Does Spending Time in the Minors Pay Off?

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Abstract

This paper compares the performance of firms that first go public on the Toronto Venture Stock Exchange (TSX-V) and then graduate to the senior Toronto Stock Exchange (TSX), to VC-backed firms that directly have an IPO on the TSX. We find significantly better long-run buy-and-hold abnormal returns for firms listed on the TSX that graduated from the TSX-V than for VC-backed IPO firms. Our results are robust to potential selection biases stemming from the original decision to list on the TSX-V rather than receiving a VC injection as well as from the subsequent listing decision on the TSX. Overall, our results indicate that the TSX-V is an effective "incubator" market for developing firms, and thus provide important policy and regulatory insights.

Keywords: Second Markets; Graduations; IPOs; Venture Capital; Long-Run Returns, Stock Market Regulations

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1. Introduction

Early stage companies need capital to grow and develop and often rely on specialized investors such as venture capitalists (VCs) and business angels to finance their ventures. These investors conduct extensive due diligence, impose strict governance requirements, implement effective contracting, and provide ongoing monitoring to help these companies develop to the point where they can have an initial public offering (IPO) or be acquired. Indeed, the literature provides ample evidence that VC-backed companies perform better than non-VC backed companies (e.g. Brav and Gompers, 1997; Chemmanur, Krishnan, and Nandy, 2011). Much of this literature is based on US studies, but there are key differences between the US capital markets and the markets in other countries. For example, recent OECD data shows that the amount of venture capital investments as a percentage of GDP is significantly lower in all countries (with the exception of Israel) than in the US. Such capital market differences have led firms in other countries to seek development capital from other sources.

Many countries try to overcome their relative lack of venture capital by allowing smaller firms to access the public equity markets. Vismara, Paleari and Ritter (2012) document the experiences of a number of European countries in setting up second-tier equity markets. However, they find that second-tier IPOs perform poorly relative to senior market firms. More importantly, with the exception of London's Alternative Investment Market (AIM), second-tier markets in continental Europe have not been an effective "incubator" for junior firms, since almost no firms graduate from the junior to the senior market. Jenkinson and Ramadorai (2013) provide evidence that, prior to the Internet crash in 2001, some London AIM firms were able to graduate to the senior Main Market of the

London Stock Exchange (LSE), but since then the movement of firms has predominantly been from the main market to the second-tier AIM.

In Canada, the second-tier TSX Venture Exchange (TSX-V) is an alternative to traditional venture capital through which early stage companies can attract public capital. In contrast to the NASDAQ in the US and the second-tier markets in Europe, the TSX-V is expressively designed as a public venture capital market to provide companies with "the opportunity to gain a solid foothold in the public market, with the potential to work towards graduation to the senior exchange".[1] Pandes and Robinson (2013) note the long history of Canada's junior public equity markets and the TSX-V, which is used primarily by retail investors to invest in early stage companies. The authors document key regulatory differences between the TSX-V and European second markets and find that new listings on the TSX-V have remained strong even after the Internet bubble collapse of the early 2000s and the credit market crisis of 2008.

In this paper, we examine whether the TSX-V is an effective incubator market for developing firms. We therefore study the junior exchange's ability to prepare firms to graduate to the senior Toronto Stock Exchange (TSX) and then examine the performance of those firms that do graduate. More specifically, we compare the long-run stock performance of firms that graduate from the TSX-V to the senior TSX against the performance of VC-backed firms that have a direct IPO on the senior TSX. By restricting our sample of direct TSX IPOs to VC-backed firms, we are creating a stronger test of the effectiveness of the TSX-V, since VC-backed firms have been found to outperform non-VC-backed IPOs in previous studies. We are also mindful of potential selection biases. In

[1] See the TSX guide to listing, available at www.tsx.com/resource/en/181/guide-to-listing-2015-06-26-en.pdf.

this regard, our regressions include a selectivity instrument equal to the probability of being listed on the TSX, estimated at the time of receiving a first VC injection or being listed on the TSX-V, and a selectivity instrument estimated from the probability of being listed on the TSX-V rather than receiving VC financing first.

There are several reasons why we would expect graduations from the TSX-V to the TSX to outperform VC-backed IPOs. First, being listed on the TSX-V provides the management team with invaluable experience on how to operate a public firm and deal with the various public market stakeholders such as shareholders, analysts, regulators and the media. Second, since the TSX-V listing and governance requirements are slightly relaxed versions of those on the senior TSX, the transition process for a junior equity firms' management team and board members to the senior exchange is relatively seamless. Finally, if the TSX-V is seen by developing firms to be a viable option compared to VC financing, then savvy management teams may prefer the public market route to avoid the potential conflicts that can develop between a management team and a VC investor. Indeed, some of the negative aspects of VC financing have encouraged some entrepreneurs, even technology entrepreneurs from the US, to seek alternatives to VC financing. For example, anecdotally, in 2011 the US-based technology firm ePals went public and raised $23 million in secondary financing using the TSX-V (see Critchley, 2011). More recently, a Silicon Valley startup, Frankly, decided to turn down VC financing and instead pursue a public listing on the TSX-V to help raise $23 million (US) in a secondary financing (see McGee, 2014). Thus, US firms are starting to note what Canadian firms have known for a number of years: the Canadian junior public equity market offers an effective substitute to VC financing.

To summarize our main results, we find that the number of graduations from the TSX-V to the TSX has been steady over our test period (2000-2014) and has not been particularly affected by the recent major capital market disruptions. In addition, we find that graduations from the TSX-V outperform VC-backed IPOs in the 1, 2 and 3 years following the TSX listing. These results are robust to the inclusion of other potential determinants of firm performance and the possible endogeneity in the choice of public versus private VC financing as well as the choice to list on the TSX. Overall, our results provide strong support for the success of the TSX-V as an "incubator" market for developing firms.

The remainder of the paper is structured as follows. Section 2 provides a literature review and background on the private VC and public venture markets in various countries. In Section 3, we develop our hypothesis. Section 4 describes our data and presents the descriptive statistics. The results of our empirical analysis are presented in Section 5, and we provide concluding remarks in Section 6.

2. Related Literature and Venture Capital in Canada

2.1. Related Literature

A key stage in the development of a growth-oriented firm is a public listing on a senior equity market. However, in order to access capital to allow a firm to grow until it is large enough to list on a senior exchange, many private firms rely on VC financing. Venture capitalists are specialized intermediaries that have developed the expertise to address the information asymmetry problems that exist between an entrepreneur and the VC. In general, VCs conduct extensive due diligence, implement effective contracting, and

provide ongoing monitoring (e.g., Admati and Pfeiderer, 1994; Lerner, 1995; Kaplan and Stromberg, 2001; Kaplan and Stromberg, 2003).

More specifically, previous research documents several advantages to a firm attracting VC financing. Hellmann and Puri (2000) show that VC investors are more likely to finance innovator as opposed to imitator firms, and that VC-backing helps firms bring their products to market more quickly. Chemmanur, Krishnan, and Nandy (2011) find that VC-backed firms are more efficient and have a significantly higher probability of a successful exit either through a merger or an IPO than non-VC-backed firms. It has further been shown that VC-backed firms have more effective governance structures than non-VC-backed firms at the time of an IPO (e.g. Baker and Gompers, 2003; Campbell and Frye, 2009; Suchard, 2009), with the effect being greater for higher quality VCs. Moreover, Jain and Kini (2000) and Baker and Gompers (2003) find some evidence that VC-backed firms have a higher probability of long-term survival.

Several papers have also examined the impact of VC-backing on a firm's post-IPO performance. Brav and Gompers (1997) report that VC-backed IPOs outperform non-VC-backed firms in the first five years following the IPO when the returns are equally weighted, and that VC-backed IPOs perform as well as listed firms. Belden, Keeley and Knapp (2001) also document similar findings. Meanwhile, Nahata (2008) and Krishnan, Ivanov, Masulis, and Singh (2011) find that IPOs backed by more reputable VCs have higher long-run performance and better corporate governance than IPOs backed by less reputable VCs.

While the advantages of VC financing are numerous, there are also several drawbacks. From an economic development perspective, VC financing is heavily concentrated in a few locations in the US (California, Massachusetts, New York, Texas

and Washington), over two-thirds of the funds are for expansion or late stage investments, and VC financing is primarily focused on technology firms (PWC/NVCA, 2015). At the firm level, VCs impose strict control mechanisms. In the early years of the VC industry, research indicates that an entrepreneur could effectively negotiate the nature of the control mechanisms with a VC (e.g., Hoffman and Blakey, 1987). In recent years, however, there has been a great deal of standardization of these contracts. In particular, Bengtsson and Bernhardt (2014) analyze over 4,500 VC contracts and note that while there is differentiation in contracting between VCs, individual VC firms tend to allow entrepreneurs a small set of alternatives. Thus, for an entrepreneur, the choice of contract terms will best be decided by the choice of VC investor, and this choice is of considerable interest to the entrepreneur. Furthermore, as reported in Cumming (2008), the choice of contract terms can have a significant impact on the firm's outcome. More effective VC contract rights, specifically with respect to drag-along rights, board control, and the ability to replace the CEO, increase the probability that the firm will be acquired, while less effective control rights increase the chances of an IPO and of the firm failing. Hellmann and Puri (2002) also note that a VC may require a firm to replace the founding CEO with an outsider. Similarly, Kaplan and Stromberg (2004) show that the likelihood and frequency of CEO replacement by a VC is related to the degree of control over the board that the VC was able to negotiate as part of the investment terms. Relatedly, Khanin and Turel (2015) survey CEOs of VC-backed firms and identify two main types of conflicts that can develop between an entrepreneur and a VC: (1) pacing conflicts, which are disagreements about the pace and strategic direction of the firm; and (2) prerogative conflicts, which are issues around control rights and the role of the CEO in the firm's future

development. These conflicts may create a strong sense of regret by the CEOs for accepting VC financing. In a more recent theoretical paper, Cestone (2014) examines whether a contract exists that can help an entrepreneur gain VC support while limiting the extent to which the VC interferes with the entrepreneurs running the venture. The author shows that for early-stage firms, VC control rights may cause excessive interference by the VC, which can serve to reduce an entrepreneur's initiative.

2.2. Private Venture Capital in Canada

In Canada, there is also an active venture capital sector, but it is still relatively small compared to the US VC community. Recent data (OECD, 2015, p. 89) shows that as a percentage of GDP, the amount of Canadian VC capital is less than one-third that of the US. Also similar to the US, Canadian VCs tend to concentrate their investments in three main provinces (Ontario, Quebec and British Columbia), and they focus on technology investments. However, unlike the US, almost 60% of the financings in the first half of 2015 were for seed and early stage investments (CVCA, 2015).

In the late 1990s, there was however a relatively high level of VC capital and investment in Canada, which could largely be attributed to a tax-incentive based VC financing program called the Labor-Sponsored Venture Capital Corporations (LSVCCs) that was introduced in the mid-1980s. By the mid-1990s more than half of the Canadian VC industry's capital was being managed by LSVCCs. Unfortunately, structural problems with the LSVCC program created a series of negative outcomes including poor rates of return for LSVCC investments (lower than Treasury bills) and the crowding out of more effective venture capital funds, which served to lower the overall level of venture capital for Canadian entrepreneurs (e.g., Cumming and MacIntosh, 2006; Cumming, MacIntosh

and Godin, 2007). Subsequent tax policy changes have reduced the attractiveness of LSVCCs to investors, and although they have declined in popularity (and thus reduced the overall amount of VC capital in Canada over the past decade), they continue to operate in a number of Canadian provinces.

Other reasons for the lower percentage of VC involvement in Canada can be attributed to its more resource based economy, a lower allocation of pension and endowment fund capital to alternative asset classes, and the relatively poor historical performance of Canadian VC funds (as noted, much of this underperformance can be traced to the development of LSVCC). For example, to illustrate the importance of Canada's resource sector, CVCA (2015) data for the first half of 2015 indicates that total VC investments were $0.939 billion while total private equity investments in the energy, mining and resource sectors was $4.456 billion (Canada has a number of specialized PE investors in these sectors).

Notwithstanding the relatively lower importance of VC financing in Canada versus the US, Hellmann, Egan, and Brander (2005) find a number of similarities on exit values for VC investments between the two countries over the period 1997-2004. The authors conclude that although the total and average exit values are smaller in Canada, when they account for the difference in the size of the two economies, the Canadian venture capital market performed surprisingly well and even better than in the US. Moreover, a recent Canadian study (Industry Canada, 2013) compares the performance of VC-backed and non-VC-backed firms over the period 1999-2009, and concludes that VC-backed firms experience higher growth of sales, employees, and assets than non-VC-backed firms in the one, three and five year periods after receiving their initial VC investment.

2.3. Public Venture Capital (Second-Tier Equity) Markets

In studying the second-tier equity markets in Europe, Vismara, Paleari and Ritter (2012) identify three types of second markets: sequential, sectorial, and demand-side segmentation. In the sequential segmentation model, a firm is expected to become "seasoned" on the junior market and use the experience to grow the firm and graduate to the senior exchange. The sectoral segmentation is a variation on the sequential model whereby the market is focused on assisting in the development of specific types of firms, typically with a technology focus in Europe. While the authors find that these two types of markets successfully help firms raise IPO and secondary financing, they also find that the long-term performance of the listed firms is poor and the number of listings that these exchanges could attract has diminished over time. According to the authors, the more successful model in terms of attracting listings is the demand-side segmentation model developed by the London AIM, and thus other European stock exchanges have moved to adopting that model.

Under the demand-side model, securities market regulators do not officially regulate the market, and instead listing requirements and listing decisions are left up to the exchange (this type of market is also called an exchange-regulated market). As noted above, the main example of the demand-side model is the LSE's AIM. Gerakos, Lang and Maffett (2013) study firms listed on the AIM and show that its newly listed firms underperform firms that are listed on more established exchanges with higher regulations. Jenkinson and Ramadorai (2013) further examine firms that switch between the AIM and main market over the period 1995-2006, and conclude that firms appear to choose their optimal level of regulation depending on their specific needs. Empirically, the paper finds

that prior to the end of 2000, firms would predominantly switch from the junior to the senior exchange, but since then firms have mostly been switching from the senior to the junior exchange. In addition, Jenkinson and Ramadorai (2013) find that firms moving from the junior to the senior exchange experience a positive announcement effect of around 6%, but there is no significant increase in returns after the change is made. Meanwhile, the authors find that moving down to the junior market has a negative announcement effect that is reversed in the six months after the firm has started trading on the junior exchange.

A key difference between Canada and the US, and indeed between Canada and other OECD countries, is the greater importance of the junior public equity market in supporting the development of growth-oriented firms in Canada. Pandes and Robinson (2013) note that Canada's junior public equity market, the TSX-V, is primarily used by retail investors, and that it has continued to attract listings even after the global capital market slowdowns in the early 2000s and in 2008. On the other hand, most of the IPOs on Europe's exchange-regulated markets are offered exclusively to institutional investors, and are equivalent to private placements. Moreover, since inclusion on these markets does not constitute a listing on an official market, the EU regulatory requirements for organized markets does not apply to these listings and no publication of a prospectus is required if it is a "non-public" offering intended for qualified institutional buyers, in which case a shorter admission document is substituted. These second market IPOs, which frequently raise only a few million dollars, rarely develop liquid trading or attract retail investors (Vismara, Paleari and Ritter, 2012).

Another important difference is that the number of firms going public on the Canadian TSX-V has been less cyclical than in other second markets over the last two

decades (Pandes and Robinson, 2013). The relatively high number of second-tier Canadian public firms and the relatively smaller size of these firms in the period 1999-2002 is also documented by the OECD (2005). In contrast, Gao, Ritter and Zhu (2013) note that the number of IPOs by smaller firms in the US has dropped significantly since 2000. Ritter, Signori and Vismara (2013) also find similar patterns in Europe.

More to the point, the TSX-V is a sequential segmentation market, and while it has modified listing and governance requirements compared to TSX firms, TSX-V IPOs are approved by the same securities regulators as senior market IPOs and are brought to market by the same underwriters. Indeed, the implementation of a robust set of corporate governance practices is a key aspect in the effective development of a junior public firm to the point where it can graduate to a senior equity market. In Canada, the corporate governance regulations governing public firms are outlined in National Policy 58-201, which provides guidance to all publicly listed firms. As noted in Broshko and Li (2006), Canada uses a principles-based approach to corporate governance as opposed to the rules-based approach in the US. The Canadian approach has allowed for the development of slightly relaxed governance requirements for junior listed firms, which allows these firms the opportunity to develop effective corporate governance practices without having to pay the higher compliance costs faced by larger Canadian public firms. This progressive approach to junior public firm governance means that at the time a junior public firm graduates to a senior exchange, it has to make very limited changes to its governance practices and procedures. In addition, the senior managers of the junior public firms have had the opportunity to better understand how to operate in the public markets and how to effectively deal with the diverse stakeholder groups associated with a public firm.

In the academic literature, Carpentier, L'Her and Suret (2010) provide evidence that the TSX-V is successful in helping to develop small firms. In particular, over the period 1986-2006, the authors show that there are a greater number of TSX-V graduations to the TSX than VC-backed IPOs, and they provide indirect evidence that the overall returns of Canadian junior public firms are higher than VC returns. The authors also find that firms that graduate from the TSX-V to the TSX perform well prior to the graduation, but find mixed results with respect to their post-graduation performance. Our study provides clarity by directly comparing the post-graduation performance of TSX-V firms with VC-backed firms that completed a TSX IPO. In addition, we focus on the graduations of regular IPOs of operating companies and exclude the graduations of alternative public listings such as reverse mergers (RMs) and Capital Pool Companies (CPCs).[2] Finally, since the results may be affected by the endogenous choice of funding from the different sources, we address this endogeneity in our paper.

2.4. Hypothesis Development

Our null hypothesis is that the TSX-V is not a viable market for the development of growth-oriented firms and any firms that do graduate to the TSX will underperform VC-backed TSX IPOs. The null hypothesis is based on European studies of second-tier stock markets and on the body of predominantly US-based literature that VC backing increases the quality of a firm and enhances its futures earnings potential. In addition, since VCs are

[2] Carpentier, Cumming and Suret (2012) identify that RMs provide less disclosure to investors than IPOs, suffer from a higher degree of information asymmetry between the firm and its investors, and have poor performance compared with regular IPOs. Moreover, as noted in Carpentier, L'Her and Suret (2008) and Pandes and Robinson (2013), a large portion of the TSX-V IPOs are accounted for by CPCs, which are a specialized form of "blind pool" offering (see also Robinson, 2007, and Pandes and Robinson, 2014). We exclude CPCs since the listing decision is exchange-regulated.

financially motivated long-term investors with a history of exiting firms, the VCs will be able to effectively determine the most opportune time to take an investee firm public.

Our alternative hypothesis is that the TSX-V does provide a viable alternative to firms seeking development capital and that firms that receive public venture financing and graduate from the TSX-V to the TSX will outperform firms that receive VC financing and have an IPO on the TSX. There are several reasons to expect TSX-V graduations to perform better than VC-backed IPOs. First, avoiding VC financing removes the potential for conflicts between the VC and the management team, as discussed earlier, and spending time on a junior public market provides key learnings for a firm's management team and board. Second, operating a public company is quite different from operating a private firm. For example, public firms need to publish quarterly interim financial statements, a Management Discussion and Analysis (MD&A) report, as well as prepare for analyst and investor presentations. In addition, public firm governance requirements are more onerous and public companies are also subject to scrutiny by regulators. The senior management team of a public firm needs to interact with a diverse group of shareholders, effectively communicate the firm's long-term goals so that they are not jeopardized by the market's emphasis on short-term results, and to react to external economic factors and fluctuations in the stock market that are out of the firm's control but can affect the value of the company and employee morale. Finally, firm insiders have to learn how to maintain confidential information and to refrain from trading during certain blackout periods, to learn how to exercise caution when discussing internal affairs, and to monitor ongoing trading of the firm's shares to be alert to a potential hostile takeover. Therefore, a TSX-V listing provides a firm's management team and board with invaluable public market experience, which

allows for a more seamless transition to the TSX compared to a private company that directly lists on the TSX.

4. Data and Descriptive Statistics

4.1. Data

We examine the performance of TSX-V graduations[3] to the TSX and TSX IPOs in the period 2000-2014. The beginning of our sample period coincides with the merging of several regional exchanges in Canada, which provides a cleaner across-country examination. The data used in this paper is gathered from several sources. In particular, we obtain data on venture capital and private equity investments from Thomson Reuters, which yields 3,151 observations. From these, we identify 52 VC-backed IPOs on the TSX with complete data. The TSX-V IPO data is obtained from the Financial Post (FP) Advisor database, which we augment by hand-collecting the incorporation date and incorporation location for each TSX-V IPO firm. Meanwhile, the list of graduating firms from the TSX-V to the TSX is provided to us by the TMX Group. Our sample contains 572 TSX-V IPOs and 54 graduations to the TSX with complete data. Finally, we obtain stock return data from the TSX/CFMRC database, and financial data from Compustat, which is augmented with data from company financials. An overview of the sample is provided in Table 1.

[TABLE 1 SOMEWHERE HERE]

[3] Our sample of TSX-V graduation firms is restricted to regular IPOs so that they are more directly comparable to VC-backed TSX IPO firms. As such, we exclude TSX-V firms created by a reverse merger and firms created by a CPC IPO.

4.2. Descriptive Statistics

In Table 2 we provide the variable definitions for the variables used throughout the paper, and in Table 3 we report the descriptive statistics. The descriptive statistics are presented for the full sample, and also for the subsamples of VC firms and TSX-V firms along with the tests of differences between the two subsamples. We first report the average deal size for the sample, which is the first capital injection. The average deal size is $5.6 million for the full sample, and $5.9 million for VC firms and $3.7 million for TSX-V firms, but this difference is statistically insignificant. We further find the average firm age to be 7.7 years, and notice a statistically significant difference in firm age between VC firms and TSX-V firms. In particular, the average firm age of VC firms is 9.2 years and the average firm age for TSX-V firms is 2.7 years, indicating that younger firms on average seek financing on the TSX-V. The average market momentum for the full sample is 0.36%, while the average for VC firms is 0.18% and the average for TSX-V firms is 1.17%, and this difference is statistically significant. Since the TSX-V is a public venture market, it is not surprising that the market momentum is higher for firms deciding to list on the TSX-V. Next, we report the average percentage of observations by geographic location within Canada. For the full sample, the largest percentage of observations are found in Quebec, Ontario, Alberta and British Columbia, which are the main centers of economic activity in Canada. Interestingly, when we break the sample down by VC firms and TSX-V firms, we find that Quebec and Ontario have the largest percentage of VC firms, while British Columbia and Alberta have the largest percentage of TSX-V firms. These findings are consistent with the geographic dispersion of economic activity in Canada. More specifically, the western Canadian provinces are mainly resource-oriented, whereas the

central and eastern Canadian provinces are more manufacturing- and technology-oriented. Moreover, the TSX-V, which had its origins in western Canada, is known to be a more resource-oriented exchange. The industry descriptive statistics also paint a similar picture. In particular, 82.7% of the TSX-V listings are in the Mining, Energy and Construction industries, while 36.2% of the VC-backed firms are in the Services and Technology industries, and 21.1% and 12.1% of the VC-backed firms are in the Heavy Manufactured Products and Light Manufactured Products industries, respectively.

[TABLE 2 AND 3 SOMEWHERE HERE]

5. Empirical Analysis

5.1. Selection Issues

In comparing the return performance of TSX-V graduations to TSX IPOs, we invariably face selection issues. To help control for this, we examine the choice of private versus public venture capital financing, as well as the choice of going public on the TSX. We then compute the predicted probabilities and use these as instruments in subsequent regressions examining long-run returns.

In Table 4 we present the logit regression results for the choice of private versus public VC financing. The dependent variable takes a value of one if the firm goes public on the TSX-V, and zero if the firm receives private VC financing. Our independent variables include Deal Size, Age, Market Momentum, and the province of incorporation and industry dummy variables. The results indicate that Age is an important determinant of the choice of private versus public financing. Specifically, the coefficient on Age is

negative and statistically significant at the 1% level. The negative coefficient implies that younger firms are more likely to list on the TSX-V. In addition, we find the coefficient on Market Momentum to be positive and statistically significant at the 1% level, suggesting that strong public market performance increases the likelihood of listing on the TSX-V. This finding is intuitive, since one would expect strong stock market performance to encourage public financing. We also find the coefficients on the province of incorporation dummies to be positive and statistically significant, except for the province of New Brunswick and Saskatchewan, indicating that relative to Quebec (the base case in the regressions) firms incorporated in the other provinces are more likely to list on the TSX-V. Turning to the industry dummy variables, the coefficients are negative and statistically significant, except for SIC code 9, which indicates that firms in industries other than natural resources are less likely to list on the TSX-V.

[TABLE 4 SOMEWHERE HERE]

In Table 5 we turn to the logit regression results examining the likelihood of listing on the TSX. Therefore, the dependent variable takes a value of one if a firm lists on the TSX, and zero otherwise. In Model 1, we present the baseline regression results. The results indicate that listing on the TSX-V (versus receiving a private VC injection) increases the likelihood that the firm will subsequently list on the TSX. Moreover, the size of the deal and firm age also increase the likelihood of listing on the TSX. We also interact listing on the TSX-V with deal size, firm age and market momentum to see whether firms listed on the TSX-V that had a larger initial financing, are older, or listed on the TSX-V during better

market performance are more likely to list on the TSX. Indeed, we find that the interaction between listing on the TSX-V and deal size is significantly positive, indicating that firms that receive a larger initial financing on the TSX-V are more likely to list on the TSX. In Model 2, we also include a selection instrument, which is the probability of listing on the TSX-V as computed from Table 4. Some firms might be inherently more likely to list on the TSX-V, and so controlling for this likelihood directly addresses the sample selection bias. Indeed, we now find the dummy variable for listing on the TSX-V is insignificant, while our instrument is positive and statistically significant, suggesting that firms that are inherently more likely to list on the TSX-V are more likely to list on the TSX. We continue to find the coefficient on Deal Size and the interaction between listing on the TSX-V and Deal Size to be positive and statistically significant.

[TABLE 5 SOMEWHERE HERE]

5.2. Buy-and-Hold Abnormal Returns

In this subsection we examine the long-run stock performance of firms that list on the TSX via the TSX-V or via an IPO. In Table 6 we report the basic descriptive statistics for the sample of graduations[4] and IPOs. We first find that for the full sample, the average 3-year BHAR is 5.2%. However, breaking this down further into VC-backed IPOs and graduations from the TSX-V, we find that the VC-backed IPOs have an average 3-year BHAR of -5.3%, while the graduations have an average 3-year BHAR of 15.2%. This difference is also statistically significant at the 5% level. We also note that there is

[4] Unlike the result for the AIM market, as reported in Jenkinson and Ramadorai (2013), we find TSX-V graduations in most years of our study ranging from a low of 2 graduations to a high of 7.

considerable variation in the sample, with some significant outperformers. In particular, the first quartile has a 3-year BHAR of 176.0%, while the other quartiles have a 3-year BHAR of -54.1%. We find the time to IPO from first VC injection to be equal to 37 months for VC-backed firms, while firms firstly listed on the TSX-V, on average, graduate to the TSX after 33 months. We also find VC-backed firms to be older than the graduating firms from the TSX-V. The average firm age is 12.3 years for VC-backed firms, while the average firm age is 5.6 years for the graduating firms, and this difference is statistically significant at the 5% level. In addition, VC-backed IPOs are larger than the graduations to the TSX. The average size of the assets is $322.3 million for VC-backed IPOs, while the average size of the assets is 80.1 million for the graduations, with a statistically significant difference of 10%. VC-backed IPOs also have an average book-to-market ratio of 0.19, which is lower than the average book-to-market ratio of 0.33 for graduating firms, and this difference is statistically significant at the 10% level. We do not find statistically significant differences in market momentum and ROA between VC-backed IPOs and graduations from the TSX, but we do find that VC-backed IPOs have a significantly higher leverage ratio than graduations from the TSX. In particular, VC-backed IPOs have an average leverage ratio of 59.1%, while graduations from the TSX have an average leverage ratio of 25.0%[5].

[TABLE 6 SOMEWHERE HERE]

[5] The high average leverage ratio of VC-backed IPOs is especially due to some outlier values. The median leverage of this group is 39.5%. In the sub-sample of graduations, the median leverage is 18%.

In Table 7 we compare the long-run stock performance of VC-backed IPOs and TSX-V graduations while controlling for other effects. We also control for the selection of listing on the TSX and the selection of listing on the TSX-V. We begin by presenting a baseline regression in Model 1, which does not include any of our selectivity controls. We continue to find that the graduations to the TSX outperform the VC-backed IPOs. Specifically, the coefficient on the graduation dummy variable is positive and statistically significant at the 5% level. The coefficient of 0.287 identifies an average 28.7% premium for graduation firms, with respect to VC backed firms, in terms of 3-year BHAR. In addition, we find the size of the IPO to have a positive and statistically significant coefficient at the 5% level, indicating that larger TSX listings have better long-run stock performance. We further find that market momentum has a negative coefficient that is statistically significant at the 10% level. This suggests that firms that list on the TSX when the market performance is strong tend to have poorer long-run stock performance, which is consistent with the market timing literature. We do not find statistically significant coefficients on any of the other control variables, and we find the regression to have reasonably high explanatory power, with an R-squared of 0.525. Turning to Model 2, we now include a selectivity control for the likelihood of listing on the TSX, estimated at the time of receiving a first VC injection or being listed on the TSX-V. We continue to find the coefficient on the graduation dummy to be positive and statistically significant at the 5% level, which again implies that graduations have better long-run stock performance than VC-backed IPOs. Moreover, firm size at the time of the TSX listing and market momentum are significantly positive and negative, respectively. We also note that the selectivity control, the likelihood of listing on the TSX, is insignificant. The explanatory

power in Model 2 is also similar to Model 1. In Model 3 we add the additional selectivity control, the likelihood of first listing on the TSX-V versus receiving a VC injection. The results again indicate that the graduations outperform the VC-backed IPOs, as indicated by the positive and statistically significant coefficient on the graduation dummy variable. As in the prior models, we also find the coefficient on the size of the firm at the time of the TSX listing to be positive and statistically significant, and the coefficient on the market momentum variable to be negative and statistically significant. Model 3 also exhibits similar explanatory power as in the earlier models.

[TABLE 7 SOMEWHERE HERE]

In Table 8, we present alternative measures of post-IPO performance, and examine 1-year and 2-year BHARs. Similar to Table 7, we present three models for each of the performance measures. We find that the results continue to support our predictions. In particular, the coefficient on the graduation dummy continues to be positive and statistically significant for both the 1-year and 2-year BHARs. Moreover, in the 1-year BHAR results, we find the coefficient on the size of the firm at the time of the TSX listing to be positive and statistically significant. However, the selectivity controls are insignificant. Meanwhile, in the 2-year BHAR regression results, we find the coefficient on the size of the firm at the time of the TSX listing to be positive and statistically significant, and the coefficient on the market momentum variable to be negative and statistically significant in each of the models.

[TABLE 8 SOMEWHERE HERE]

In further tests, we also run quantile regressions on the long-run returns performance. These regressions allow us to see whether the results are dependent upon any skewness in the data and also to see whether our results are robust to outliers. We present the quantile regression results in Table 9. In particular, the results are reported for quantiles q=0.25, q=0.50, q=0.75, and q=0.95, and the dependent variable is the 3-year BHAR. In each of the quantiles, we find that the graduation dummy variable is positive and statistically significant, consistent with our main findings in the paper. We further note that in q=0.25 and q=0.50, the statistical significance on the graduation dummy is at the 10% level, while in q=0.75 and q=0.95 the statistical significance on the graduation dummy is at the 5% level. In addition, the coefficient on the graduation dummy in q=0.95 is nearly twice the size of the coefficients in the other quantiles. Therefore, there does appear to be some large outperformers for the graduations in the data. Turning to the control variables, we find that the size of the firm at the time of the TSX listing has a significantly positive coefficient in each of the quantiles, and the coefficient on market momentum is significantly negative in each of the quantiles. Moreover, we find the coefficient on firm leverage to be positive and marginally significant in the q=0.95 quantile. Finally, we also include our selectivity controls, and find that the likelihood of listing on the TSX is a negative determinant of the BHARs, which suggests that firms that are inherently more likely to list on the TSX tend to perform relatively worse. Interestingly, we find that the coefficient on the likelihood of having a TSX-V IPO is negative and statistically significant in the q=0.25 quantile, and positive and statistically significant in the q=0.95 quantile.

[TABLE 9 SOMEWHERE HERE]

5.3. Time to Graduation

In this subsection we examine the time it takes for firms that are either listed on the TSX-V or that receive private VC financing to list on the TSX. More specifically, we run Cox proportional hazard regressions where the dependent variable is the time to the TSX listing, and the regressors are the same as those found in earlier tables. The regression results are presented in Table 10, where we present two models. In Model 1, we do not include the selectivity control for the likelihood of listing on the TSX-V, and we find significantly positive coefficients on the TSX-V listing dummy variable and on the size of the deal. Therefore, firms that receive public venture financing via the TSX-V take longer to list on the TSX than VC-backed firms, and firms that receive a larger first capital injection take longer to list on the TSX. In Model 2, we include the selectivity control for the likelihood of listing on the TSX-V, and we find similar results. In particular, the coefficient on the TSX-V listing dummy is positive and statistically significant and the coefficient on the size of the first capital injection is positive and statistically significant. In addition, we find the coefficient on firm age to be negative and statistically significant, and the coefficient on the interaction between the TSX-V listing dummy and market momentum to be negative and statistically significant. Therefore, older firms take less time to list on the TSX, and firms that list on the TSX-V take less time to list on the TSX when the market performance is strong.

[TABLE 10 SOMEWHERE HERE]

6. Summary and Conclusions

The purpose of this study is to examine whether the Canadian junior equity market, the TSX-V, represents a viable alternative to traditional VC financing for firms seeking development capital. The study is important in light of the recent literature showing that the European junior public equity markets have not generally been effective in developing firms to the point where they can graduate to a senior equity market.

We find that that firms that list on the TSX-V tend to be younger and concentrated in industries and geographic regions that have less access to private VC-financing. In addition, there is evidence that firms seek a junior market public listing following periods of robust stock market movement. Controlling for the possible selection bias in firms listing on the junior exchange, we find that such firms are more likely to graduate to the senior market especially if they attract a larger amount of IPO capital and have had a longer time to grow and mature.

In comparing the performance of TSX-V firms with VC-backed firms at the time they move to the senior TSX market, we find that there are significant differences between the two types of firms. VC-backed firms tend to be older, larger and more heavily levered than TSX-V firms at the time they go public. In addition, we find that VC-backed firms significantly underperform TSX-V firms during the three years after they go public. This underperformance continues even after we control for a host of other variables and for the selectivity of firms seeking either a public equity or a VC financing. We further document that a firm's post-IPO performance has a significant positive relationship to the size of the

firm, and we find a significant negative relationship to the momentum of the market at the time of the TSX listing.

We also examine the factors that affect how long it takes for either type of firm to list on the TSX. These results indicate that TSX-V firms take longer to graduate to the TSX than firms that receive VC-financing, but that this effect is reduced if there is positive market momentum.

Our study has a number of implications for firms seeking development capital and for regulators seeking to create a regulatory framework to support those firms. At the firm level, our results show that firms that have the opportunity to gain public venture capital financing and to learn what it takes to be an effective public company can perform better than VC-backed firms. We conclude that for firms with seasoned management teams and boards who do not need the development assistance of a VC investor, that spending time in the "minors" – the junior public markets – pays off for their firms and investors.

For regulators, our results illustrate that the sequential segmentation model of junior market regulation can be effectively implemented and can provide an opportunity for junior public firms to seamlessly transition to a senior stock market. The Canadian junior and senior stock markets are owned and operated by the same firm (TMX Group, Inc.), are regulated by the same securities regulators, are supported by the same underwriters, and thus share many of the same governance regulations. This integration between the two markets provides a tiered-approach to capital raising for firms that allows them to enter the public markets at various stages of their business development depending on their needs and the expertise of their management and boards.

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Table 1. Sample overview

Classification of the sample of 3,723 Canadian entrepreneurial ventures in firms that receive their first VC injection or go public on the TSX-V in the period 2000-2014. For both groups, the table reports the number of firms that go public on the TSX, by year.

Year	VC Injections	Of whom, went public on TSX	TSX IPOs	Of whom graduated on TSX
2000	494	3	44	-
2001	287	2	25	-
2002	259	2	26	3
2003	200	3	31	4
2004	194	8	30	7
2005	225	7	46	6
2006	169	5	58	4
2007	162	9	67	7
2008	142	1	49	7
2009	130	4	24	2
2010	162	2	52	4
2011	183	3	53	6
2012	210	2	49	2
2013	241	1	13	2
2014	93	-	5	-
Total	3,151	52	572	54

Table 2. Variable Definitions

Variable	Definition
Dependent variables	
TSXV-IPO	Dummy variable, equal to 1 for firms that went public on the TSX-V, and 0 otherwise
TSX-IPO	Dummy variable, equal to 1 for firms that first went public on the TSX, and 0 otherwise
BHAR	3-year Buy-and-Hold Abnormal Returns calculated as in Loughran and Ritter (1995). If returns are available for less than 3 years, the variable is calculated with the maximum number of data available.
Independent variables – Private vs. Public VC financing	
Deal Size	First capital injection for firms receiving private VC, or total IPO proceeds for firms going public on the TSX-V (natural logarithms in regressions)
Age	Years since incorporation at the time of the first VC injection, or at the time of the IPO on the TSX-V (Natural logarithms of (1+Age) in regressions)
Market Momentum	The S&P/TSX Composite Index return in the month prior to the VC injection or the IPO on the TSX-V
Province dummies	Set of dummies for Canadian provinces (see Table 2 for the list of provinces)
SIC dummies	Set of industry dummies (SIC first digit).
Time dummies	Set of year dummies (years 2000-2014).
Listed on TSX-V	Dummy variable equal to 1 for firms listed on the TSX-V
Prone to TSX-V	Fitted probability of going public on the TSX-V at the time of the first capital injection from private or public VC (TSX-V) financing
Independent variables – Post-IPO performances (BHAR)	
Graduation	Dummy variable equal to 1 for firms that were listed on the TSX-V before their access to the TSX
Age at IPO	Years since incorporation at the time of IPO on the TSX
Size at IPO	Inflation-adjusted total assets in the year prior to the IPO, or prior to the graduation, in 2014 prices (natural logarithms in regressions)
Book-to-market	Book value of equity over market value of equity using the first month TSX prices
Market momentum	The S&P/TSX Composite Index return in the month prior to the listing on the TSX
Operating performance	Ratio between earnings before interest and taxes (EBIT) and total assets, in the year prior the IPO (ROA)
Leverage at IPO	Ratio of debt to total assets, in the year prior the IPO
Prone to IPO	Fitted probability of going public on the TSX at the time of the first capital injection from private or public VC (TSX-V) financing
Prone to TSX-V	Fitted probability of going public on the TSX-V at the time of the first capital injection from private or public VC (TSX-V) financing

Table 3. Descriptive Statistics: Private versus Public VC financing

Average values are calculated on the sample of 3,723 Canadian entrepreneurial ventures that receive their first VC injection or go public on the TSX-V in the period 2000-2014. The significance levels for the tests of differences between VC firms and TSX-V firms are based on t statistics (mean) or Z tests of equal proportions, as required. ***, ** and * represent statistical significance at less than 1%, 5% and 10%, respectively.

	Full sample	VC firms	TSX-V firms	t-test/Z-stat
Deal Size (mCAD)	5.61	5.90	3.72	1.27
Age (years)	7.68	9.22	2.66	10.22***
Market Momentum (%)	0.36	0.18	1.17	-4.36***
Province = AB (Alberta) (%)	8.7	7.1	17.1	-7.77***
Province = BC (British Columbia) (%)	16.1	9.0	54.9	-27.45***
Province = MB (Manitoba) (%)	1.8	2.0	1.0	1.50
Province = NB (New Brunswick) (%)	2.1	2.5	0.3	3.22**
Province = NL (Newfoundland and Labrador) (%)	0.2	0.2	0	1.20
Province = NS (Nova Scotia) (%)	1.6	1.9	0	3.30***
Province = ON (Ontario) (%)	28.1	30.2	16.8	6.57***
Province = QC (Quebec) (%)	35.6	40.5	8.2	14.86***
Province = SK (Saskatchewan) (%)	2.9	3.4	0.3	3.97***
Province = other (%)	2.9	3.2	1.4	3.12**
SIC=1: Mining, Energy and Construction (%)	19.9	8.5	82.7	-44.13***
SIC=2: Light Manufactured Products (%)	10.8	12.1	3.8	5.83***
SIC=3: Heavy Manufactured Products (%)	18.6	21.1	4.4	9.48***
SIC=4: Transportation and Utilities (%)	5.2	5.8	1.6	4.23***
SIC=5: Trade (%)	5.9	6.7	1.4	4.93***
SIC=6: Finance, Insurance and RE (%)	2.6	2.9	0.7	3.08**
SIC=7: Services and Technology (%)	31.3	36.2	4.4	15.12***
SIC=8: Health, Education, Legal (%)	5.4	6.3	0.3	5.82***
SIC=9: Public administration and other (%)	0.3	0.3	0.7	-1.72*
Obs.	3,723	3,151	572	

Table 4. Likelihood of private versus public VC financing

This table reports logit regression on the probability of going public on the TSX-V rather than receiving a capital injection from a private VC. The sample is composed of 3,723 Canadian entrepreneurial ventures that receive their first VC injection or go public on the TSX-V in the period 2000-2014. The model includes time dummies (coefficients are not reported). The reference case for Province is QC (NL, NS, PE and YT dummies are dropped for the limited number of observations). The reference case for SIC is 1 (Mining, Energy and Construction). Robust standard errors are in parentheses. ***, ** and * represent statistical significance at less than 1%, 5% and 10%, respectively.

	Probability of listing on the TSX-V
Deal Size	-0.031
	(0.025)
Age	-0.455***
	(0.044)
Market Momentum	2.540***
	(0.915)
Province=AB	0.773***
	(0.125)
Province=BC	1.395***
	(0.110)
Province=MB	0.549*
	(0.292)
Province=NB	-0.153
	(0.417)
Province=ON	0.478***
	(0.111)
Province=SK	-0.948**
	(0.379)
SIC=2: Light Manufactured Products	-1.504***
	(0.133)
SIC=3: Heavy Manufactured Products	-1.784***
	(0.124)
SIC=4: Transportation and Public Utilities	-1.784***
	(0.189)
SIC=5: Trade	-1.587***
	(0.211)
SIC=6: Finance, Insurance and Real Estate	-1.862***
	(0.269)
SIC=7: Services and Technology	-2.275***
	(0.111)
SIC=8: Health, Education, Legal services	-2.560***
	(0.317)
SIC=9: Public administration and other	-0.275
	(0.488)
Constant	0.046
	(0.367)
Obs.	3,723
log likelihood	-670.6

Table 5. Likelihood of Going Public on the TSX

This table reports logit regressions of the probability of going public on the TSX, after receiving a first VC injection or being listed on the TSX-V. The sample is composed of 3,723 Canadian entrepreneurial ventures that receive their first VC injection or list on the TSX-V in the period 2000-2014. Model (1) is a baseline specification, while Model (2) adds a selectivity instrument estimated from the probability to be listed on the TSX-V rather than receiving VC at first, as estimated in Table 3. Both models include time, industry, and province dummies (coefficients are not reported). Robust standard errors are in parentheses. ***, ** and * represent statistical significance at less than 1%, 5% and 10% respectively.

	Probability of listing on the TSX	
Listed on TSX-V	0.535**	0.376
	(0.240)	(0.261)
Prone to TSX-V	-	0.111*
	-	(0.056)
Deal Size	0.167***	0.165***
	(0.046)	(0.046)
Age	0.115*	0.165**
	(0.066)	(0.073)
Market Momentum	1.032	0.789
	(1.137)	(1.146)
Listed on TSX-V × Deal Size	0.262***	0.275***
	(0.087)	(0.087)
Listed on TSX-V × Age	0.099	0.114
	(0.134)	(0.135)
Listed on TSX-V × Market Momentum	-4.692	-4.719
	(4.158)	(4.195)
Constant	-6.523	-6.322
	(112.245)	(112.657)
Obs.	3,723	3,723
log likelihood	-372.8	-370.0

Table 6. Descriptive Statistics: Straight-IPOs versus Graduations

Average values are calculated on the sample composed of 106 Canadian entrepreneurial ventures that went public on the TSX before 2014, after receiving their first VC injection or being listed on the TSX-V in the period 2000-2014. Statistics are computed for various samples. Full sample refers to all firms in the sample. Straight IPOs refers to the subsample of straight IPOs of VC-backed firms. Graduations refers to the graduating firms from the TSX-V to TSX. 1st quartile refers to the firms in the first quartile in terms of 3y-BHAR. Other quartiles refer to the firms in all the quartiles other than the 1st quartile in terms of 3y-BHAR. The significance levels for the tests of differences between the straight IPOs and graduations, and between the 1st quartile and other quartiles are based on t-statistics. ***, ** and * represent statistical significance at less than 1%, 5% and 10%, respectively.

	Full sample	Straight IPOs	Graduations	1st quartile	other quartiles
3y-BHAR (%)	5.19	-5.26	15.25**	176.01	-54.13***
Time to IPO (months)	36.70	36.73	33.11	42.52	34.80
Age at TSX-IPO (years)	8.60	12.25	5.57**	12.54	7.16*
Size at TSX-IPO (mCAD)	192.85	322.33	80.16*	219.66	185.37
Book-to-market	0.27	0.19	0.35*	0.36	0.18
Market Momentum (%)	0.99	1.56	0.43	0.93	1.01
Operating Performance (%)	-10.08	-13.63	-7.02	-7.48	-11.61
Leverage (%)	40.88	59.10	25.02***	39.79	40.77
Obs.	106	52	54	27	79

Table 7. Post-IPO Long-Run Performance.
This table reports OLS regressions on the post-IPO performance, measured as 3-year BHAR, for 106 Canadian entrepreneurial ventures that went public on the TSX after receiving a first VC injection or being listed on the TSX-V in the period 2000-2014. The post-IPO performance is measured as 3-year BHAR. Model (1) is a baseline specification. Model (2) adds a selectivity instrument equal to the probability of being listed on the TSX, estimated at the time of receiving a first VC injection or being listed on the TSX-V, as estimated in Table 4. Model (3) adds a selectivity instrument estimated from the probability of being listed on the TSX-V rather than receiving VC financing first, as estimated in Table 3. Age and size at TSX-IPO are measured at the time of the IPO on the TSX. All models include time and industry dummies (coefficients are not reported). Robust standard errors are in parentheses. ***, ** and * represent statistical significance at less than 1%, 5% and 10%, respectively.

	(1)	(2)	(3)
Graduation	0.287**	0.445**	0.407*
	(0.138)	(0.208)	(0.236)
Age at TSX-IPO	-0.048	-0.047	0.148
	(0.188)	(0.189)	(0.201)
Size at TSX-IPO	0.311**	0.336**	0.355**
	(0.150)	(0.144)	(0.144)
Tobin's Q	0.487	0.457	0.448
	(0.691)	(0.696)	(0.673)
Market Momentum	-7.505*	-7.880*	-8.195**
	(4.253)	(4.139)	(4.083)
Operating Performance	-0.419	-0.425	-0.504
	(0.326)	(0.321)	(0.339)
Leverage	0.278	0.290	0.321
	(0.262)	(0.265)	(0.275)
Prone to IPO	-	-0.207	-0.240
		(0.211)	(0.206)
Prone to TSX-V	-	-	-0.386
			(0.251)
Constant	-1.035*	-1.311**	-1.722**
	(0.605)	(0.596)	(0.660)
Obs.	106	106	106
R-squared	0.525	0.528	0.544

Table 8. Alternative Measures of Post-IPO Performance.
This table reports OLS regressions on the post-IPO financial performance, measured as 1-year and 2-year BHAR, for 106 Canadian entrepreneurial ventures that went public on the TSX after receiving a first VC injection or being listed on the TSX-V in the period 2000-2014. Model (1) is a baseline specification. Model (2) adds a selectivity instrument estimated from the probability of being listed on the TSX at the time of receiving a first VC injection or being listed on the TSX-V, as estimated in Table 4. Model (3) adds a selectivity instrument estimated from the probability of being listed on the TSX-V rather than receiving VC financing first, as estimated in Table 3. All models include time and industry dummies (coefficients are not reported). Robust standard errors are in parentheses. ***, ** and * represent statistical significance at less than 1%, 5% and 10%, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
	1y-BHAR	1y-BHAR	1y-BHAR	2y-BHAR	2y-BHAR	2y-BHAR
Graduation	0.210**	0.206**	0.198**	0.221*	0.259*	0.206*
	(0.089)	(0.097)	(0.090)	(0.138)	(0.153)	(0.121)
Age at TSX-IPO	0.028	0.028	0.053	0.058	0.057	0.169
	(0.032)	(0.032)	(0.041)	(0.093)	(0.091)	(0.119)
Size at TSX-IPO	0.045**	0.045**	0.047**	0.113**	0.088*	0.099*
	(0.021)	(0.022)	(0.022)	(0.045)	(0.052)	(0.053)
Tobin's Q	-0.009	-0.008	-0.009	-0.173	-0.202	-0.195
	(0.050)	(0.050)	(0.050)	(0.120)	(0.136)	(0.127)
Market Momentum	-0.353	-0.363	-0.322	-1.585*	-1.185*	-1.326*
	(0.729)	(0.756)	(0.756)	(0.943)	(0.705)	(0.786)
Operating Perf.	-0.152	-0.152	-0.162*	-0.289	-0.277	-0.315
	(0.094)	(0.096)	(0.095)	(0.213)	(0.233)	(0.238)
Leverage	0.006	0.006	0.010	0.069	0.055	0.070
	(0.046)	(0.047)	(0.048)	(0.110)	(0.111)	(0.114)
Prone to IPO	-	-0.006	-0.001	-	-0.208	-0.194
		(0.061)	(0.061)		(0.249)	(0.250)
Prone to TSX-V	-	-	-0.050	-	-	-0.220
			(0.050)			(0.137)
Constant	-0.590***	-0.668***	-0.885**	-1.245***	-1.288**	-0.459
	(0.201)	(0.222)	(0.444)	(0.423)	(0.499)	(0.724)
Obs.	106	106	106	106	106	106
R-squared	0.436	0.436	0.443	0.345	0.364	0.389

Table 9. Quantile Regressions on Post-IPO Performance.
This table reports quantile regressions on the post-IPO financial performance, measured as 3-year BHAR, for 106 Canadian entrepreneurial ventures that went public on the TSX after receiving a first VC injection or being listed on the TSX-V in the period 2000-2014. Model (3) from Table 6 is run with reference to quantile 0.25, 0.50, 0.75 and 0.95. All models include time and industry dummies (coefficients are not reported). ***, ** and * represent statistical significance at less than 1%, 5% and 10%, respectively.

	q=0.25 3y-BHAR	q=0.50 3y-BHAR	q=0.75 3y-BHAR	Q=0.95 3y-BHAR
Graduation	0.375*	0.334*	0.314**	0.594**
	(0.187)	(0.166)	(0.149)	(0.271)
Age at TSX-IPO	0.095	0.074	0.193	0.077
	(0.110)	(0.151)	(0.471)	(0.139)
Size at TSX-IPO	0.188***	0.221***	0.267*	0.661***
	(0.055)	(0.075)	(0.159)	(0.069)
Book-to-market	0.279	0.280	0.295	0.703***
	(0.173)	(0.239)	(0.342)	(0.219)
Market Momentum	-2.805*	-5.871**	-4.663**	-9.183***
	(1.465)	(2.529)	(2.329)	(2.695)
Operating Perf.	-0.458	-0.219	-0.061	-8.428
	(0.323)	(0.307)	(0.955)	(0.682)
Leverage	0.009	0.056	0.430	0.582*
	(0.123)	(0.169)	(0.527)	(0.342)
Prone to IPO	-0.113	0.014	-0.456	-0.246*
	(0.121)	(0.167)	(0.519)	(0.140)
Prone to TSX-V	-0.160	-0.051	0.302	0.773***
	(0.108)	(0.157)	(0.488)	(0.144)
Constant	-1.790***	-1.391**	-1.917	-0.050
	(0.355)	(0.613)	(1.583)	(0.653)
Obs.	105	105	105	105
Pseudo R-squared	0.49	0.31	0.35	0.56

Table 10. Time to List on the TSX.
This table reports Cox proportional hazard regressions on the time to graduation after being listed on the TSX-V or on completing a TSX IPO for a VC-backed firm. The sample is composed of 3,723 Canadian entrepreneurial ventures listed on the TSX-V or VC-backed over the period 2000-2014. Model (1) is a baseline specification, while Model (2) adds a selectivity instrument estimated from the probability of being listed on the TSX-V rather than receiving VC financing first, as estimated in Table 3. Both models include time, industry, and province dummies (coefficients are not reported). Robust standard errors are in parentheses. ***, ** and * represent statistical significance at less than 1%, 5% and 10%, respectively.

	(1)	(2)
Listed on TSX-V	1.401***	1.444***
	(0.542)	(0.551)
Prone to be Listed on TSX-V		-1.556
		(1.047)
Deal Size	0.483***	0.461***
	(0.145)	(0.148)
Age	0.047	-0.640**
	(0.157)	(0.310)
Market Momentum	-0.707	3.178
	(2.937)	(3.389)
Listed on TSX-V × Deal Size	0.145	0.158
	(0.187)	(0.191)
Listed on TSX-V × Age	0.281	0.294
	(0.241)	(0.241)
Listed on TSX-V × Market Momentum	-6.729	-9.415*
	(6.672)	(5.669)
Obs.	3,723	3,723
log likelihood	-653.3	-650.2