Who gets to first base? Start-up characteristics and entrepreneurial success

Alexander Montag*

May, 2021

ABSTRACT

The main finding of this paper is that a start-up's board of directors matters for company growth. More specifically, positive shocks to director attention robustly correlate with increases in company growth. This association is stronger for directors with more prior entrepreneurial spells. These findings reject the null hypothesis that start-up boards do not matter for company growth. The evidence is consistent with a mentoring role of the board of directors of start-ups and seems to suggest that directors with more valuable prior experience are able to give better advice. Extant work on boards of private companies focuses on director appointments and board composition after a company has raised outside equity, typically by a VC fund. I contribute to this literature by showing that the board of directors matters for company growth already before a start-up's first outside equity investment and also for start-ups in general, not just for those that attract VC investment.

*Alexander Montag is with Saïd Business School, University of Oxford.

1 Introduction

Innovative high-growth companies are an import driver of economic growth. Entrepreneurial success, however, is skewed - most start-ups fail and very few survivors achieve phenomenal growth. Despite an extensive literature on entrepreneurship, we do not have a clear understanding of which characteristics lead some companies to be so different.

In this article, I aim to contribute to our understanding of entrepreneurial success by studying the relationship between a start-up's board of directors and company growth. From a theoretical perspective, it is not obvious why a start-up would form a board over and above regulatory requirements. In the traditional view, the board of directors is a corporate governance mechanism to alleviate agency problems arising from the separation of ownership and control. Even though founders typically combine majority ownership and management of the operations, I find that 28% of boards of directors at company founding exceed regulatory requirements. A natural question to ask is then: does a start-up's board of directors matter for company growth, and what is the role of the board at a start-up?

One way to show that boards matter is to show that director attention matters. A common proxy for director attention is the total number of boards a director sits on. Using this raw measure for causal inference, however, is problematic because it is likely positively correlated with director quality. Higher quality directors are probably more sought after by companies and therefore sit on more boards simultaneously. In addition, there could be unobserved other responsibilities (e.g., employment) that affect a director's attention.

I use acquisitions as shocks to the attention of directors who sit on multiple boards simultaneously for identification. After an acquisition, the board of directors of the target company is usually dissolved and its directors can then devote more time to other companies on whose boards they sit. The identifying assumption is that acquisitions and the growth of the shocked director's other companies are uncorrelated.

The main finding of this paper is that a start-up's board of directors matters for company growth. More specifically, positive shocks to director attention robustly correlate with increases in company growth. This association is stronger for directors with more prior entrepreneurial spells. These findings reject the null hypothesis that start-up boards do not matter for company growth. The evidence is consistent with a mentoring role of the board of directors of start-ups and seems to suggest that directors with more valuable prior experience

are able to give better advice.

I also provide suggestive evidence that board characteristics at founding correlate with future company growth. I sort companies into three mutually exclusive groups: (i) those that raise VC financing, (ii) those that achieve sales, assets, or employment growth in the top percentile of their cohort (all companies founded in the same industry in the same year), (iii) all other companies. I then plot average board characteristics for each group by fiscal year since registration. Companies with higher ex-post growth outcomes seem to already have larger boards with more experienced directors at founding.

Increasing our understanding of which start-up characteristics predict entrepreneurial success more broadly is important for the following reasons. First, start-ups contribute disproportionately to job creation and productivity growth. For example, company age, rather than size, is correlated with employment growth (Haltiwanger, Jarmin, and Miranda 2013). Second, there is a positive relationship between VC investment and high company growth (Lerner and Nanda 2020). A common presumption in the VC literature is that the board of directors plays a limited role prior to the first significant outside equity investment, which is often by a VC fund. VC partners regularly take a board seat at their portfolio companies to monitor company progress and to give advice, if needed. I complement these findings by showing that the board of directors matters for company growth already before a start-up's first outside equity investment and also for start-ups in general, not just for those that attract VC investment. Third, there is a growing recognition that an economy does not just rely on start-ups but also scale-ups. This is as huge policy debate (Kamal-Chaoui 2018) but there is little academic literature to guide this discussion.

Data availability is a challenge when studying the relationship between a start-up's board of directors and company growth empirically. It requires information about individual directors and financial performance of companies since founding. To the best of my knowledge, such data is neither available in the US nor in the UK.[1] I therefore collect data on the population of Swedish limited liability companies between 1998 and 2019. I collate data from different sources to construct a company-fiscal year panel that follows start-up companies

[1]Whilst data on annual reports and boards of directors for all limited companies is publicly available in the UK from Companies House, micro-entities and small companies can submit abridged accounts which contain less information. This makes it difficult to measure the growth of start-up companies, particularly in the initial years after founding. Source: `https://www.gov.uk/annual-accounts/microentities-small-and-dormant-companies`

from birth over time. My principal data source is the Swedish Companies Registration office which has information on annual reports, boards of directors, and company events (e.g., mergers or bankruptcies). I merge data on external equity financing events from Pitchbook, ThomsonOne, and Preqin.

This paper contributes to a burgeoning literature on boards of directors of private companies. Extant work focuses on director appointments and board composition after a company has raised outside equity, typically by a VC fund. Using a sample of companies that have raised at least series A financing, Venugopal and Yerramilli (2020) find that non-employee director appointments are related to social connections and complementary skill sets between founders and directors. Companies that appoint non-employee directors are more likely to raise VC financing, have more patents, and are more likely to exit. Ewens and Malenko (2020) document that control on boards of directors of VC-backed companies shifts from entrepreneurs to shared to VCs over time. The authors argue that independent directors play a tie-breaking role on boards with shared control. Baltrunaite and Karmaziene (2020) show that an increase in the supply of non-local directors leads to appointments of higher (lower) quality directors at higher (lower) quality Italian private companies, consistent with positive assortative matching. I complement these papers by showing that the board of directors matters for company growth already before a start-up's first outside equity investment and also for start-ups in general, not just for those that attract VC investment.

The rest of the paper is arranged as follows. Section 2 describes features of the Swedish entrepreneurial ecosystem that are relevant to this study. Section 3 outlines the sample construction and shows descriptive statistics. Section 4 explains the empirical strategy. Section 5 presents the results. Section 6 concludes.

2 Institutional details

Starting a business in Sweden is relatively easy. Sweden ranks 39th out of 190 on the Starting a Business category in the 2020 World Bank Doing Business rankings, in which it stands out for the low costs involved in business formation.[2] To compare, the US ranks 55th and the UK ranks 18th. Swedish entrepreneurs benefit from a relatively well developed venture capital industry that supplies young high-growth companies with risk capital. Sweden is consistently amongst the top 10 countries in the venture capital investment as percentage of GDP rankings by the OECD between 2007 and 2018.[3] In addition, the country's capital and start-up hub Stockholm does particularly well on investor exits. Spotify's USD 28 billion IPO in 2018 is a prominent example. Stockholm ranks 10th in the Top 30 Global Startup Ecosystems and Runners-Up ranking in the 2020 Global Startup Ecosystem report by Startup Genome.[4]

Policy reforms in the early 1990s made business formation easier (Heyman et al. 2019). The burst of a real estate bubble, which had built up during the 1980s, led to a recession in the early 1990s. Decreasing GDP and increasing unemployment meant that the expensive welfare system was not sustainable any longer. As a response, the government cut spending and introduced a deregulatory reform package to increase Sweden's competitiveness. Some of these reforms made business formation easier. First, lower corporate and capital tax rates benefited young businesses in particular by making it cheaper to raise external capital. Second, product market deregulation lowered barriers of entry. More specifically, the deregulation of utilities and services decreased "knock-on" costs in other sectors (e.g., manufacturing). Third, deregulation in the labour market lowered employment protection and increased companies' flexibility. Whilst permanent employees continued to benefit from high employment protection, temporary employees experienced a decrease in employment protection. This is referred to as the Swedish dual labour market.

All business enterprises must be registered with the Swedish Companies Registration Office before starting to operate.[5][6] The most common form of business enterprise in Sweden is the limited liability company, *aktiebolag* in Swedish. Formation requires only one person

[2] `https://www.doingbusiness.org/en/data/exploreeconomies/sweden#DB_sb`

[3] `https://stats.oecd.org/Index.aspx?DataSetCode=VC_INVEST`

[4] `https://startupgenome.com/reports/gser2020`

[5] Sole traders (self-employed) are an exception because they can opt to only register with the Swedish Tax Agency.

[6] `https://www.verksamt.se/web/international/starting/registration-and-tax`

and a minimum share capital of SEK 25,000 (≈USD 2,500).[7,8] In addition, it is the only company form that offers limited liability to all shareholders.[9] At registration, the founders choose between a private and public company type which differ in the required minimum share capital and the ability to distribute shares.[10] Shareholders can change the company type at the annual general meeting any time after registration. Public companies have a minimum share capital of SEK 500,000, whereas private companies require the previously mentioned SEK 25,000. Private companies must neither advertise their shares to the open market nor have more than 200 shareholders. Public companies do not have such restrictions. Furthermore, only public limited liability companies can apply for their shares to be listed on an exchange.[11]

Swedish law requires all limited liability companies, both public and private, to submit annual reports to the Companies Registration Office.[12] Annual reports include an income statement, a balance sheet, a cash flow statement, and information on the board of directors. To ensure that the submitted data is correct and reliable, limited liability companies must appoint an auditor who assesses the annual reports. Small limited liability companies need neither submit a cash flow statement nor appoint an auditor.[13] In addition to annual reports, the Companies Registration Office has data on mergers, bankruptcies, location changes, and industry changes. Non-compliance or submitting incorrect information results in liquidation and unlimited liability for board members. Companies therefore have strong incentives to submit accurate information.

Limited liability companies must set up a board of directors at registration.[14] Swedish corporate governance has a unitary structure with a single board of directors. Boards of

[7] The minimum share capital decreased from SEK 100,000 to 50,000 in 2011 and to 25,000 in 2019.

[8] https://bolagsverket.se/en/bus/business/limited/2.1144/private-and-public-limited-companies-1.8601

[9] https://uk.practicallaw.thomsonreuters.com/0-549-8061?transitionType=Default&contextData=(sc.Default)&firstPage=true&bhcp=1#co_anchor_a365676

[10] https://bolagsverket.se/ff/foretagsformer/aktiebolag/starta/publikt-1.3235

[11] https://bolagsverket.se/ff/foretagsformer/aktiebolag/starta/borsbolag-1.17585

[12] Årsredovisningslag [1995:1554] 8 sec. 3 and Bokföringslag [1999:1078] 6 sec. 2.

[13] A company is considered small if it does not exceed two or more of the following criteria during the last two fiscal years: more than 3 employees, more than SEK 1.5 million of total assets, or more than SEK 3 million of net turnover. To be considered large, a company must exceed the same two criteria during both fiscal years. See https://bolagsverket.se/en/bus/business/limited/2.1147/auditor-limited-companies-1.8643

[14] https://bolagsverket.se/en/bus/business/limited/2.1147/board-of-directors-1.8631

private companies must consist of at least one director, and if there are two or more directors, the shareholders must appoint a chairman. Private companies need not appoint a managing director. Boards of public companies must consist of at least three directors, one of which must be appointed chairman. Public companies must also appoint a managing director, who may be a board member but must not be chairman.[15] CEO duality is therefore possible in private but not in public limited liability companies in Sweden.

[15] http://www.bolagsstyrning.se/corporate-governance-in-sweden/the-chief-executive-officer_3721

3 Data

3.1 Sample construction

I collect data on the population of Swedish limited liability companies between 1998 and 2019. I focus on limited liability companies for two reasons. First, it is the most common form of business enterprise in Sweden. Formation is relatively easy[16] and it is the only company form that offers limited liability to all shareholders. Second, Swedish law requires all limited liability companies to submit annual reports to the Companies Registration Office.

I collate data from different sources to construct a company-fiscal year panel that follows start-up companies from birth over time. My principal data source is the Swedish Companies Registration Office which has information on annual reports, boards of directors, and company events (e.g., mergers or bankruptcies). I merge data on external equity financing events from Pitchbook, ThomsonOne, and Preqin.

To construct the sample, I start with the annual reports data from the Swedish Companies Registration Office and restrict it to limited liability companies. I only keep annual reports which follow an accounting type for which I know how income statement and balance sheet are constructed because I use these to construct cash flow statements.[17] Appendix B describes this in more detail. If a company provides both consolidated and unconsolidated financial statements for a given fiscal year, I use the consolidated version to capture the company's overall economic activity. These filters keep 95.9% of the observations, primarily because Swedish law requires only limited liability companies to submit annual reports. I only keep companies that are registered during the sample period because I am interested in studying the life cycle of start-up companies. This drops 44.2% of the remaining observations. I also restrict the sample to companies that have an employee in at least one fiscal year to focus the sample on potential employer companies. This drops 69.1% of the remaining observations. Table 1 lists the filters applied to the raw data to construct the sample and shows how many unique companies and company-fiscal year observations are left after each step.

[16] Formation requires only one person and a minimum share capital of SEK 25,000 (≈USD 2,500).

[17] I keep annual reports which follow either the nature of expense or cost of sales accounting type.

Table 1

Sample construction

This table lists the filters applied to the raw data to construct the sample. It also shows how many unique companies and company-fiscal year observations are left after each step.

Filter applied	# companies	# company-fiscal years
None: Raw data	895,395	8,388,539
Restrict to limited liability companies	873,573	8,306,832
Restrict to nature of expense and cost of sales accounting types	872,644	8,297,359
Restrict to consolidated financial statements if both consolidated and unconsolidated versions are available	872,644	8,041,057
Restrict to years before 2020	867,986	7,983,607
Restrict to companies with known registration date	867,502	7,982,336
Restrict to companies that are registered during sample period	636,986	4,484,833
Restrict to companies that have employees in at least one fiscal year	205,152	1,385,172
Restrict to companies that provide their board composition for every fiscal year	183,491	1,142,814
Restrict to financial statement filings without gaps	183,408	1,142,237

I then augment the annual reports panel with several other datasets. First, I merge company name, location, and industry information by assigning each update submitted to the Companies Registration Office to the corresponding fiscal year in the annual reports panel during which the update occurred. For each company-fiscal year observation, I then keep the latest available information at fiscal year end. I assign municipalities to counties by

using the most recent national classification system.[18] I standardize industry classifications to the latest version of the Swedish standard (SNI 2007) because most company-fiscal years fall under that version.[19]

Second, I add information on liquidations, mergers, bankruptcies, and re-organizations by assigning each event recorded by the Companies Registration Office to the corresponding fiscal year in the annual reports panel during which the event occurred. If a company has multiple events of the same type during a fiscal year, I keep the earliest available record. For each company, I assign events that occur after the latest fiscal year with annual reports data to the last fiscal year in the annual reports panel.

Third, I include three public type indicator variables for each company-fiscal year. These variables take the value of 1 if, at the end of the fiscal year, a company is a public limited liability company, a company's immediate parent is a public company, or the company's ultimate parent is a public company, respectively. I use group structure data from the Companies Registration Office to generate the variables for immediate and ultimate parent companies.[20]

Fourth, I add information on executives and the board of directors at fiscal year end by tracking key personnel appointments and removals filed with the Companies Registration Office. I assign individuals to four mutually exclusive categories: managers, ordinary directors, employee representatives, and ordinary deputy directors. I classify an individual holding an executive position (CEO or vice CEO) as manager. A manager might also serve as a director on the board or be a deputy director. I classify a (deputy) director who is neither a manager nor an employee representative as ordinary (deputy) director. I only treat manager-directors and ordinary directors as members of the board because these are appointed by the owners of the company.[21] Employee representatives are appointed by the labour union and deputy directors only attend board meetings when a regular director is unavailable. I differentiate between manager and non-manager directors to account for their distinct primary responsibilities. The board's main role is to guide the company with respect to its strategy, whereas management is in charge of daily operations. I use individuals' first

[18] `https://www.scb.se/hitta-statistik/regional-statistik-och-kartor/regionala-indelningar/lan-och-kommuner/lan-och-kommuner-i-kodnummerordning/`

[19] `https://www.scb.se/dokumentation/klassifikationer-och-standarder/standard-for-svensk-naringsgrensindelning-sni/`

[20] I exclude minority holdings because it is not clear where these are in the groups structure.

[21] Regulatory requirements (e.g., minimum number of directors) also use this definition of board membership.

names to proxy for their gender. I restrict official baby name lists published by government agencies in Sweden, Finland, Norway, Denmark, the UK, and the US to non-ambiguous first names by keeping names given only to boys or girls.[22] I then match each list one at a time (in the order of appearance in the previous sentence) to the Companies Registration Office data.[23] This yields a gender proxy for 97% of the individuals.

Fifth, I merge data on external equity financing events from Pitchbook, ThomsonOne, and Preqin by machting on company name and city. I use the Pitchbook data as base because it has the highest number of investment rounds, and fill in missing variables for existing financing events or add previously missing financing events with data from ThomsonOne and then Preqin (in order of decreasing coverage).

I annualise flow as well as growth stock variables to account for differences in fiscal period lengths. This is important in the context of my study because 93% of fiscal periods that are shorter or longer than 12 months are first fiscal years of companies. I winsorize all growth variables at the 1st and 99th percentiles to alleviate the potential impact of outliers.

3.2 Descriptive statistics

Table 2 shows descriptive statistics for the sample.

[22] I apply this restriction separately to each list to allow for gender associations of first names to differ across countries.

[23] I start with Swedish baby names and then match the remaining lists in order of decreasing cultural similarity between Sweden and the respective country of origin to minimize errors in the gender proxy.

Table 2

Descriptive statistics

This table presents descriptive statistics.

Variable	Mean	SD	p25	p50	p75
TA (mil)	23.07	796.25	0.57	1.33	3.53
Sales (mil)	21.16	708.58	1.07	2.42	6.64
EBITDA (mil)	0.24	40.98	−0.05	0.09	0.40
Employees	10.07	203.75	1.00	2.00	5.00
ROA (%)	7.09	34.70	−4.69	7.76	25.20
Leverage (%)	58.66	32.35	35.31	57.14	79.05
R&D (% of TA)	0.02	1.08	0.00	0.00	0.00
Board size	1.53	1.03	1.00	1.00	2.00
Female ratio	0.20	0.37	0.00	0.00	0.20
Current boards	0.77	1.76	0.00	0.00	1.00
Total boards	1.43	3.30	0.00	0.00	1.00

4 Empirical strategy

One way to show that boards matter is to show that director attention matters. A common proxy for director attention is the total number of boards a director sits on. Using this raw measure for causal inference, however, is problematic because it is likely positively correlated with director quality. Higher quality directors are probably more sought after by companies and therefore sit on more boards simultaneously. In addition, there could be unobserved other responsibilities (e.g., employment) that affect a director's attention.

I use acquisitions as shocks to the attention of directors who sit on multiple boards simultaneously for identification. After an acquisition, the board of directors of the target company is usually dissolved and its directors can then, all else equal, devote more time to other companies on whose boards they sit. The identifying assumption is that acquisitions and the growth of the shocked director's other companies are uncorrelated. Hauser (2018) uses this identification strategy to study boards of directors of public companies in the US.

I use a first-differenced specification because acquisitions should correlate with the change in, rather than the level of, the number of other board seats of a director.

I estimate the following system of first-differenced 2SLS equations

$$\Delta Boards_{i,t} = \beta_1 Mergers_{i,t} + \gamma \Delta C_{i,t} + \delta_a + \delta_c + \delta_j + \delta_y + \delta_{j,y} + \epsilon_{i,t} \tag{1}$$

$$\Delta Y_{i,t+1} = \beta_2 \Delta \widehat{Boards}_{i,t} + \gamma \Delta C_{i,t} + \delta_a + \delta_c + \delta_j + \delta_y + \delta_{j,y} + \epsilon_{i,t} \tag{2}$$

in which Equation 1 is the first stage and Equation 2 is the second stage. In both equations, i is a company and t is a fiscal year. The dependent variable in the second stage is $\Delta Y_{i,t+1}$ which measures the change in company growth in the next fiscal year. $\gamma \Delta C_{i,t}$ is a vector of first-differenced company control variables, δ_a are company age fixed effects, δ_c are county fixed effects, δ_j are industry fixed effects, δ_y are calendar year fixed effects, and $\delta_{j,t}$ are industry-calendar year fixed effects. The specification in first differences controls for time-invariant company characteristics and is analogous to a specification in levels with company fixed effects.

The coefficient of interest is β_2 in Equation 2. $\Delta Boards_{i,t}$ is the change in the number of other board seats of a company's directors which I instrument for using $Mergers_{i,t}$ which is the sum of acquisitions of other companies on whose boards a company's directors sit.

Appendix A contains definitions for all variables that I use in the analysis.

A first-differenced specification also avoids the potential impact of changes in the composition of a company's directors on the measurement of $\Delta Boards_{i,t}$. By defining this variable as first difference at the company-director-fiscal year level and then aggregating it to the company-fiscal year level, I exclude fiscal years in which a director joins or leaves the board of a company. $\Delta Boards_{i,t}$ thus measures the change in the number of other board seats of a company's incumbent directors and effectively controls for time-invariant director characteristics. Situations in which a company, for example, replaces a director who sits on no other boards with a director who sits on relatively many other boards do not affect $\Delta Boards_{i,t}$. In this hypothetical example, $\Delta Boards_{i,t}$ would only start measuring the change in the number of other board seats of the newly appointed director in the second fiscal year of her spell at this company.

A potential concern with this identification strategy is that shocked directors immediately replace their "lost" board seat. Figure 1 shows cumulative changes in the number of other board seats of shocked directors around the acquisition of one of the companies on whose boards they sit. The median change is 0 in the fiscal year prior to the acquisition, -1 in the fiscal year of the acquisition, and 0 in the two fiscal years following the acquisition. This suggests that most directors do not immediately replace a board seat lost due to an acquisition, and provides graphical evidence for the relevance of the instrument.

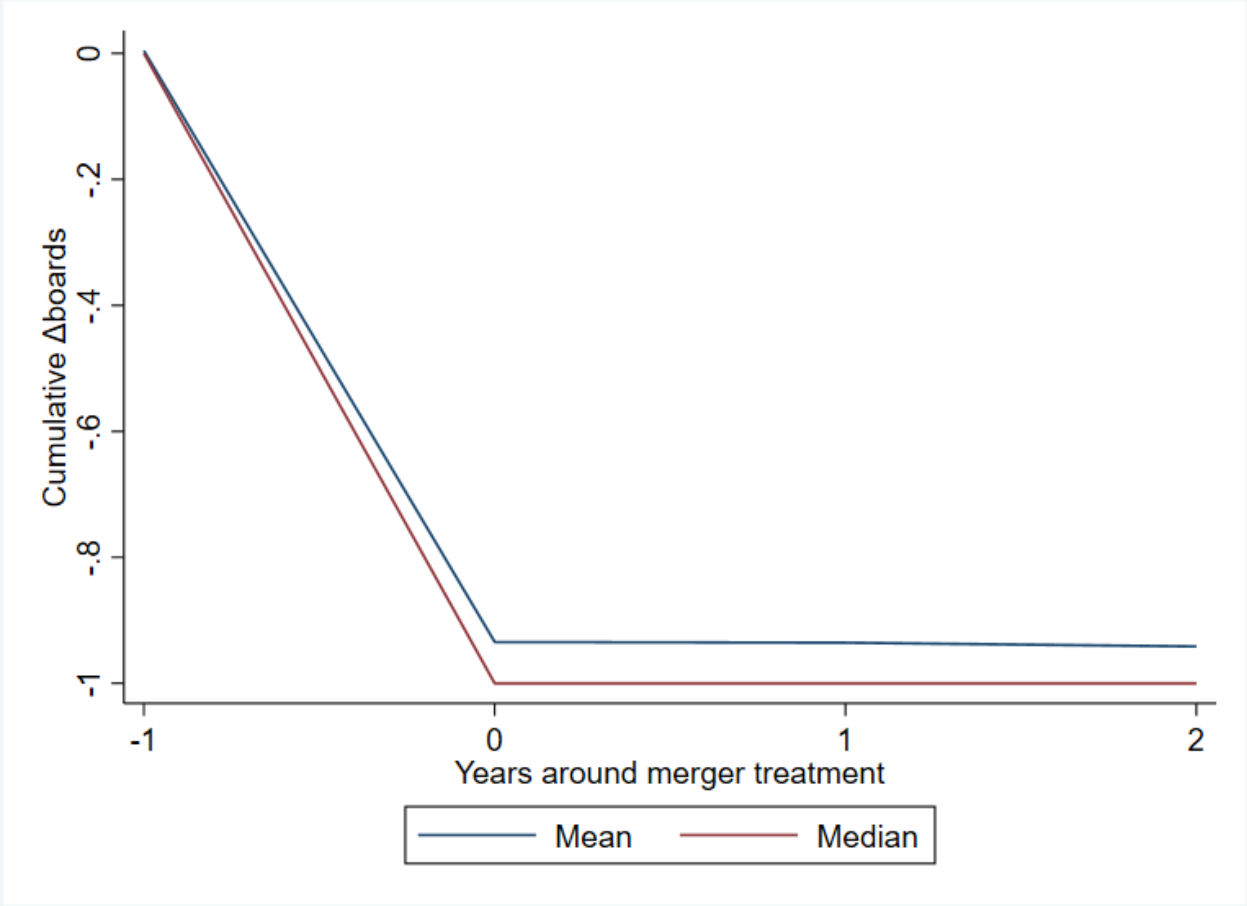

Figure 1. Cumulative changes in board seats around mergers. This figure shows cumulative changes in the number of board seats held by directors around merger treatment events.

5 Results

5.1 Main results

I provide evidence that rejects the null hypothesis that start-up boards do not matter for company growth. I find that positive shocks to director attention robustly correlate with increases in company growth. Table 3 shows the results of the 2SLS baseline regressions in which I instrument for the changes in other board seats of a company's directors with the sum of acquisitions of other companies on whose boards these directors sit. This association is stronger for directors with more prior entrepreneurial spells (Table 4). Taken together, these findings are consistent with a mentoring role of start-up boards and seem to suggest that directors with more valuable prior experience are able to give better advice.

A potential concern is the role of executive directors. In Table 5, I therefore re-run the baseline regressions including executive directors (columns 1 and 2) and using only executive directors (columns 3 and 4), .

Another potential concern is that investor directors could drive the findings. I therefore exclude companies that ever raise VC financing (Table 6) and confirm that all results are robust.

Table 7 shows the output of OLS regressions of changes in company growth on the endogenous variable (column 1) and the instrument (column 2). The coefficient on $\Delta Boards$ is insignificant which supports the notion that using this raw measure is problematic.

Table 3

2SLS Baseline

This table presents results for 2SLS regressions of changes in company performance on merger-induced changes in board seats held by a company's directors. I instrument for the changes in the number of board seats held by a company's directors with the sum of acquisitions of other companies on whose boards the focal company's directors sit. The dependent variable in the second stage is the change in ROA in the following fiscal year. The unit of analysis is a company-fiscal year. I control for the changes in log of total assets, log of sales, EBITDA, leverage, and board size. Appendix A contains definitions for all variables. I also include age, county, industry, year, and industry-year fixed effects. *t*-statistics are shown in parentheses, and standard errors are heteroscedasticity robust and clustered by company. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

	1st stage	2nd stage
	(1)	(2)
	ΔBoards	ΔROA
Mergers	−0.491***	
	(−28.52)	
ΔBoards		−1.668**
		(−2.15)
ΔTotal assets	0.029***	−21.926***
	(13.21)	(−140.53)
ΔSales	0.025***	−1.021***
	(14.36)	(−9.02)
ΔEBITDA	−0.005***	−1.052***
	(−3.71)	(−30.38)
ΔLeverage	0.032***	63.933***
	(7.67)	(170.23)
ΔBoard size	0.008**	0.486***
	(2.21)	(4.18)
FEs	Yes	Yes
Observations	787,429	787,429
Adj. R^2	0.01	0.188
Mean of DV	0.07	-1.240

Table 4
2SLS Prior founder spells

This table presents results for 2SLS regressions of changes in company performance on merger-induced changes in board seats held by a company's directors. I instrument for the changes in the number of board seats held by a company's directors with the sum of acquisitions of other companies on whose boards the focal company's directors sit. I construct the instrument for directors with below and above median prior founder spells, respectively. The dependent variable in the second stage is the change in ROA in the following fiscal year. The unit of analysis is a company-fiscal year. I control for the changes in log of total assets, log of sales, EBITDA, leverage, and board size. Appendix A contains definitions for all variables. I also include age, county, industry, year, and industry-year fixed effects. *t*-statistics are shown in parentheses, and standard errors are heteroscedasticity robust and clustered by company. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

	Low prior founder spells		High prior founder spells	
	1st stage	2nd stage	1st stage	2nd stage
	(1)	(2)	(3)	(4)
	ΔBoards	ΔROA	ΔBoards	ΔROA
Mergers (low)	-0.724^{***}			
	(−13.84)			
Mergers (high)			-0.480^{***}	
			(−26.36)	
ΔBoards		0.680		-1.993^{**}
		(0.39)		(−2.37)
Controls	Yes	Yes	Yes	Yes
FEs	Yes	Yes	Yes	Yes
Observations	787,429	787,429	787,429	787,429
Adj. R^2		0.189		0.188

Table 5
2SLS Executive directors

This table presents results for 2SLS regressions of changes in company performance on merger-induced changes in board seats held by a company's directors. I instrument for the changes in the number of board seats held by a company's directors with the sum of acquisitions of other companies on whose boards the focal company's directors sit. I construct the endogenous regressor and instrument including executive directors (columns 1 and 2) and using only executive directors (columns 3 and 4). The dependent variable in the second stage is the change in ROA in the following fiscal year. The unit of analysis is a company-fiscal year. I control for the changes in log of total assets, log of sales, EBITDA, leverage, and board size. Appendix A contains definitions for all variables. I also include age, county, industry, year, and industry-year fixed effects. *t*-statistics are shown in parentheses, and standard errors are heteroscedasticity robust and clustered by company. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

	Including executive directors		Only executive directors	
	1st stage	2nd stage	1st stage	2nd stage
	(1)	(2)	(3)	(4)
	ΔBoards	ΔROA	ΔBoards	ΔROA
Mergers	-0.461^{***}		-0.437^{***}	
	(−26.32)		(−18.49)	
ΔBoards		-1.519^{**}		−0.132
		(−2.00)		(−0.06)
Controls	Yes	Yes	Yes	Yes
FEs	Yes	Yes	Yes	Yes
Observations	787,429	787,429	787,429	787,429
Adj. R^2		0.188		0.189

Table 6

2SLS Excluding ever VC-backed

This table presents results for 2SLS regressions of changes in company performance on merger-induced changes in board seats held by a company's directors. I exclude companies that ever raise VC financing. I instrument for the changes in the number of board seats held by a company's directors with the sum of acquisitions of other companies on whose boards the focal company's directors sit. The dependent variable in the second stage is the change in ROA in the following fiscal year. The unit of analysis is a company-fiscal year. I control for the changes in log of total assets, log of sales, EBITDA, leverage, and board size. Appendix A contains definitions for all variables. I also include age, county, industry, year, and industry-year fixed effects. *t*-statistics are shown in parentheses, and standard errors are heteroscedasticity robust and clustered by company. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

	1st stage	2nd stage
	(1)	(2)
	ΔBoards	ΔROA
Mergers	-0.490^{***}	
	(-28.05)	
ΔBoards		-1.559^{**}
		(-1.97)
Controls	Yes	Yes
FEs	Yes	Yes
Observations	783,589	783,589
Adj. R^2		0.190

Table 7

OLS Baseline

This table presents results for OLS regressions of changes in company performance on changes in board seats held by a company's directors (column 1) and acquisitions of other companies on whose boards a company's directors sit (column 2). The dependent variable in both columns is the change in ROA in the following fiscal year. The unit of analysis is a company-fiscal year. I control for the changes in log of total assets, log of sales, EBITDA, leverage, and board size. Appendix A contains definitions for all variables. I also include age, county, industry, year, and industry-year fixed effects. *t*-statistics are shown in parentheses, and standard errors are heteroscedasticity robust and clustered by company. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

	(1) ΔROA	(2) ΔROA
ΔBoards	−0.049	
	(−0.88)	
Mergers		0.819**
		(2.15)
ΔTotal assets	−21.973***	−21.973***
	(−142.27)	(−142.30)
ΔSales	−1.061***	−1.063***
	(−9.49)	(−9.52)
ΔEBITDA	−1.044***	−1.044***
	(−30.44)	(−30.43)
ΔLeverage	63.881***	63.879***
	(170.41)	(170.43)
ΔBoard size	0.474***	0.473***
	(4.08)	(4.08)
FEs	Yes	Yes
Observations	787,429	787,429
Adj. R^2	0.192	0.192

5.2 Additional results

This section provides suggestive evidence on the relationship between board characteristics over start-ups' life cycles and future company growth outcomes. I sort companies into three mutually exclusive groups: (i) those that raise VC financing, (ii) those that achieve sales, assets, or employment growth in the top percentile of their cohort (all companies founded in the same industry in the same year), (iii) all other companies. I then plot several board characteristics for each group by fiscal year since registration in Figures 2 to 8. Companies with higher ex-post growth outcomes seem to already have larger boards with more experienced directors at founding.

I then restrict the sample to companies that raise VC financing and show their average board characteristics in the fiscal years before and after their first VC investment in Figures 9 to 15. The graphs seem to suggest that these start-ups already form higher-quality boards prior to their first VC investment.

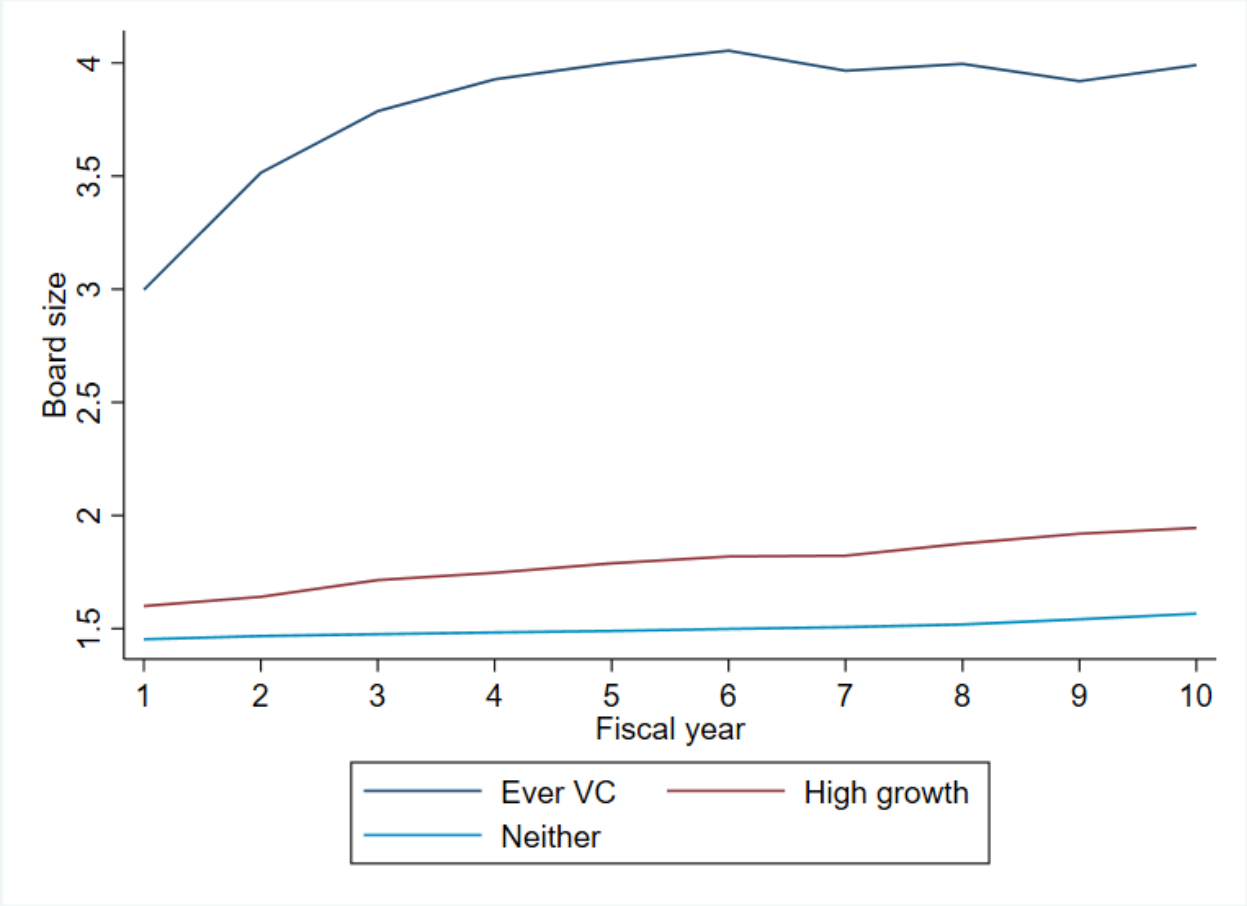

Figure 2. Board size by fiscal year. This figure shows the average board size by fiscal year since registration broken down by the following mutually exclusive groups of companies: (i) those that raise VC financing, (ii) those that achieve sales, assets, or employment growth in the top percentile of their cohort (all companies founded in the same industry in the same year), (iii) all other companies.

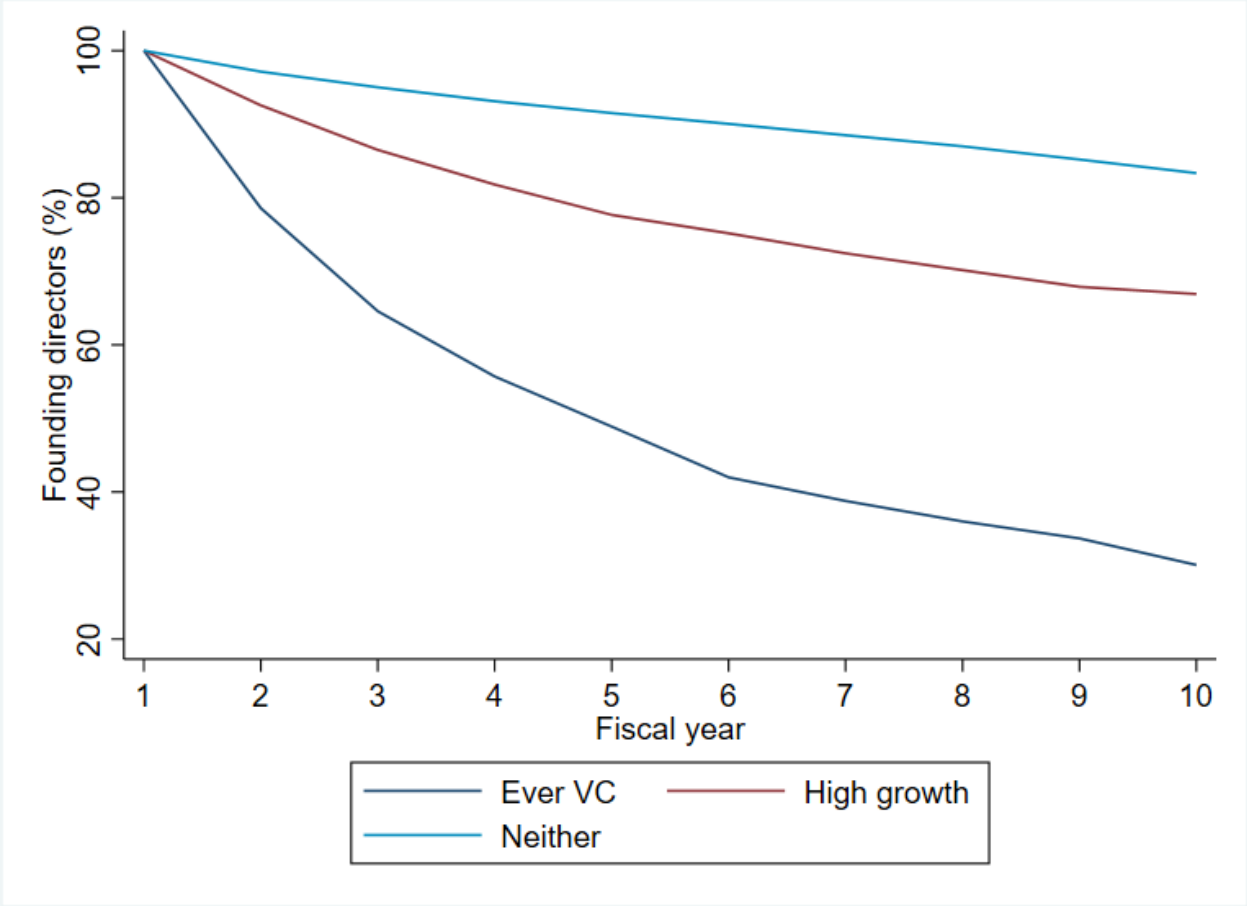

Figure 3. Founding directors by fiscal year. This figure shows the average percentage of founding directors that serve on the board by fiscal year since registration broken down by the following mutually exclusive groups of companies: (i) those that raise VC financing, (ii) those that achieve sales, assets, or employment growth in the top percentile of their cohort (all companies founded in the same industry in the same year), (iii) all other companies.

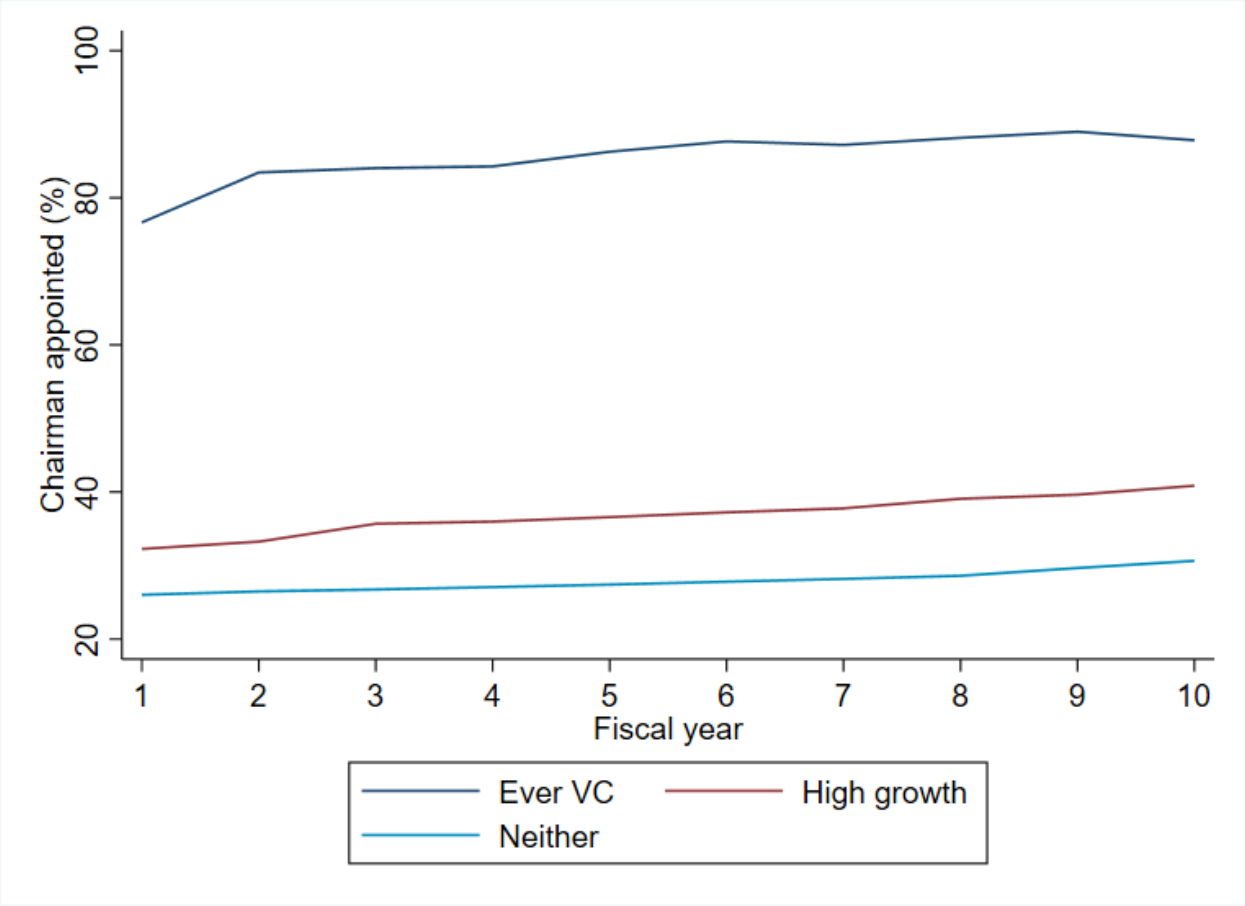

Figure 4. Chairman appointed by fiscal year. This figure shows the average percentage of companies that have appointed a chairman by fiscal year since registration broken down by the following mutually exclusive groups of companies: (i) those that raise VC financing, (ii) those that achieve sales, assets, or employment growth in the top percentile of their cohort (all companies founded in the same industry in the same year), (iii) all other companies.

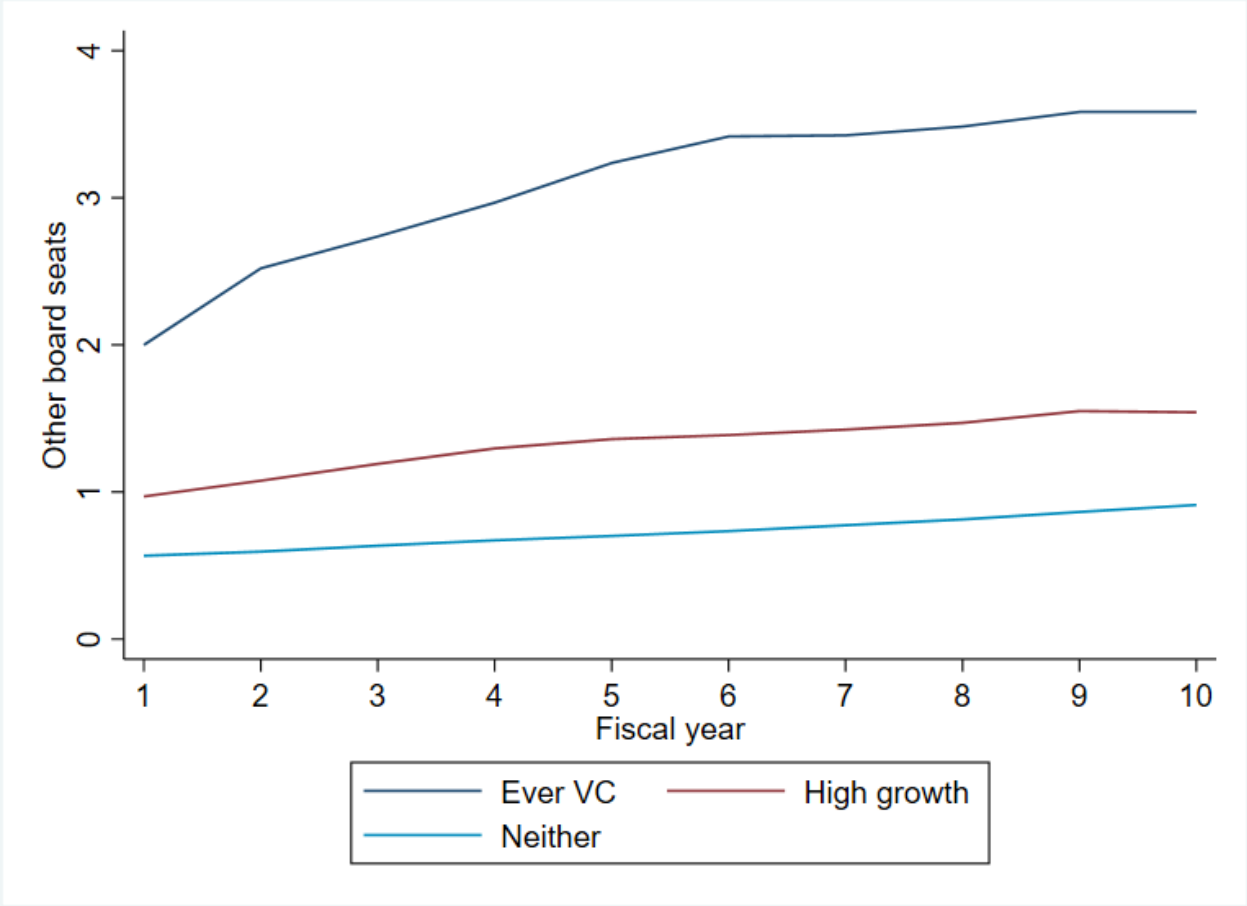

Figure 5. Other board seats by fiscal year. This figure shows the average number of other board seats held by directors by fiscal year since registration broken down by the following mutually exclusive groups of companies: (i) those that raise VC financing, (ii) those that achieve sales, assets, or employment growth in the top percentile of their cohort (all companies founded in the same industry in the same year), (iii) all other companies.

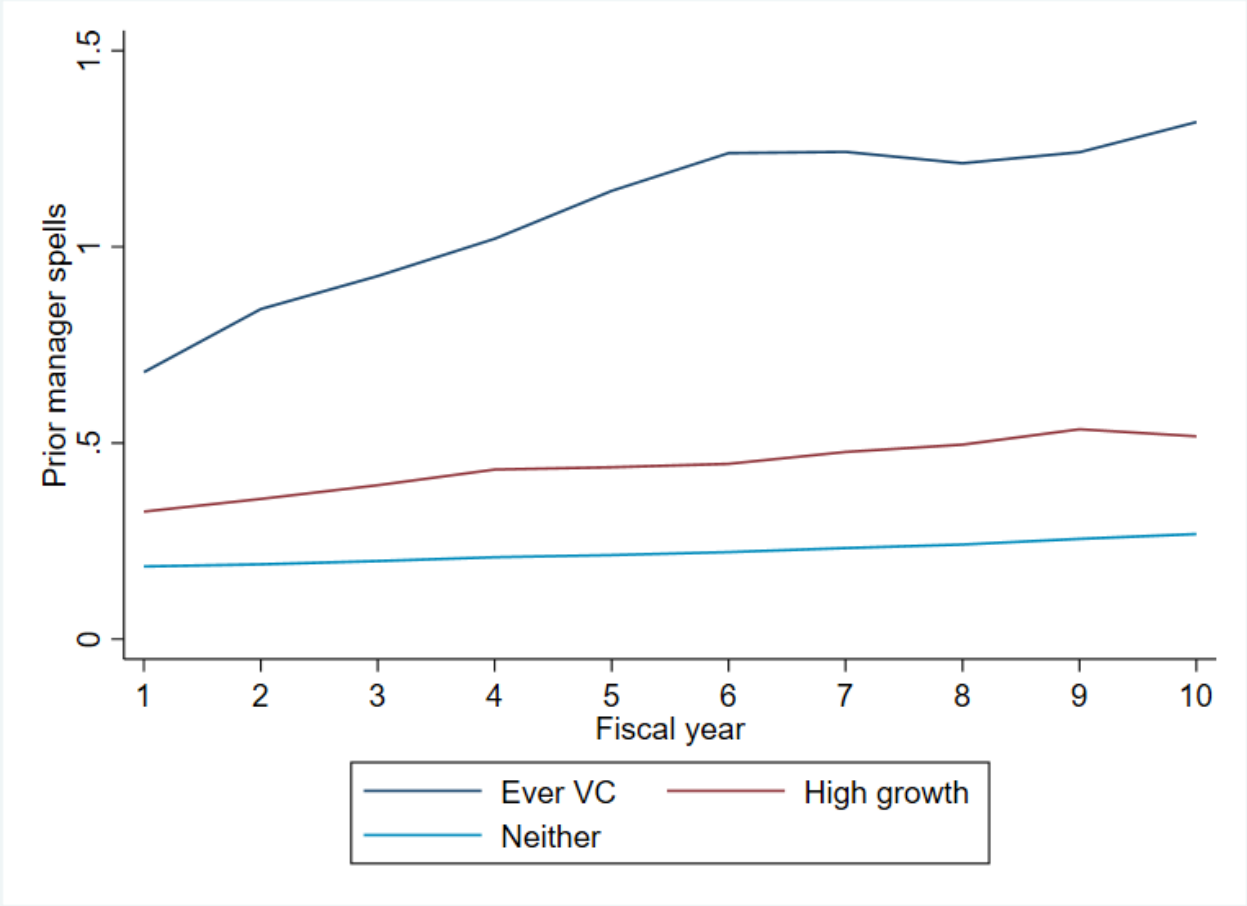

Figure 6. Prior manager spells by fiscal year. This figure shows the average number of prior manager spells of directors by fiscal year since registration broken down by the following mutually exclusive groups of companies: (i) those that raise VC financing, (ii) those that achieve sales, assets, or employment growth in the top percentile of their cohort (all companies founded in the same industry in the same year), (iii) all other companies.

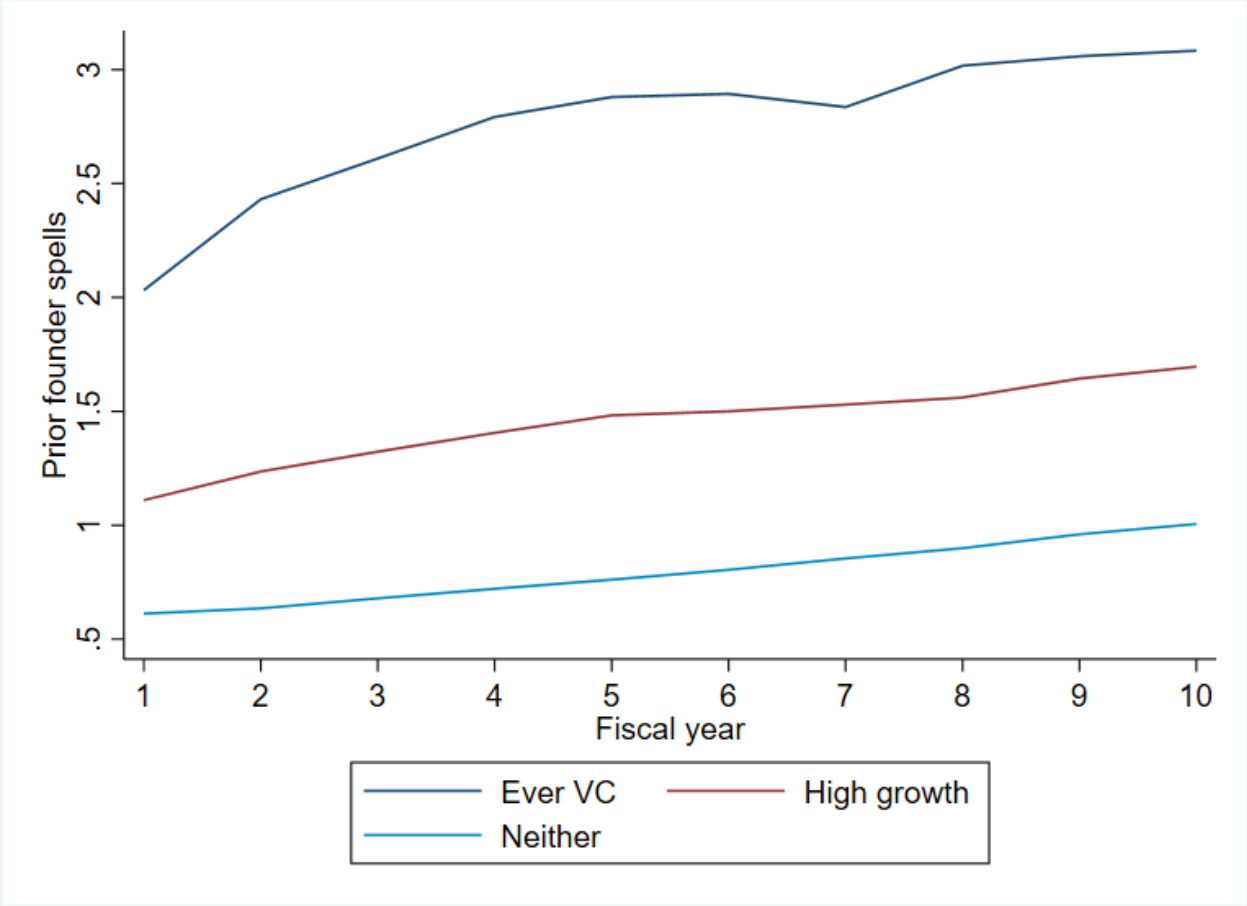

Figure 7. Prior founder spells by fiscal year. This figure shows the average number of prior founder spells of directors by fiscal year since registration broken down by the following mutually exclusive groups of companies: (i) those that raise VC financing, (ii) those that achieve sales, assets, or employment growth in the top percentile of their cohort (all companies founded in the same industry in the same year), (iii) all other companies.

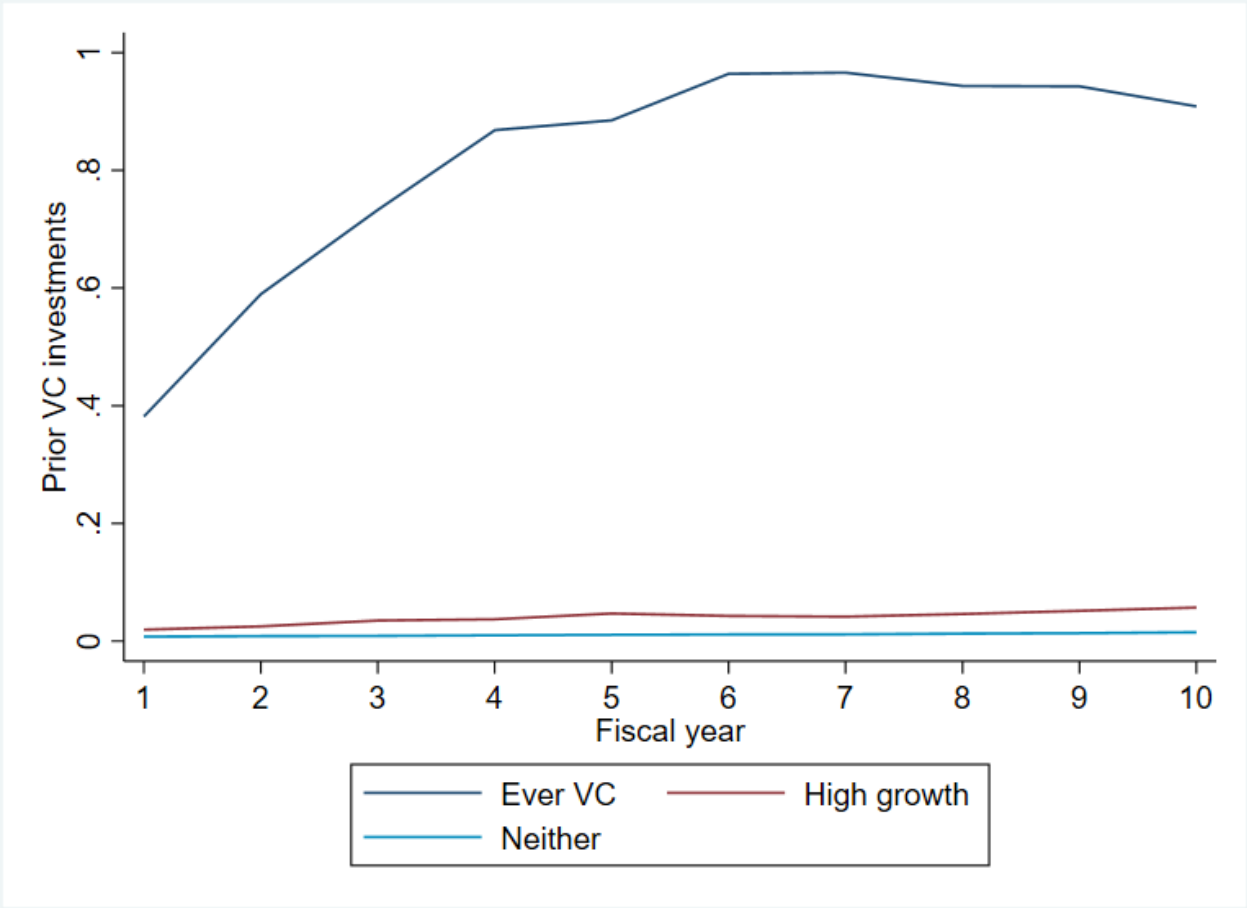

Figure 8. Prior VC investments by fiscal year. This figure shows the average number of prior VC investments of directors by fiscal year since registration broken down by the following mutually exclusive groups of companies: (i) those that raise VC financing, (ii) those that achieve sales, assets, or employment growth in the top percentile of their cohort (all companies founded in the same industry in the same year), (iii) all other companies.

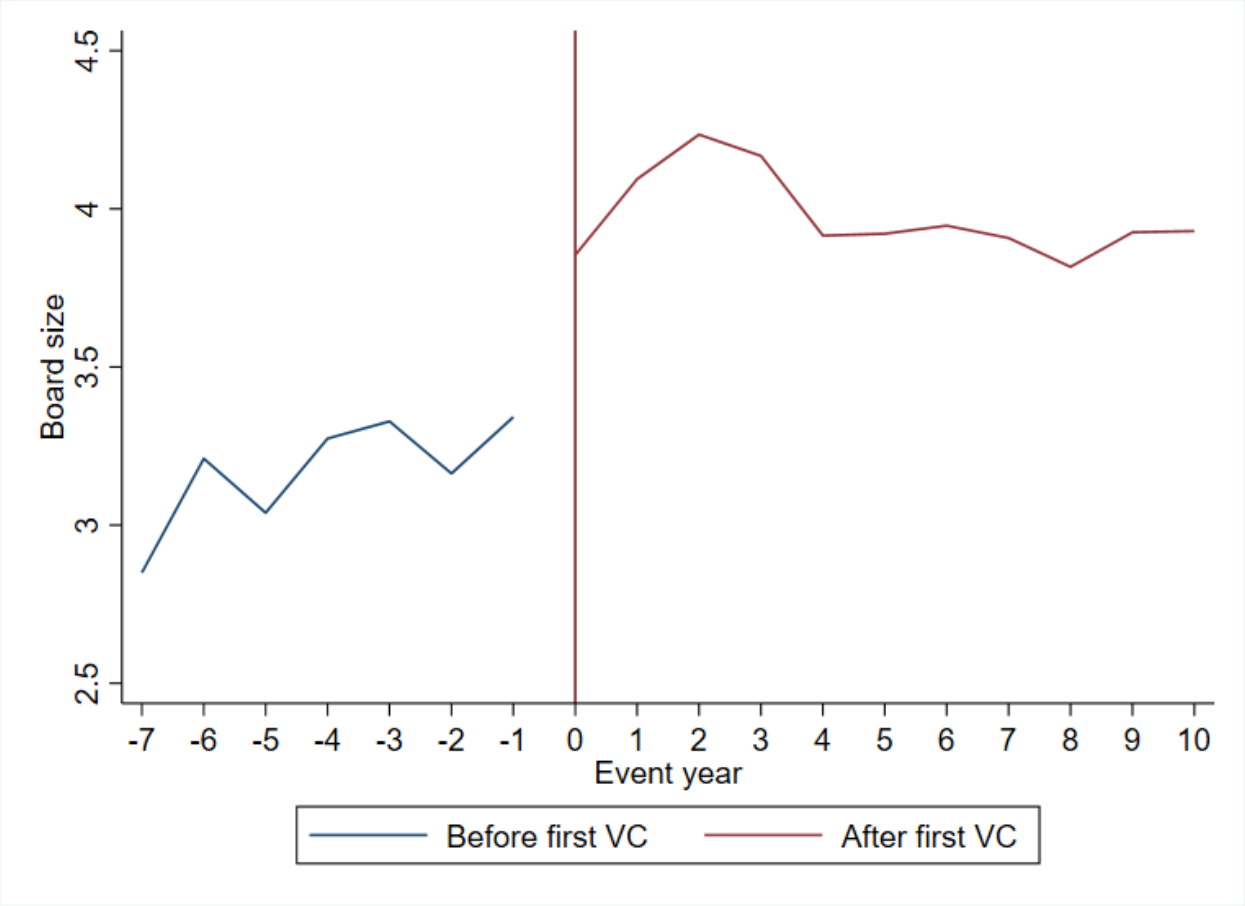

Figure 9. Board size around first VC investment. This figure shows the average board size by fiscal year around companies' first VC investment.

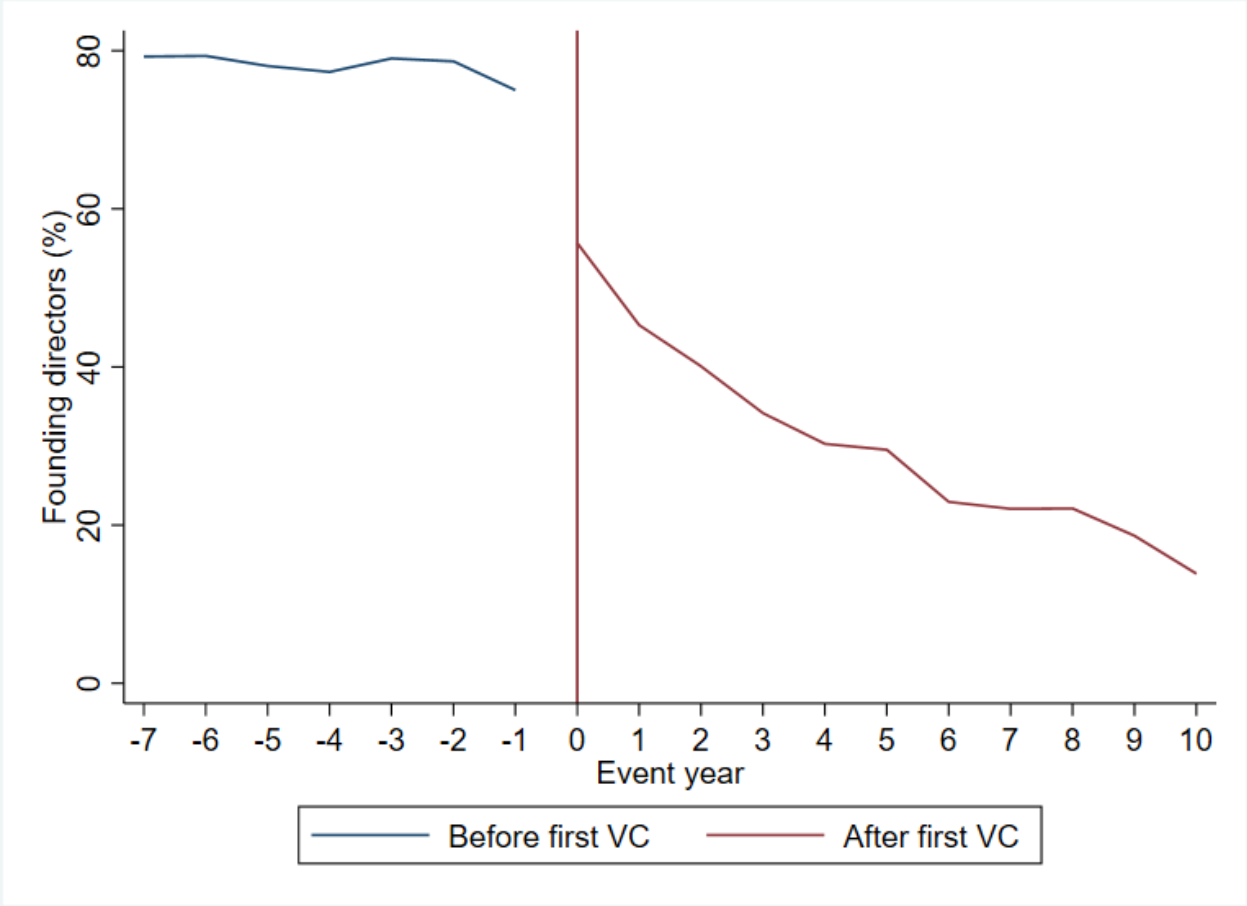

Figure 10. Founding directors around first VC investment. This figure shows the average percentage of founding directors that serve on the board by fiscal year around companies' first VC investment.

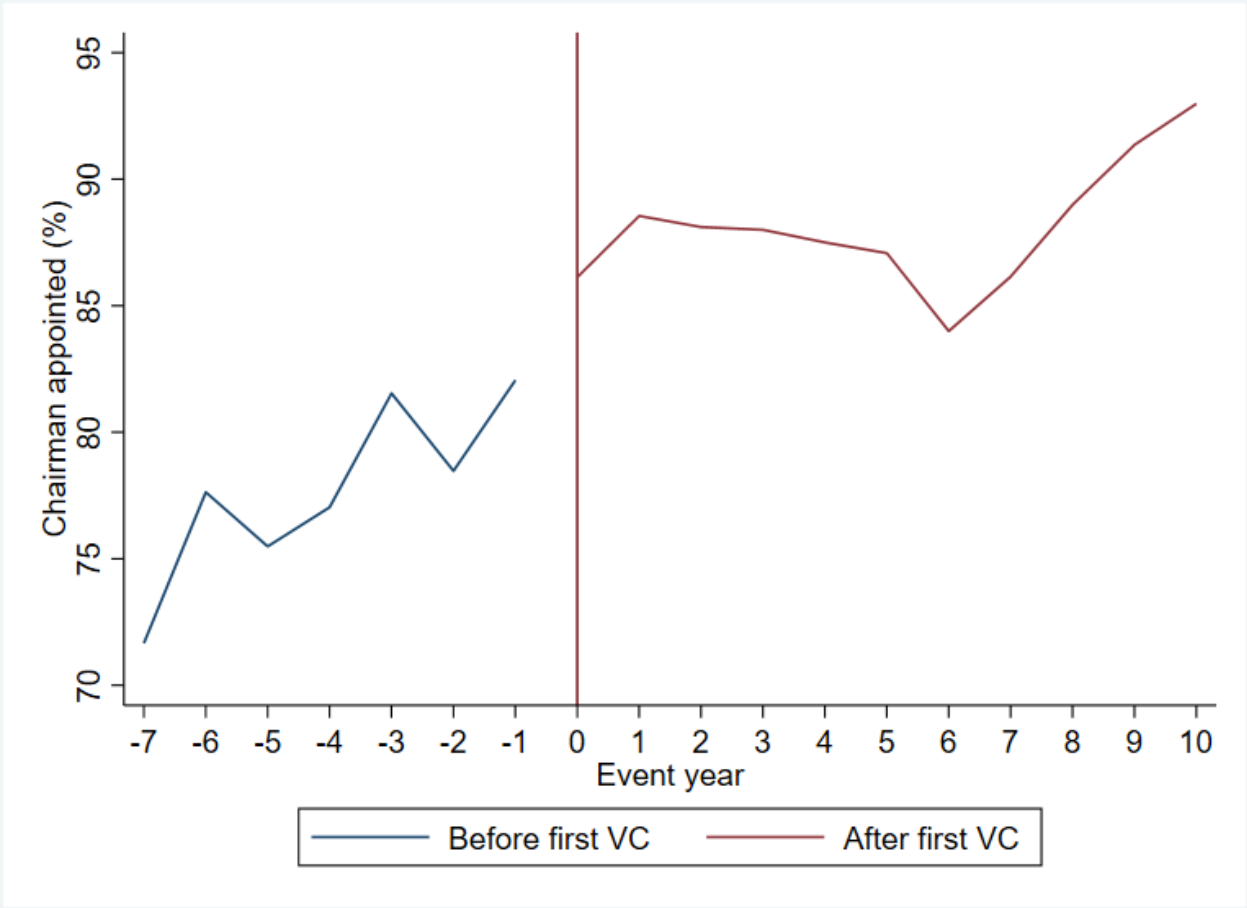

Figure 11. Chairman appointed around first VC investment. This figure shows the average percentage of companies that have appointed a chairman by fiscal year around companies' first VC investment.

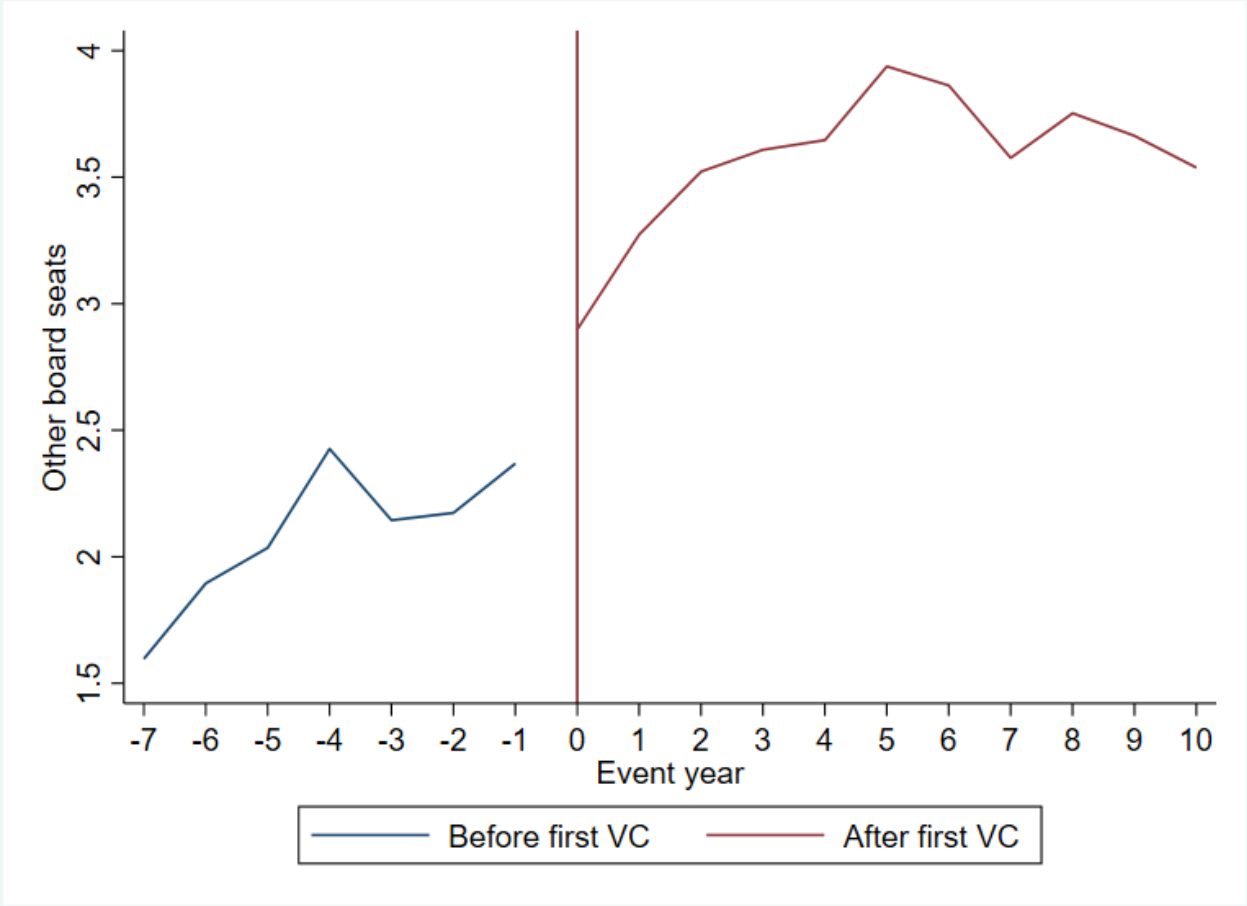

Figure 12. Other board seats around first VC investment. This figure shows the average number of other board seats held by directors by fiscal year around companies' first VC investment.

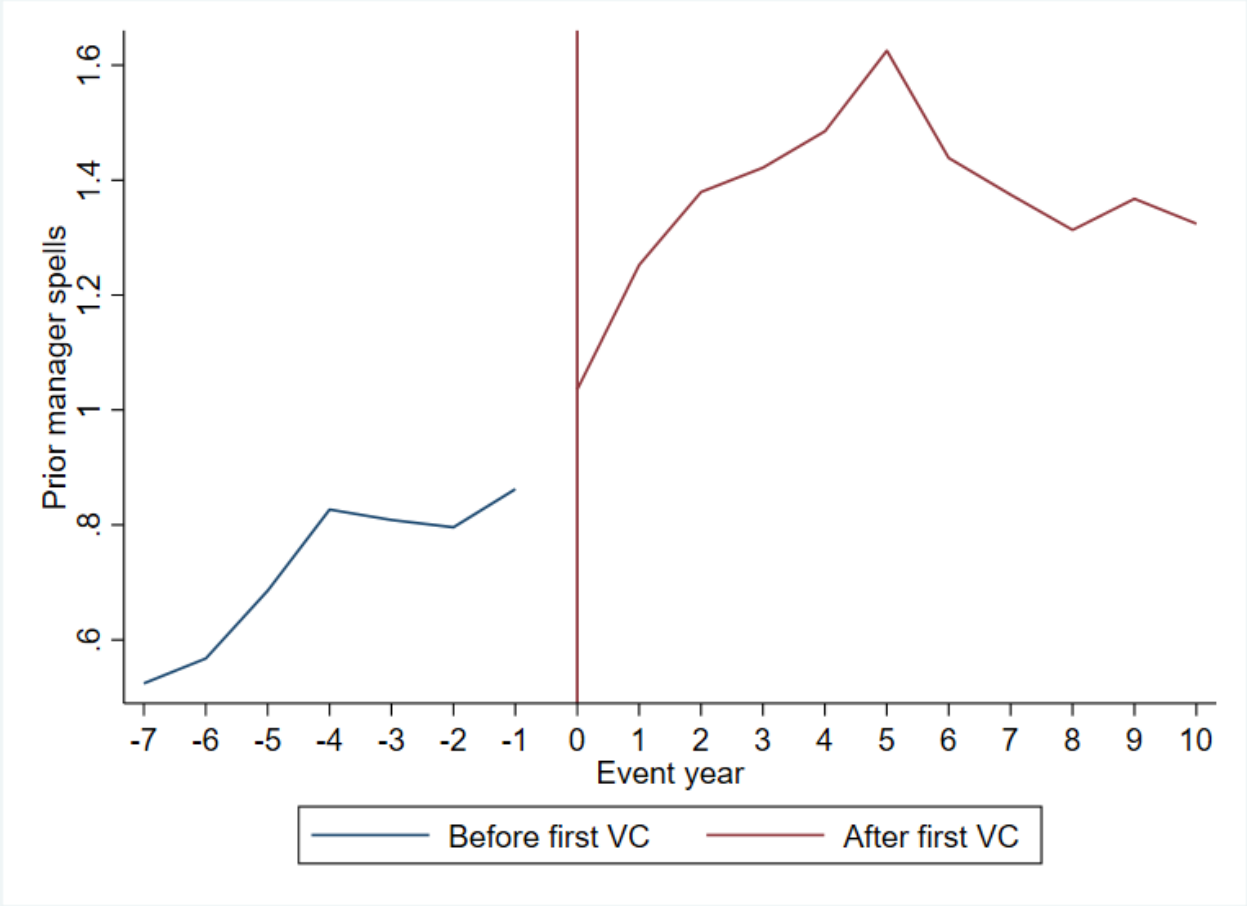

Figure 13. Prior manager spells around first VC investment. This figure shows the average number of prior manager spells of directors by fiscal year around companies' first VC investment.

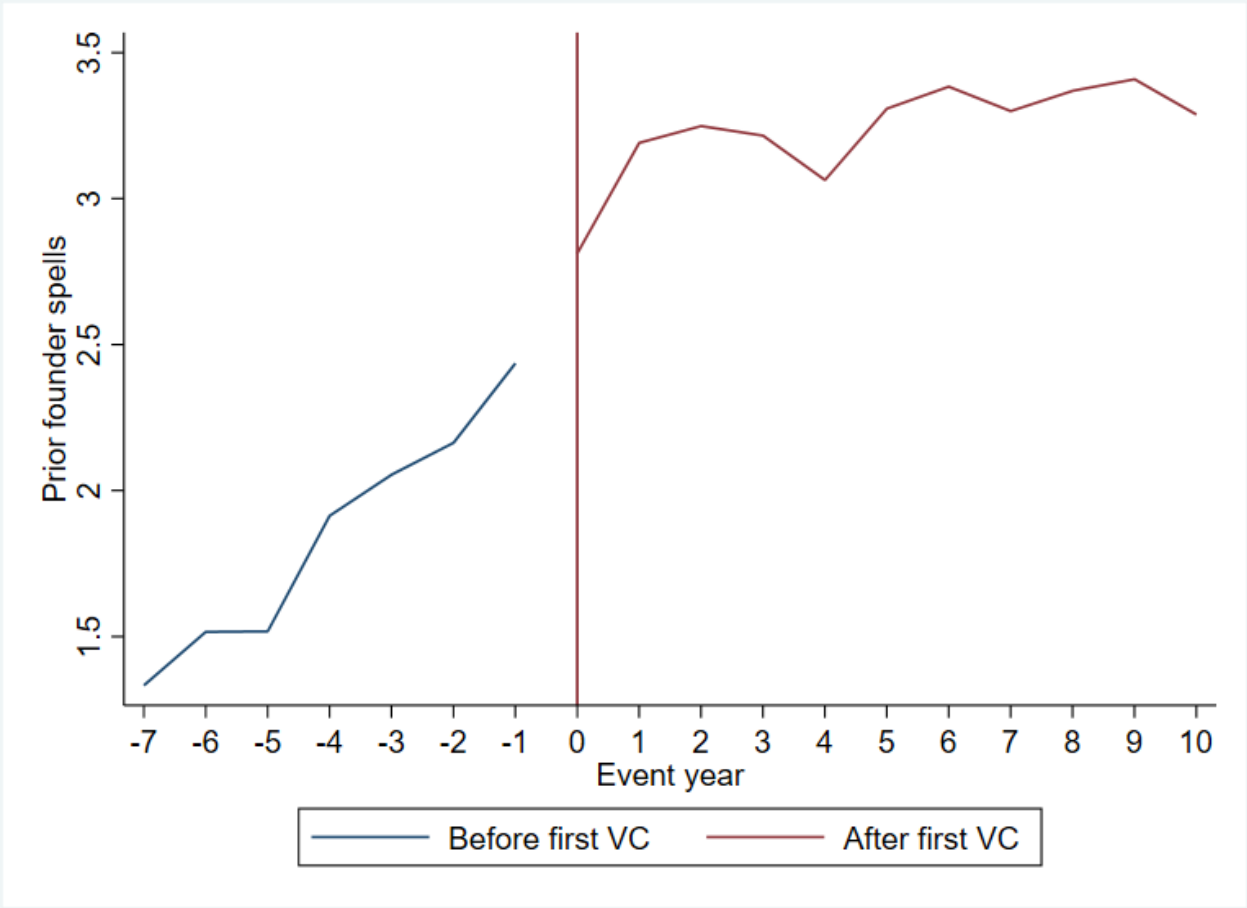

Figure 14. Prior founder spells around first VC investment. This figure shows the average number of prior founder spells of directors by fiscal year around companies' first VC investment.

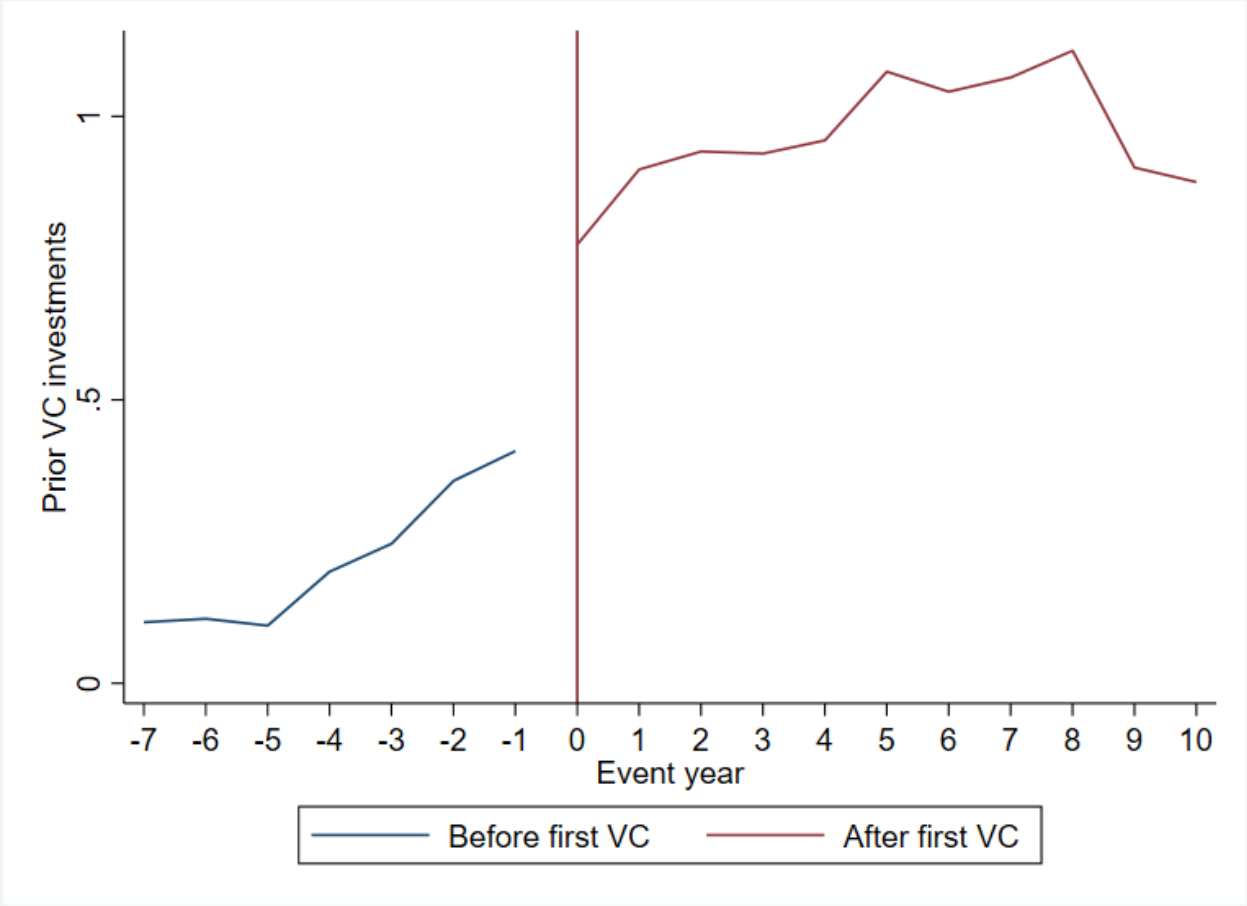

Figure 15. Prior VC investments around first VC investment. This figure shows the average number of prior VC investments of directors by fiscal year around companies' first VC investment.

6 Conclusion

This paper finds that a start-up's board of directors matters for company growth. More specifically, positive shocks to director attention robustly correlate with increases in company growth. This association is stronger for directors with more prior entrepreneurial spells. These findings reject the null hypothesis that start-up boards do not matter for company growth. The evidence is consistent with a mentoring role of the board of directors of start-ups and seems to suggest that directors with more valuable prior experience are able to give better advice.

I also provide suggestive evidence that board characteristics at founding correlate with future company growth. I sort companies into three mutually exclusive groups: (i) those that raise VC financing, (ii) those that achieve sales, assets, or employment growth in the top percentile of their cohort (all companies founded in the same industry in the same year), (iii) all other companies. I then plot average board characteristics for each group by fiscal year since registration. Companies with higher ex-post growth outcomes seem to already have larger boards with more experienced directors at founding.

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Appendix A Variable definitions

Table A1
Variable definitions

This table lists definitions for all variables.

Variable	Definition
ROA	A company's return on assets calculated as $\frac{EBITDA}{Total\ assets}$
ΔBoards	The sum of the changes in the number of all board seats held by a company's directors relative to the previous fiscal year (I define this variable as first difference at the director-company-fiscal year level)
Mergers	The sum of acquisitions of other companies on whose boards a company's directors sit
Total assets	A company's total book assets
Sales	A company's net sales
EBITDA	A company's EBITDA
Leverage	A company's leverage ratio calculated as $\frac{Total\ debt}{Total\ assets}$
Board size	The number of a company's board members
Age	The number of fiscal years since a company's registration
County	The county in which a company's headquarters are located (25 in total)
Industry	The primary industry in which a company operates (20 in total)
Year	The calendar year during which a particular company's fiscal year ends

Appendix B Financial statements

This section outlines the income statement and balance sheet items from the annual reports submitted to the Swedish Companies Registration Office and shows how I use these to construct cash flow statements.

I am interested in studying how companies manage cash flows. The annual reports submitted to the Companies Registration Office include an income statement and a balance sheet, neither of which directly shows how cash is spent or generated. The balance sheet shows the aggregate net change in cash from the previous to the current fiscal year. The income statement lists income and expense items that reflect economic activity regardless of when cash is exchanged.[24] It recognizes economic activity by matching revenue and expenses when a transaction occurs, and not when a payment is made.[25] I therefore use the income statement and balance sheet information to construct cash flow statements. Section B.1 uses a stylized example to illustrate how the income statement and balance sheet record transactions, and how the timing of these can be different from when cash is exchanged.

To give some intuition for how I construct the cash flow statements, I use the property of the balance sheet that the total of the left-hand side (assets) is equal to the total of the right-hand side (liabilities and equity).

$$Assets = Liabilities + Equity \tag{3}$$

This implies that the changes from one fiscal year to the next must also be equal on both sides of the balance sheet.

$$\Delta Assets = \Delta Liabilities + \Delta Equity \tag{4}$$

We can decompose the change in assets into the change in cash and the change in all other items, and then solve for the change in cash.

$$\Delta Cash = -\Delta Non\text{-}cash\ assets + \Delta Liabilities + \Delta Equity \tag{5}$$

The cash flow statement breaks down the net change in cash on the balance sheet into

[24] This is known as accrual accounting.
[25] This is known as matching principle.

cash provided by or used for operating, investing, and financing activities during a fiscal year. To compute the net cash from operating activities, I take the net profit/loss from the income statement and adjust it by using non-cash items from the income statement as well as changes in current asset and current liability accounts from the balance sheet. For example, I add back depreciation expenses which decrease net profit but do not involve a cash outflow. Most adjustments to compute the net cash from financing activities involve summing up changes in non-current liability and equity accounts. I calculate the net cash from investing activities as a balancing amount by taking the net change in cash on the balance sheet and subtracting the sum of net cash from operating and financing activities. Figure B1 illustrates how I use items from the income statement and balance sheet account categories to construct the cash flow statement activities. Section B.4 outlines all adjustments I make to construct cash flow statements.

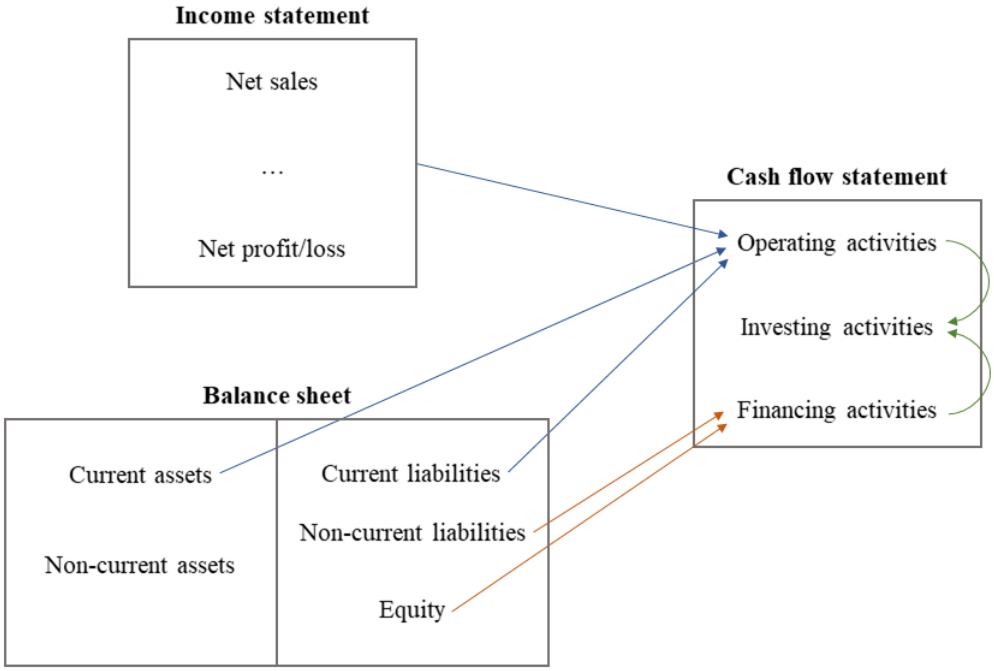

Figure B1. Financial statements. This figure illustrates how I use items from the income statement and balance sheet account categories to construct the cash flow statement activities.

A limitation of the data is that I can only observe net changes in balance sheet items and not all underlying transactions. Ideally, I would break down net changes in balance

sheet items into transactions that involve cash and those that do not. I would then only use transactions that involve cash and assign each to either operating, investing, or financing activities. For example, the net change in the balance sheet item machinery can combine the purchase of a new machine for cash (involves cash) and depreciation (does not involve cash). The purchase decreases *Cash* and increases *Non-cash assets* in Equation 5 by the same amount. Depreciation, on the other hand, decreases both *Non-cash assets* and *Equity* on the right-hand side of Equation 5, leaving cash unchanged. Using the net change in machinery when constructing the cash flow statement would understate the cash outflow from investing activities.

Using net changes in balance sheet items introduces the largest measurement error in the calculation of net cash from investing activities because non-cash transactions account for a relatively large part of non-current assets. Net cash from operating and financing activities should be mostly unaffected. The biggest source of measurement error in net cash from operating activities is most likely the difference between observable tax expenses on the income statement and unobservable actual taxes paid (the effective tax rate). I do not expect this to have a significant effect because my sample consists of young companies for whom tax optimization is probably not that important. Using net changes in balance sheet items for constructing the cash flow statement should not affect the calculation of net cash from financing activities.

I compute net cash from investing activities by taking the net change in cash on the balance sheet and subtracting the sum of net cash from operating and financing activities. This minimizes the measurement error in breaking down the net change in cash into net cash from each of the three activity categories (operating, investing, financing) by trading off granularity in investing activities. I calculate net cash from investing activities as a balancing amount as opposed to the sum of cash from different investing activities.

Companies can choose between the nature of expense and cost of sales accounting types when preparing the income statement. The nature of expense method is easier to follow because it assigns expenses to categories (e.g., raw materials or depreciation), whereas the cost of sales method breaks down expenses according to their function (e.g., cost of goods sold or administrative expenses). The main drawback of the nature of expense method is that the income statement does not show a gross profit. Almost all income statements (96.7%) in my dataset follow the nature of expense method, and companies rarely switch accounting

types (2.7%). Sections B.2.1 and B.2.2 outline income statement items for the nature of expense and cost of sales accounting types, respectively. Similarly, Sections B.4.1 and B.4.2 show how I construct cash flow statements for either accounting type.

Smaller companies have the option to submit abridged annual reports. I find that these companies often leave the most granular balance sheet items blank and only provide the total for that account category. For example, total inventories is much less likely to be missing than its two components work in progress and other inventories. I therefore use the total amounts of account categories instead of the respective component accounts to construct cash flow statements for smaller companies. Abridged financial statements outlines all adjustments that I make when constructing cash flow statements for smaller companies.

B.1 Stylized example

This section uses a stylized example to illustrate how transactions are recorded on the balance sheet and income statement, and that the timing of these can be different from when cash is exchanged.

A company produces a good in period 1, sales the good on account in period 2, and receives payment for the sold good in period 3. In period 1, the asset side of the balance sheet shows a decrease in raw materials and a complementary increase in finished goods reflecting the production costs of the good. This is known as an asset swap because total assets remain unchanged. The income statement does not record anything. In period 2, the asset side of the balance sheet shows a decrease in finished goods by the production costs and an increase in accounts receivable by the sales price. This usually results in an increase of total assets because the sales price of a good is typically higher than its production costs. The income statement reports the sales price of the good as revenue and its production costs as expense. The sales profit appears as net income on the income statement and increases retained earnings (part of equity) on the balance sheet. Both sides of the balance sheet increase by the same amount, the sales profit. In period 3, the balance sheet shows another asset swap with an increase in cash and a decrease in accounts receivable by the sales price. Again, the income statement does not record anything.

This stylized example shows that the company records a profit on the income statement and balance sheet at the time of the sale (period 2), and not when it receives the cash payment

(period 3). I therefore create cash flow statements, which reflect when cash is exchanged, to study how companies manage cash flows.

B.2 Income statement

B.2.1 Nature of expense method

Item	**Variable**
Net sales	*ntoms*
± Inventory change	*lagerf*
± Capitalized work	*aktarb*
+ Other operating income	*rointov1*
− Raw materials and consumables	*ravar*
− Goods for resale	*handvar*
− Other external expenses	*extkosov*
− Salaries and benefits	*perskos*
− Depreciation	*avskriv*
± Financial items affecting comparability	*jfrst1, jfrstfin*
− Other operating expenses	*rorkoov1*
Operating profit/loss	*rorresul*
± Profit/loss from group companies	*resand*
+ Interest income from group companies	*rteinknc*
+ External interest income	*rteinext*
+ Other financial income	*rteinov*
− Interest expenses to group companies	*rtekoknc*
− External interest expenses	*rtekoext*
− Other financial expenses	*rtekoov*
Profit/loss after net financial income	*resefin*
+ Extraordinary income	*extraint*
− Extraordinary expenses	*extrakos*
± Group contributions	*kncbdr*
± Shareholders' contributions	*agtsk*

± Appropriations	*bsldisp*
− Taxes	*skatter*
± Minority shareholdings	*minintrr*
Net profit/loss	*resar*

B.2.2 Cost of sales method

Item	**Variable**
Net sales	*ntoms*
− Cost of goods sold	*kosalvar*
Gross profit/loss	*brutores*
− Selling expenses	*forsko*
− Administrative expenses	*admko*
− R&D expenses	*fouko*
± Financial items affecting comparability	*jfrst2, jfrstfin*
+ Other operating income	*rointov2*
− Other operating expenses	*rorkoov2*
Operating profit/loss	*rorresul*
± Profit/loss from group companies	*resand*
+ Interest income from group companies	*rteinknc*
+ External interest income	*rteinext*
+ Other financial income	*rteinov*
− Interest expenses to group companies	*rtekoknc*
− External interest expenses	*rtekoext*
− Other financial expenses	*rtekoov*
Profit/loss after net financial income	*resefin*
+ Extraordinary income	*extraint*
− Extraordinary expenses	*extrakos*
± Group contributions	*kncbdr*
± Shareholders' contributions	*agtsk*
± Appropriations	*bsldisp*

− Taxes	*skatter*
± Minority shareholdings	*minintrr*
Net profit/loss	*resar*

B.3 Balance sheet

Item	**Variable**
Assets	
Cash	*kabasu*
Short-term investments	*kplacsu*
Accounts receivable	*kundford*
Current receivables from group/associated companies	*kfordknc*
Other current receivables	*kfordov*
Total current receivables	*kfordsu*
Work in progress	*pagarb*
Other inventories	*lagerov*
Total inventories	*lagersu*
Total current assets	*omstgsu*
Participation in group/associated companies	*andknc*
Long-term receivables from group/associated companies	*lfordknc*
Loans to partners and related parties	*landelag*
Other financial assets	*fianltov*
Total financial assets	*fianltsu*
Buildings and land	*byggmark*
Machinery	*mask*
Equipment	*invent*
Machinery and equipment	*maskinv*
Other tangible fixed assets	*matanlov*
Total tangible fixed assets	*matanlsu*
Subscribed capital unpaid	*ejinbet*
Capitalized R&D expenses	*foubautg*

Patents, licenses, concessions etc.	*patlic*
Goodwill	*goodwill*
Other intangible fixed assets	*imanlov*
Total intangible fixed assets	*imanlsu*
Total fixed assets	*anltsu*
Total assets	*tillgsu*
Liabilities and equity	
Current liabilities to credit institutions	*kskkrin*
Accounts payable	*ksklev*
Current liabilities to group/associated companies	*kskknc*
Other current liabilities	*kskov*
Total current liabilities	*ksksu*
Untaxed reserves	*obeskres*
Minority shareholding	*minintr*
Provisions	*avssu*
Bonds	*obllan*
Non-current liabilities to credit institutions	*lskkrin*
Non-current liabilities to group/associated companies	*lskknc*
Other non-current liabilities	*lskov*
Total non-current liabilities	*lsksu*
Nominal share capital	*aktiekap*
Share premium reserve	*overkurs*
Revaluation reserve	*uppskr*
Other restricted equity	*ovrgbkap*
Profit/loss brought forward	*balres*
Group contributions	*kncbdrel*
Shareholders' contributions	*agtskel*
Profit/loss for the year	*resarb*
Total equity	*eksu*
Total liabilities and equity	*eksksu*

B.4 Cash flow statement

B.4.1 Nature of expense method

Item	**Variable**
OPERATING ACTIVITIES	
Net profit/loss	*resar*
+ Depreciation	*avskriv*
− Group contributions	*kncbdr*
− Shareholders' contributions	*agtsk*
− Appropriations	*bsldisp*
− Δ Accounts receivable	*kundford*
− Δ Current receivables from group/associated companies	*kfordknc*
− Δ Other current receivables	*kfordov*
− Δ Work in progress	*pagarb*
− Δ Other inventories	*lagerov*
+ Δ Current liabilities to credit institutions	*kskkrin*
+ Δ Accounts payable	*ksklev*
+ Δ Current liabilities to group/associated companies	*kskknc*
+ Δ Other current liabilities	*kskov*
+ Δ Deferred taxes	*deferred_taxes*
Net cash provided by/used in operating activities	*kabasu_ope*
FINANCING ACTIVITIES	
Group contributions	*kncbdr*
+ Shareholders' contributions	*agtsk*
+ Appropriations	*bsldisp*
− Dividends	*extraint*
+ Δ Bonds	*obllan*
+ Δ Non-current liabilities to credit institutions	*lskkrin*
+ Δ Non-current liabilities to group/associated companies	*lskknc*
+ Δ Other non-current liabilities	*lskov*
+ Δ Nominal share capital	*aktiecap*

+ Δ Share premium reserve	*overkurs*
+ Δ Revaluation reserve	*uppskr*
+ Δ Other restricted equity	*ovrgbkap*
Net cash provided by/used in financing activities	*kabasu_fin*
INVESTING ACTIVITIES	
Δ Cash	*kabasu_delta*
− Net cash provided by/used in operating activities	*kabasu_ope*
− Net cash provided by/used in financing activities	*kabasu_fin*
Net cash provided by/used in investing activities	*kabasu_inv*

B.4.2 Cost of sales method

Item	**Variable**
OPERATING ACTIVITIES	
Net profit/loss	*resar*
+ Depreciation of cost of goods sold	*avsksalv*
+ Depreciation of selling expenses	*avskfsg*
+ Depreciation of administrative expenses	*avskadm*
+ Depreciation of R&D expenses	*avskfou*
+ Depreciation of other operating expenses	*avskov2*
+ Unspecified depreciations	*avskospc*
− Group contributions	*kncbdr*
− Shareholders' contributions	*agtsk*
− Appropriations	*bsldisp*
− Δ Accounts receivable	*kundford*
− Δ Current receivables from group/associated companies	*kfordknc*
− Δ Other current receivables	*kfordov*
− Δ Work in progress	*pagarb*
− Δ Other inventories	*lagerov*
+ Δ Current liabilities to credit institutions	*kskkrin*
+ Δ Accounts payable	*ksklev*
+ Δ Current liabilities to group/associated companies	*kskknc*

+ Δ Other current liabilities	*kskov*
+ Δ Deferred taxes	*deferred_taxes*
Net cash provided by/used in operating activities	*kabasu_ope*
FINANCING ACTIVITIES	
Group contributions	*kncbdr*
+ Shareholders' contributions	*agtsk*
+ Appropriations	*bsldisp*
− Dividends	*extraint*
+ Δ Bonds	*obllan*
+ Δ Non-current liabilities to credit institutions	*lskkrin*
+ Δ Non-current liabilities to group/associated companies	*lskknc*
+ Δ Other non-current liabilities	*lskov*
+ Δ Nominal share capital	*aktiecap*
+ Δ Share premium reserve	*overkurs*
+ Δ Revaluation reserve	*uppskr*
+ Δ Other restricted equity	*ovrgbkap*
Net cash provided by/used in financing activities	*kabasu_fin*
INVESTING ACTIVITIES	
Δ Cash	*kabasu_delta*
− Net cash provided by/used in operating activities	*kabasu_ope*
− Net cash provided by/used in financing activities	*kabasu_fin*
Net cash provided by/used in investing activities	*kabasu_inv*

Appendix C Abridged financial statements

This section shows how I construct cash flow statements for companies that submit abridged annual reports to the Swedish Companies Registration Office.

C.1 Cash flow statement

C.1.1 Nature of expense method

Item	**Variable**
OPERATING ACTIVITIES	
Net profit/loss	*resar*
+ Depreciation	*avskriv*
− Group contributions	*kncbdr*
− Shareholders' contributions	*agtsk*
− Appropriations	*bsldisp*
− Δ Total current receivables	*kfordsu*
− Δ Total inventories	*lagersu*
+ Δ Total current liabilities	*ksksu*
+ Δ Deferred taxes	*deferred_taxes*
Net cash provided by/used in operating activities	*kabasu_ope*
FINANCING ACTIVITIES	
Group contributions	*kncbdr*
+ Shareholders' contributions	*agtsk*
+ Appropriations	*bsldisp*
− Dividends	*extraint*
+ Δ Bonds	*obllan*
+ Δ Total non-current liabilities	*lsksu*
+ Δ Nominal share capital	*aktiecap*
+ Δ Share premium reserve	*overkurs*
+ Δ Revaluation reserve	*uppskr*
+ Δ Other restricted equity	*ovrgbkap*

Net cash provided by/used in financing activities	*kabasu_fin*
INVESTING ACTIVITIES	
Δ Cash	*kabasu_delta*
− Net cash provided by/used in operating activities	*kabasu_ope*
− Net cash provided by/used in financing activities	*kabasu_fin*
Net cash provided by/used in investing activities	*kabasu_inv*

C.1.2 Cost of sales method

Item	**Variable**
OPERATING ACTIVITIES	
Net profit/loss	*resar*
+ Depreciation of cost of goods sold	*avsksalv*
+ Depreciation of selling expenses	*avskfsg*
+ Depreciation of administrative expenses	*avskadm*
+ Depreciation of R&D expenses	*avskfou*
+ Depreciation of other operating expenses	*avskov2*
+ Unspecified depreciations	*avskospc*
− Group contributions	*kncbdr*
− Shareholders' contributions	*agtsk*
− Appropriations	*bsldisp*
− Δ Total current receivables	*kfordsu*
− Δ Total inventories	*lagersu*
+ Δ Total current liabilities	*ksksu*
+ Δ Deferred taxes	*deferred_taxes*
Net cash provided by/used in operating activities	*kabasu_ope*
FINANCING ACTIVITIES	
Group contributions	*kncbdr*
+ Shareholders' contributions	*agtsk*
+ Appropriations	*bsldisp*
− Dividends	*extraint*

+ Δ Bonds	*obllan*
+ Δ Total non-current liabilities	*lsksu*
+ Δ Nominal share capital	*aktiecap*
+ Δ Share premium reserve	*overkurs*
+ Δ Revaluation reserve	*uppskr*
+ Δ Other restricted equity	*ovrgbkap*
Net cash provided by/used in financing activities	*kabasu_fin*
INVESTING ACTIVITIES	
Δ Cash	*kabasu_delta*
− Net cash provided by/used in operating activities	*kabasu_ope*
− Net cash provided by/used in financing activities	*kabasu_fin*
Net cash provided by/used in investing activities	*kabasu_inv*