
<tr>
<th>Measure</th>
<th>Mean</th>
<th>Median</th>
<th>Std Dev</th>
</tr>
</thead>
<tbody>
<tr>
<td>Firm's corporate PAC made direct campaign contributions (Yes/No)</td>
<td>0.040</td>
<td></td>
<td></td>
</tr>
<tr>
<td>If Yes: Contributions from firm's corporate PAC ($)</td>
<td>26,980</td>
<td>21,875</td>
<td>20,662</td>
</tr>
<tr>
<td>Number of candidates supported by firm's corporate PAC</td>
<td>14.5</td>
<td>12</td>
<td>10.6</td>
</tr>
<tr>
<td>Firm's executives made direct campaign contributions (Yes/No)</td>
<td>0.310</td>
<td></td>
<td></td>
</tr>
<tr>
<td>If Yes: Contributions from firm's executives ($)</td>
<td>7,636</td>
<td>2,250</td>
<td>13,660</td>
</tr>
<tr>
<td>Number of candidates supported by firm's executives</td>
<td>3.4</td>
<td>2</td>
<td>4.0</td>
</tr>
<tr>
<td>Firm was awarded government contracts (Yes/No)</td>
<td>0.077</td>
<td></td>
<td></td>
</tr>
<tr>
<td>If Yes: Government contracts amounts ($)</td>
<td>1,132,236</td>
<td>249,635</td>
<td>1,593,232</td>
</tr>
<tr>
<td>Firm's shares were owned by politicians (Yes/No)</td>
<td>0.132</td>
<td></td>
<td></td>
</tr>
<tr>
<td>If Yes: Share ownership by politicians ($)</td>
<td>66,750</td>
<td>9,609</td>
<td>113,356</td>
</tr>
</tbody>
</table>

Panel B: Firm-year characteristics

<table>
<thead>
<tr>
<th>Measure</th>
<th>Mean</th>
<th>Median</th>
<th>Std Dev</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size (log of market cap)</td>
<td>5.784</td>
<td>5.916</td>
<td>1.635</td>
</tr>
<tr>
<td>Book-to-market</td>
<td>0.502</td>
<td>0.415</td>
<td>0.841</td>
</tr>
<tr>
<td>ROA (income before extraordinary items to total assets)</td>
<td>-0.131</td>
<td>0.007</td>
<td>0.429</td>
</tr>
<tr>
<td>Cash flow from operations to total assets</td>
<td>-0.035</td>
<td>0.045</td>
<td>0.334</td>
</tr>
<tr>
<td>Capex to sales</td>
<td>0.209</td>
<td>0.033</td>
<td>0.754</td>
</tr>
<tr>
<td>COGS to sales</td>
<td>1.618</td>
<td>0.589</td>
<td>6.073</td>
</tr>
<tr>
<td>Industry concentration (Herfindahl index for sales)</td>
<td>0.019</td>
<td>0.017</td>
<td>0.008</td>
</tr>
<tr>
<td>Momentum (12-month buy and hold stock return)</td>
<td>0.838</td>
<td>0.106</td>
<td>2.652</td>
</tr>
<tr>
<td>Stock return volatility (standard deviation over past 12 months)</td>
<td>0.112</td>
<td>0.101</td>
<td>0.054</td>
</tr>
<tr>
<td>Dividend yield</td>
<td>0.011</td>
<td>0.000</td>
<td>0.034</td>
</tr>
<tr>
<td>Leverage (total debt to total assets)</td>
<td>0.261</td>
<td>0.132</td>
<td>0.341</td>
</tr>
</tbody>
</table>

This table shows several measures of political connection for 8,104 firm-years relating to IPOs conducted in the U.S. during the period 1997 to 2012. In Panel A, data are obtained from the Center for Responsive Politics (CRP) and from USAspending.gov. Campaign contributions are as reported to the Federal Election Commission (FEC), politicians’ ownership data are as reported annually on Personal Financial Disclosure (PFD) forms, and government contracts are as reported to the Federal Procurement Data System (FPDS). In Panel B, data are obtained from the CRSP-Compustat merged database.
Table 3. Relationship between political connection measures and venture capital backing –
Univariate comparisons across different time periods

<table>
<thead>
<tr>
<th>Venture-backed</th>
<th>Period 1</th>
<th>Period 2</th>
<th>Period 3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pre-IPO</td>
<td>Post-IPO</td>
<td>Years 1 to</td>
</tr>
<tr>
<td>Panel A: Firm's corporate PAC made direct campaign contributions</td>
<td></td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>No</td>
<td>0.020</td>
<td>0.053</td>
<td>0.065</td>
</tr>
<tr>
<td>Yes</td>
<td>0.007</td>
<td>0.020</td>
<td>0.045</td>
</tr>
<tr>
<td>p-value</td>
<td>0.008</td>
<td>0.000</td>
<td>0.017</td>
</tr>
<tr>
<td>Panel B: Firm's executives made direct campaign contributions</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>0.114</td>
<td>0.294</td>
<td>0.343</td>
</tr>
<tr>
<td>Yes</td>
<td>0.319</td>
<td>0.407</td>
<td>0.369</td>
</tr>
<tr>
<td>p-value</td>
<td>0.000</td>
<td>0.000</td>
<td>0.135</td>
</tr>
<tr>
<td>Panel C: Firm was awarded government contracts</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>0.027</td>
<td>0.059</td>
<td>0.064</td>
</tr>
<tr>
<td>Yes</td>
<td>0.090</td>
<td>0.120</td>
<td>0.118</td>
</tr>
<tr>
<td>p-value</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td>Panel D: Firm's shares were owned by politicians</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>0.136</td>
<td></td>
<td>0.132</td>
</tr>
<tr>
<td>Yes</td>
<td>0.123</td>
<td></td>
<td>0.135</td>
</tr>
<tr>
<td>p-value</td>
<td>0.295</td>
<td></td>
<td>0.765</td>
</tr>
</tbody>
</table>

The table presents univariate comparisons of the likelihood of observing firm-years with non-zero values of each of the variables indicated by the panel header title. Comparisons are made between VC and non-VC-backed firms in each of three distinct time periods surrounding the IPO date: the pre-IPO period (period 1), the first four years after IPO (period 2), and the subsequent four years (period 3). p-values indicated below each comparison pair are obtained from two-tailed t-tests of differences in means across each pair.
Table 4. Relationship between campaign contributions and venture capital backing – Tobit regression results

Panel A: Dollar Contributions

<table>
<thead>
<tr>
<th></th>
<th>Through corporate PAC</th>
<th>Direct from executives to candidates</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>VC backing x I_(years -3 to 0) (pre-IPO)</td>
<td>-7.382* (3.97)</td>
<td>4.997** (2.15)</td>
<td>4.752*** (0.61)</td>
</tr>
<tr>
<td>VC backing x I_(years 1 to 4) (post-IPO)</td>
<td>-6.292** (2.85)</td>
<td>2.374*** (0.44)</td>
<td>2.154*** (0.45)</td>
</tr>
<tr>
<td>VC backing x I_(years 5 to 8) (post-IPO)</td>
<td>-0.254 (2.37)</td>
<td>0.742* (0.40)</td>
<td>0.775* (0.41)</td>
</tr>
<tr>
<td>Size (log of market cap)</td>
<td>3.982*** (0.56)</td>
<td>1.700*** (0.13)</td>
<td>1.762*** (0.13)</td>
</tr>
<tr>
<td>ROA (income before extraordinary items to total assets)</td>
<td>4.395 (6.61)</td>
<td>-0.616 (0.39)</td>
<td>-0.632 (0.39)</td>
</tr>
<tr>
<td>Cash flow from operations to total assets</td>
<td>5.518 (5.24)</td>
<td>-0.162 (0.55)</td>
<td>-0.05 (0.56)</td>
</tr>
<tr>
<td>Industry concentration (Herfindahl index for sales)</td>
<td>-50.079 (149.14)</td>
<td>86.849*** (24.77)</td>
<td>83.653*** (25.87)</td>
</tr>
<tr>
<td>Number of contributing members</td>
<td>0.181*** (0.06)</td>
<td>0.129** (0.06)</td>
<td>0.130** (0.06)</td>
</tr>
<tr>
<td>Constant</td>
<td>-61.413*** (7.53)</td>
<td>-25.257*** (1.60)</td>
<td>-24.888*** (5.66)</td>
</tr>
<tr>
<td>Ln_sigma</td>
<td>2.835*** (0.07)</td>
<td>2.132*** (0.21)</td>
<td>2.145*** (0.20)</td>
</tr>
<tr>
<td>Fixed effects</td>
<td>Industry, Firm Age, Year</td>
<td>Industry, Firm Age, Year</td>
<td>Industry, Firm Age, Year</td>
</tr>
<tr>
<td>Observations</td>
<td>8,104</td>
<td>8,104</td>
<td>8,104</td>
</tr>
</tbody>
</table>
Panel B: Number of Candidates Supported

<table>
<thead>
<tr>
<th></th>
<th>Through corporate PAC</th>
<th>Direct from executives to candidates</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>VC backing x I_(years -3 to 0) (pre-IPO)</td>
<td>-1.732 (1.30)</td>
<td>0.735*** (0.10)</td>
<td>0.769*** (0.12)</td>
</tr>
<tr>
<td>VC backing x I_(years 1 to 4) (post-IPO)</td>
<td>-1.566** (0.70)</td>
<td>0.313*** (0.08)</td>
<td>0.282*** (0.09)</td>
</tr>
<tr>
<td>VC backing x I_(years 5 to 8) (post-IPO)</td>
<td>-0.055 (0.58)</td>
<td>0.066 (0.07)</td>
<td>0.081 (0.09)</td>
</tr>
<tr>
<td>Size (log of market cap)</td>
<td>0.997*** (0.15)</td>
<td>0.306*** (0.03)</td>
<td>0.356*** (0.03)</td>
</tr>
<tr>
<td>ROA (income before extraordinary items to total assets)</td>
<td>1.139 (1.60)</td>
<td>-0.1 (0.07)</td>
<td>-0.116 (0.08)</td>
</tr>
<tr>
<td>Cash flow from operations to total assets</td>
<td>1.252 (0.79)</td>
<td>-0.046 (0.10)</td>
<td>-0.029 (0.16)</td>
</tr>
<tr>
<td>Number of contributing members</td>
<td>0.047*** (0.02)</td>
<td>0.029** (0.01)</td>
<td>0.034** (0.02)</td>
</tr>
<tr>
<td>Constant</td>
<td>-15.328*** (1.93)</td>
<td>-4.471*** (0.98)</td>
<td>-4.917*** (1.16)</td>
</tr>
<tr>
<td>Ln_sigma</td>
<td>1.424*** (0.07)</td>
<td>0.325 (0.20)</td>
<td>0.445** (0.21)</td>
</tr>
<tr>
<td>Fixed effects</td>
<td>Industry, Firm Age, Year</td>
<td>Industry, Firm Age, Year</td>
<td>Industry, Firm Age, Year</td>
</tr>
<tr>
<td>Observations</td>
<td>8,104</td>
<td>8,104</td>
<td>8,104</td>
</tr>
</tbody>
</table>

This table shows the results of tobit regressions of campaign contributions on interaction terms for an indicator for venture capital backing and indicator variables for time period (four years before IPO, first four years after IPO, and fifth to eighth years after IPO), and control variables. Standard errors are clustered two-way by issuer and by year. ***,**,* indicate statistical significance at the 1%, 5%, and 10% level, respectively.
Table 5. Relationship between government contracts awarded and venture capital backing – Tobit regression results

<table>
<thead>
<tr>
<th>Dependent variable: CONTRACTS</th>
<th>Coeff</th>
<th>Std Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>VC backing x I_(years -3 to 0) (pre-IPO)</td>
<td>1.312</td>
<td>2.33</td>
</tr>
<tr>
<td>VC backing x I_(years 1 to 4) (post-IPO)</td>
<td>5.359*</td>
<td>2.84</td>
</tr>
<tr>
<td>VC backing x I_(years 5 to 8) (post-IPO)</td>
<td>5.106**</td>
<td>2.25</td>
</tr>
<tr>
<td>Log(1+contributions), lagged</td>
<td>0.540***</td>
<td>0.15</td>
</tr>
<tr>
<td>Size (log of market cap)</td>
<td>1.445**</td>
<td>0.65</td>
</tr>
<tr>
<td>Book-to-market</td>
<td>1.015</td>
<td>0.63</td>
</tr>
<tr>
<td>ROA (income before extraordinary items to total assets)</td>
<td>0.511</td>
<td>1.92</td>
</tr>
<tr>
<td>Capex to sales</td>
<td>1.500*</td>
<td>0.85</td>
</tr>
<tr>
<td>COGS to sales</td>
<td>-0.398***</td>
<td>0.14</td>
</tr>
<tr>
<td>Industry concentration (Herfindahl index for sales)</td>
<td>-87.787</td>
<td>142.94</td>
</tr>
<tr>
<td>Constant</td>
<td>-142.422***</td>
<td>12.98</td>
</tr>
<tr>
<td>Ln_sigma</td>
<td>3.082***</td>
<td>0.03</td>
</tr>
<tr>
<td>Fixed effects:</td>
<td>Industry, Firm Age, Year, Exchange Traded</td>
<td></td>
</tr>
<tr>
<td>Observations</td>
<td>6,106</td>
<td></td>
</tr>
</tbody>
</table>

This table shows the results of a tobit regression of government contracts awarded on interaction terms for an indicator for venture capital backing and indicator variables for time period (four years before IPO, first four years after IPO, and fifth to eighth years after IPO), and control variables. Standard errors are clustered two-way by issuer and by calendar year. ***, **, * indicate statistical significance at the 1%, 5%, and 10% level, respectively.
Table 6: Relationship between politicians’ stock ownership and venture capital backing – Tobit regression results

<table>
<thead>
<tr>
<th>Dependent variable: OWNERSHIP</th>
<th>Coeff</th>
<th>Std Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>VC backing x I_(years 1 to 4) (post-IPO)</td>
<td>-2.379**</td>
<td>0.99</td>
</tr>
<tr>
<td>VC backing x I_(years 5 to 8) (post-IPO)</td>
<td>0.161</td>
<td>0.89</td>
</tr>
<tr>
<td>Log(1+contributions), lagged</td>
<td>0.524***</td>
<td>0.06</td>
</tr>
<tr>
<td>Size (log of market cap)</td>
<td>4.269***</td>
<td>0.28</td>
</tr>
<tr>
<td>Book-to-market</td>
<td>-2.390***</td>
<td>0.54</td>
</tr>
<tr>
<td>Momentum (12-month buy and hold stock return)</td>
<td>0.066</td>
<td>0.09</td>
</tr>
<tr>
<td>Stock return volatility (standard deviation over past 12 months)</td>
<td>22.610**</td>
<td>8.85</td>
</tr>
<tr>
<td>Dividend yield</td>
<td>10.198</td>
<td>15.88</td>
</tr>
<tr>
<td>Leverage (total debt to total assets)</td>
<td>-0.543</td>
<td>1.41</td>
</tr>
<tr>
<td>ROA (income before extraordinary items to total assets)</td>
<td>1.390</td>
<td>1.17</td>
</tr>
<tr>
<td>Constant</td>
<td>-34.024***</td>
<td>5.98</td>
</tr>
<tr>
<td>Ln_Sigma</td>
<td>2.637***</td>
<td>0.19</td>
</tr>
<tr>
<td>Fixed effects:</td>
<td>Industry, Firm Age, Year</td>
<td></td>
</tr>
<tr>
<td>Observations</td>
<td>4,696</td>
<td></td>
</tr>
</tbody>
</table>

This table shows the results of a regression of politicians’ ownership in IPO firms on interaction terms for an indicator for venture capital backing and indicator variables for time period (four years before IPO, first four years after IPO, and fifth to eighth years after IPO), and control variables. Standard errors are clustered two-way by issuer and by calendar year. ***, **, * indicate statistical significance at the 1%, 5%, and 10% level, respectively.