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Entrepreneurs and Junior Markets: An Assessment

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Résumé/Abstract

This article shows that a junior market can be an effective financing strategy for growth-oriented entrepreneurs who want to list on a senior stock exchange. We analyze 209 graduations from the Canadian junior market (TSXV) benchmarked with 191 initial public offerings (IPOs) on the senior exchange (TSX). Graduations are as frequent as IPOs, and the probability of reaching the TSX is significantly higher for TSXV firms than for venture capital-backed firms. The growth rate of revenues is significantly higher before graduations than before IPOs, allowing TSXV firms to reach the TSX earlier. Investors value both groups of firms similarly, indicating comparable perceived quality. In Canada, the junior market is a valuable financing strategy for growth-oriented entrepreneurs. It fulfills its role of fostering the development of innovative firms and feeding the senior exchange. However, the choice of the TSXV reduces entrepreneur ownership interest compared with the IPO strategy.

Mots clés/Keywords: Junior Market; Graduation; Initial Public Offering; Small Firm; Stock Exchange

Codes JEL/JEL Codes: G32; G38; O16; M13

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1. INTRODUCTION

The crisis of 2007-2009 accentuated the financing problems of small businesses by reducing both the availability of venture capital (VC) and banks' propensity to provide risky loans, particularly for high-tech entrepreneurial firms (Cowling et al. 2012; Mason and Harrison 2013; North et al. 2013; Lee et al. 2015). Several large international bodies, including the World Bank and the European Commission, argue that capital markets play an imperative role in bridging this financing gap through the provision of alternative funding sources for high-growth and innovative firms, and recommend fostering the development of junior markets (EC 2015; Harwood and Konidaris 2015; IOSCO 2015; Nassr and Wehinger 2015; Eberhart and Eesley 2018). These markets set lower listing standards, require less extensive disclosure, and charge lower initial costs than senior stock exchanges. They are generally considered stepping stones to main stock exchanges for companies with important growth prospects (Gerakos et al. 2013; Schwartz 2014; Nassr and Wehinger 2015). However, the international bodies seem to neglect the numerous problems that junior markets face. Studies generally conclude that the quality, survival, productivity gains and market returns of firms listed on these markets are low (Goergen et al. 2003; Vismara et al. 2012; Gerakos et al. 2013; Revest and Sapio 2013; Bhattacharya 2017; Carpentier and Suret 2018). Therefore, "it is difficult to understand how these results inspire mimetic copying of this particular supportive intermediary" (Eberhart and Eesley 2018 p.11). We try to explain this puzzle by analyzing the benefits of a financing strategy based on such market, from the growth-oriented entrepreneurs' perspective. This topic remains largely unexplored.

When a junior market exists in a country, growth-oriented entrepreneurs can select one of two strategies to reach the senior exchange. The classical financial growth cycle consists in using initial resources, bootstrapping, internal funding, business angel financing or VC until the venture meets the listing requirements of the senior exchange and makes an initial public offering (IPO) to get public equity (Gregory et al. 2005). An alternative strategy is to list the firm on the junior market to get public equity earlier, and then graduate to the senior exchange. An IPO on the senior exchange and graduation thus constitute successful exits for growth-oriented entrepreneurs who choose the classical path and the junior market, respectively.

We investigate whether a junior market enables early-stage firms to successfully reach the senior exchange. To this end, three conditions must be met. First, the firms listed on junior market should have a reasonable chance of reaching the main board in a short time-frame. Second, when accessing the main

board, their valuation should be high. The capacity to reach the senior exchange faster and to earn higher valuation are classical indicators of new ventures' success (Gulati and Higgins 2003). Third, because preserving decision-making control and ownership is crucial (Brau and Fawcett 2006), entrepreneurs should retain a significant ownership interest after graduation. We compare two groups of growth-oriented new ventures that reach the main Canadian market (the Toronto Stock Exchange: TSX) from 1997 to 2015. We benchmark firms graduating from the junior market (graduates) with firms listing on the TSX after a classical financial growth cycle (IPO firms). High-tech (HT) firms constitute two-thirds of the sample.

The contributions of this article are threefold. Notably, it is one of the first to analyze the use of the junior market from the entrepreneurs' perspective. This improves our limited knowledge of the pivotal relationship between access to various forms of external financing and growth (Fraser et al. 2015) and enlightens entrepreneurs who face a financing choice involving a junior market. Second, analyzing the entrepreneurs' viewpoint implies focusing on the outcome of the market, namely graduations, rather than on the input, in contrast with most studies. This insightfully informs policy makers. Third, the Canadian context allows us to examine the TSX venture exchange (TSXV), which has very low listing requirements but exhibits the world's highest number of graduations (Harwood and Konidaris 2015; IOSCO 2015). This analysis may be useful for regulators that design junior markets.

The article is structured as follows. In section 2, we review the literature and develop our hypotheses. We present the data and empirical methods in section 3 and the results in section 4. We discuss our findings and state our conclusion in section 5.

2. LITERATURE REVIEW AND HYPOTHESES

Junior markets are specialized stock exchanges, or segments, devoted to listing firms that do not fulfill the listing requirements of senior exchanges (Revest and Sapio 2013). They encompass a large spectrum of markets: the average market capitalization of firms listed on junior markets in 2014 ranges from a few million dollars (Canada, Poland) to more than US\$100 million (UK, Hong Kong, Japan, Germany) (WFE 2016 p.10). The TSXV¹ is situated at the lower end: firms list at such an early stage that it has become a public VC market committed to supporting the capital-raising and liquidity needs of emerging high-growth businesses. Since 1986, firms have generally listed at a pre-revenue stage with median gross

¹ Previously known as the Canadian Venture Exchange.

proceeds lower than CAN\$1 million. New ventures can list on the TSXV without any revenues and with net tangible assets of \$750,000.² Only three junior markets, in Egypt, Poland and Nigeria, report lower average market capitalization (WFE 2016 p.10). The TSXV favors backdoor listings, including reverse takeovers, amalgamation with listed companies and qualifying transactions of capital pool companies. Backdoor listing allows ventures to escape the IPO process and costs, and constitute 72% of TSXV new listings from 1997 to 2015.

Previous analyses demonstrate poor long-run market performance for new listings on junior markets (Locke and Gupta 2008; Vismara et al. 2012; Gerakos et al. 2013; Bhattacharya 2017; Carpentier and Suret 2018). Doukas and Hoque (2016) report that firms that meet the London stock exchange (LSE) listing requirements but that list on the AIM are generally loss-making firms reporting poor five-year post-listing operating performance, whereas profitable firms join the LSE.

Only a few researchers adopt the entrepreneurs' viewpoint about junior markets. Using a case-study approach, Baldock (2015) concludes that the AIM plays a key role in developing listed technology-based small firms. Revest and Sapio (2013) show that AIM firms exhibit growth exceeding that of private firms, but underperform in terms of productivity. Using aggregate data as a benchmark, Audretsch and Eston (2006) find that the firms listed on the German Neuer Markt have higher growth rates than do comparable firms. In these works, studied firms are larger than TSXV firms. Our article complements the literature by focusing on entrepreneurial ventures and by using graduation as a criterion of success.

Evidence regarding graduations is scarce, probably because they are rare in most countries. In Canada, Carpentier et al. (2010) report negative and significant underperformance for mining and high-tech firms that graduate from the TSXV from 1986 to 2004. Meoli et al. (2018) compare 55 TSXV IPOs that graduate to the TSX with 38 VC-backed IPOs, over the 2000-2014 period. They conclude that the abnormal return of graduates exceeds that of VC-backed IPOs at the 10% confidence level. These analyses thus adopt an investors' perspective and reach mixed conclusions.

Entrepreneurs who choose the TSXV access public equity at an early development stage. The resource-based theory suggests that new ventures that rapidly mobilize more resources can develop a sustainable

² In 2017, ventures involved in the industrial, technology or life sciences sectors could list without revenues, if their net tangible assets exceeded \$750,000, if they had financial resources to execute a business plan for 12 months and had \$100,000 in unallocated funds.

competitive advantage over resource-constrained firms and unlock barriers to growth (Fraser et al. 2015; Eberhart and Eesley 2018). Restricted access to equity is often considered a major impediment for growth-oriented firms (Carpenter and Petersen 2002; Rahaman 2011) that need external finance to achieve their growth potential (Mason 2011). The fact that stock exchange listing relaxes financial constraints warrants fostering the development of junior markets because such markets putatively ease the financing of young, high-growth firms. These firms can then grow and contribute strongly to the economic welfare (Gerakos et al. 2013; Mason and Brown 2013; IOSCO 2015; WFE 2016). According to Revest and Sapio (2013 p.954): “the expectation was that by deregulating the flotation process, the financial barriers that hinder the growth of SMEs would fall.” Junior markets dedicated to early-stage ventures lead the most successful firms to the senior exchange, where more funding and greater liquidity are available. We consequently focus on graduations.

If a junior market fulfills its promises, many growth-oriented entrepreneurs can rapidly reach the senior exchange, even when they list on the junior market at an early development stage. The graduation frequency (number of graduations) and graduation rate (graduations divided by new listings) are good indicators of the likely success of the junior market financing strategy. We benchmark the graduation frequency with the number of TSX IPOs. To benchmark the graduation rate, given that the number of new ventures opting for the classical financing path is not observable we use the exit rate of venture capitalists (VCs) by IPO. Accordingly:

H1a: There is no difference between the number of graduations and the number of TSX IPOs.

H1b: There is no difference between the graduation rate and the exit rate of VCs by IPO.

Using the junior market should increase firms’ growth rate if the lack of public equity is a binding constraint on new business growth (Revest and Sapio 2013). This can be tested using the pre-listing characteristics of TSX IPO firms as a benchmark. Moreover, if growth is stimulated by early access to public equity, the age of graduates should be similar to that of TSX IPOs. Accordingly:

H2a: Before listing on the TSX, there is no difference between the growth rate of future graduates and that of future IPO firms.

H2b: When accessing the TSX, there is no difference between the age of graduates and that of IPO firms.

The pivotal issue in an IPO is its pricing (Chang et al. 2017). IPOs are priced when information asymmetry is high, because of their sparse available track record (Lowry et al. 2017). Credible signals sent by firms

can thus have a significant effect on valuation. This topic has been studied extensively, partly because of underpricing (Lowry et al. 2017): on average, IPOs are priced by investment bankers at a lower offer price than the market price observed on the stock exchange. Because there is no offer price for graduates we focus on market prices on the TSX. This price reflects the net present value of expected cash flows, influenced by the growth expectations and the cost of equity based on perceived risk. The price also depends on current and past accounting numbers (Aggarwal et al. 2009; Gaviious and Schwartz 2011). IPO success is generally inferred from firm valuation (Certo et al. 2009). High revenue growth before an IPO is associated with higher offer and market prices (Xiao and Yung 2015). Because graduates likely have a higher growth rate than IPO firms before reaching the TSX, we expect a higher value for graduates. Their accounting data, prices and trades on the TSXV might also lower information asymmetry, uncertainty and cost of equity. Using a junior market reduces the liability of market newness, linked to the uncertainty surrounding whether management can deal with the requirements and rigor of a senior stock exchange (Dalziel et al. 2011). This may send a positive signal to the market and increase value.

Reputational considerations are probably the main disadvantage of the TSXV. The lemon dynamics proposition (Black 2001) states that most listed firms on junior markets are of low quality, due to the bad reputations of these markets. Good quality firms circumvent these markets to avoid tarnishing their reputation. Accordingly, graduates may suffer from poorer investor perception than do IPO firms. Entrepreneurs who do not enter the junior market can bootstrap, use internal funds and tap private equity providers, thereby sending a positive signal to investors (Vanacker et al. 2011). The key element of the IPO process is the prospectus, which provides information not available in financial statements aimed at reducing information asymmetry and protecting investors. Investment bankers also play a complementary certification role (Jenkinson and Ljungqvist 2001). Preparing and reviewing a prospectus is a costly signal of transparency and quality sent to potential investors. Hence:

H3: There is no significant difference between the market value of graduates and IPO firms, all things being equal.

Retaining ownership is a critical consideration for entrepreneurs (Sapienza et al. 2003; Brau and Fawcett 2006). The proportion of ownership influences entrepreneurs' wealth, their capacity to sell new shares to finance future growth opportunities, and firm performance (Walters et al. 2010). Using the TSXV implies selling shares earlier, when the low stock value induces a strong dilution effect. The classical financial

growth cycle encompasses the successful use of several financing sources, but private equity providers generally invest when firms have reached the revenue stage and achieved higher value. Accordingly:

H4: Entrepreneurs' ownership interest of graduates does not significantly differ from that of TSX IPO firms.

3. DATA AND EMPIRICAL METHODS

3.1 Data sources

To list on the TSXV, firms use IPOs or backdoor listings. In this study, we exclude natural resources firms, whose value largely depends on commodity prices, but we include both backdoor listings and TSXV IPOs. The TSXV provided us with a list of 802 graduations from 1997 to 2015. We carefully scanned it to detect "false graduations," where the firm listed on the TSX is not that initially listed on the TSXV.³ This includes 59 cases of acquisition of a TSXV firm by a TSX firm and 115 cases of firms whose graduation is the direct consequence of a merger or reverse takeover occurring in the days or weeks preceding the graduation. In such cases, a firm that generally fulfills the TSX's listing requirements uses the TSXV to avoid the IPO process. We also deleted 26 firms already listed on a foreign stock exchange, 35 real-estate or financial firms, and 358 natural resources firms. The final sample includes 209 graduates. We collected the lists of TSX IPOs from FPInfomart.ca from 1997 to 2015. We excluded issues of capital pool companies, income trusts, financial firms, privatizations of state-owned companies, demutualizations, and 130 natural resources firms. Our final sample comprises 191 IPOs.

The total equity collected during the twelve months following the TSX listing is the gross proceeds for graduates. Accounting data are measured at the fiscal year-end closed before IPO or graduation, and come from Mergent on line, SEDAR⁴ and the IPO prospectuses. Market data come from Datastream. Following Walters et al. (2010), we collect the proportion of outstanding shares retained by the top management team (TMT), namely the executives actively involved with the business after the listing on the senior exchange. We add the shares held by the founder's family. We also collected information related to private equity investors and VCs, for both graduates and IPO firms. We hand-collected this information in the prospectuses or in the management information circulars, and determined if the block-holders appear in

³ We consider as a graduation the case where a firm listed only on a junior exchange lists as the same entity on a senior exchange for the first time, in line with the objective of this study. This excludes cases where a third firm is involved, through an acquisition or a reverse takeover, and the cases where the TSXV firm was cross-listed.

⁴ The System for Electronic Document Analysis and Retrieval (SEDAR) is a filing system equivalent to EDGAR in the US.

the member directory of the Canadian VC Association (CVCA). Because the prospectuses provide information concerning the last three fiscal years, we use accounting data three years before the listing on the senior exchange to test hypothesis 2. We get media coverage from the number of press releases about the listing firm in the month prior to the listing in Factiva. Variables are defined in Table 1.

Insert Table 1 here

3.2 Models

To avert the problem of negative earnings or shareholders' equity, we use Aggarwal et al.'s (2009) model. The dependent variable is the post-listing market capitalization, or overall value of the firm (OV) at the close of the first trading day on the senior exchange. We use the log transformation for each continuous variable as follows: $L(W) = \log_e(1+W)$ when $W \geq 0$ in \$ million; and $L(W) = -\log_e(1-W)$ when $W < 0$ in \$ million. The model is:

$$LOV_i = \alpha_1 + \alpha_2 LINC_i + \alpha_3 Lsize_i + \alpha_4 Lsales_i + \alpha_5 DHT_i + \alpha_6 DIPO_i + \alpha_7 Paudit_i + \alpha_8 EXPLIQ_i + \alpha_9 GPTA_i + \alpha_{10} PRESSREL_i + e_i \quad (1)$$

The value at listing time depends on three value drivers: net income before extraordinary items (INC), post-listing shareholders' equity (Size) and revenues (Sales). LOV, LINC, Lsize and Lsales and are the log transformation of OV, INC, Size and Sales respectively. DHT is a dummy variable based on SIC codes set to 1 if the issuer's industry is high-tech (HT), and 0 otherwise, as a proxy for growth opportunities. DIPO is a dummy variable set to 1 if the firm lists on the TSX after an IPO, and 0 if the firm graduates. Prestigious auditors and investment bankers are generally associated with high market valuations (Aggarwal et al. 2009). Graduations do not involve investment bankers and we consider only auditor prestige in the model. Paudit is a dummy variable set to 1 if the auditor is one of the Big N, and 0 otherwise. Liquidity on a stock market influences the stock value. Following Ellul and Pagano (2006), we introduce expected liquidity in the model (EXPLIQ). We assume that to forecast a graduate's (IPO's) future liquidity, investors use the observed value of a previous graduate (IPO) of comparable size, belonging to the same sector and occurring before the listing observed. We estimate the stock rotation (trade amount/market value) twelve months after this matched graduation (IPO). The investor recognition hypothesis states that raising more financing leads to greater investor recognition, i.e., greater investor awareness of the firm, and higher valuations (Kecskes 2009). We introduce the issue size (GPTA) and the media coverage of the graduation or IPO (PRESSREL) to proxy investor recognition.

We cannot control for self-selection that likely occurs when entrepreneurs select their strategy and decide whether to use the TSXV. The date of this decision cannot be determined, and we have no information at all for private firms using the classical financial growth cycle. We control for the potential effect of natural resources by excluding firms in this sector. We control for self-selection when firms list on the TSX. At this time, the median age is 10.68 years for IPOs, and 7.81 years for graduations. Median revenues are \$36.56 million and \$9.63 million respectively. IPOs firms seem more mature and larger than graduates when they reach the senior exchange. We use a propensity score comparable-firm matching approach. We find a similar graduate for each IPO firm by matching the firm along several dimensions that include size, age and profitability. We estimate the propensity scores required for the matching using the following logistic model:

$$DIPO_i = \alpha_1 + \alpha_2 \text{Lassets}_i + \alpha_3 \text{ROA}_i + \alpha_4 \text{Age}_i + e_i \quad (2)$$

Acquiring VC is a signal that can have a positive effect on firm value. Including a dummy in the model generates collinearity problems, because only 6% of the TSXV firms are backed by VCs. We thus test the robustness of our results by restricting our sample to VC-backed IPOs and their matched graduates.

We test hypothesis 4 with the following model:

$$\text{Pct}_i = \alpha_1 + \alpha_2 \text{Lsize}_i + \alpha_3 \text{Age}_i + \alpha_4 \text{GPTA}_i + \alpha_5 \text{DIPO}_i + e_i \quad (3)$$

Where Pct is the percentage of shares held by the TMT after the listing. Following Nelson (2003), we control for the firm's age and size. Age is the number of years since incorporation. The owners of older firms might have sold larger portions of ownership. The same reasoning leads us to include the log transformation of Size. The offer size can also be linked to post-listing ownership, because it is more difficult to keep control after a large financing. We thus include GPTA.

4. RESULTS

4.1 The samples

Table 2 presents the main characteristics and statistical tests of the differences between the firms reaching the TSX, depending on their listing mode, for the full and matched samples.⁵ There are no significant differences between graduates and IPOs on several dimensions: the proportion of HT firms and of firms reporting losses or no revenues, and the median ROA. We detect VC involvement in 43% of IPO firms,

⁵ We discuss and test the median of the distributions because the distributions are skewed.

but this proportion is only 6% for junior market firms. The price-to-book is 8.56 for IPOs compared with 4.04 for graduates, a consequence of their higher book value. The median gross proceeds are \$14.90 million for graduates and \$43.65 million for IPOs. Only 72 of the 209 graduates raised money within a year of listing on the TSX. After listing, IPO firms are larger than graduates. The median OV reaches \$154.04 million for IPOs but only \$66.96 million for graduates. The median size is \$61.47 million for IPOs and \$20.87 million for graduates. Such differences imply that we should control for endogeneity.

The propensity-score matching procedure reduces the differences between the two groups of firms. The difference between the total assets, age, profitability, proportion of firms without revenues or earnings, and sectoral distribution become non-significant, but median shareholders' equity and gross proceeds differ. IPOs raise significantly higher amounts of cash than the graduates do, and they have more shareholders' equity than graduates after the listing.

Insert Table 2 here

4.2 The probabilities of success

The graduation activity on the Canadian market differs from that of other junior markets. IOSCO (2015, p.10) reports fewer than 8 graduations per year in all surveyed countries, except in Canada and Taiwan.⁶ From 1997 to 2015, we count about 30 graduations per year from the TSXV. When we exclude natural resources firms, this number falls to 11 per year (Table 3). The number of graduations and TSX IPOs are in the same range for each year, and we cannot reject the hypothesis that the average values are equal, using a Student's t-test (p value is 0.62). Hypothesis 1 therefore cannot be rejected.

We divide the number of VCs' exits by IPO⁷ (from Thomson and the CVCA) by the estimated number of new firms financed each year by the Canadian VCs (from the Industry Canada VC Monitor) to get the exit rate of VCs by IPO. On average, Canadian VCs finance 246 new firms per year, when 70 firms per year list on the TSXV, excluding natural resource firms. The average rate of VCs' exits by IPOs is below 3%, in line with previous analyses (Brander et al. 2010). The graduation rate (15.89%) is significantly higher than the rate of VCs' exits by IPO (p value is 0.00). The TSXV feeds a significant number of firms to the

⁶ The Taiwanese Gre Tai OTC securities market became the (junior) Taiwan OTC Exchange in February 2015, and all listed firms were falsely considered graduates.

⁷ IPO is not the main exit route for Canadian VCs; the bulk of exits consist in trade sales, mainly to foreign firms (Carpentier and Suret 2014). However, we limit our analysis to IPOs because this article focuses on listings on the main board. Neither do we consider the numerous acquisitions of TSXV firms by other firms.

TSX. Hypothesis 1b is thus refuted, and we accept the alternative proposition that the graduation rate is higher than the rate of VCs' exits by IPOs.

Insert Table 3 here

4.3 Pre-listing characteristics

Table 4 reports the main firm characteristics during the pre-listing years. We collect accounting data at t-3, and estimate the pre-listing annual growth rate of revenues between t-3 and t0, with t0 representing the fiscal year closed before the TSX listing. Future graduates are, by far, at an earlier development stage than future IPOs, based on total assets, revenues and shareholders' equity. However, the median capitalization ratio ($BV / Totassets$) is 22.46% for future IPOs and 50.09% for future graduates, which seem in a better financial position. This is an expected result when one compares private and public firms. The proportion of HT firms is similar in the two groups, but the growth rates differ significantly. Revenues increase annually about twice as fast for future graduates (57%) than for their benchmark (32%). Most sample firms likely fit the definition of high-growth firms, mainly in the graduates' group.⁸ The TSXV nurtures several small dynamic firms, which implies that hypothesis H2a is rejected. The two groups differ significantly in terms of growth rates, proportion of loss firms and revenues.

Table 2 shows, for the full sample, a median age of 10.68 for IPOs and 7.81 for graduates. This difference is statistically significant and refutes hypothesis H2b. When reaching the TSX, graduates are younger than IPO firms.

Three years before accessing the senior exchange, the TSXV firms are early-stage firms, with shareholders' equity (revenues) of \$2.78 million (\$3.15 million) and 66% report losses. Their growth rate of revenues is about double that of their benchmark. The junior market thus plays its expected role of nurturing emerging ventures. It can be a judicious choice for the entrepreneur of a new venture intending to reach the TSX.

Insert Table 4 here

⁸ Eurostat & OECD (2007) define high-growth firms as enterprises with average annualized growth in employees or turnover greater than 20% per annum, over a three-year period, and with more than 10 employees in the beginning of the observation period. The number of employees is not a mandatory reporting in Canada, and we cannot assess the extent that our sample firms fulfill the two conditions of this definition.

4.4 Valuation at listing time

Table 5 shows that Size, Sales and DHT are positively linked to OV, as previously observed (Aggarwal et al. 2009).⁹ Income is significantly negatively related to value, as formerly reported in the IPO context (Bartov et al. 2002; Aggarwal et al. 2009; Xiao and Yung 2015). The accepted explanation for this anomaly is that losses reflect strategic expenditures such as investment in intangibles, associated with growth opportunities. On average, irrational investors overvalue loss firms, inducing the negative relationship between losses and value. As anticipated, expected liquidity is positively linked with value. The number of press releases is significantly and positively linked with value, as expected.

The coefficient of the variable of interest, DIPO, is non-significant for the full and the matched samples. This indicates that the investors value graduates and IPOs similarly, all things being equal. Because valuation is the classical measure of IPO firm quality, the investors seems to attribute the same quality to graduates and IPOs. This supports the third hypothesis.

To assess the robustness of this result, we use a sub-sample including all VC-backed IPOs and matched graduates. The coefficient of DIPO becomes significant, but only at a 10% threshold: on average, market participants value VC-backed IPOs slightly higher than similar graduates. This is consistent with previous evidence of the positive effects of VCs on IPO market valuation (Aggarwal et al. 2009).

Insert Table 5 here

4.5 Proportion of ownership

Table 2 shows that for the full sample, the TMT of IPO firms owns 15.35% of the shares, whereas this proportion is 0.00% for graduates. The proportions are respectively 16.40% and 2.51% for the propensity-score matched sample, a statistically significant difference. Table 6 presents the results using model (3), where the dependent variable is the post-listing percentage of shares hold by the TMT. Controlling for GPTA, age and size, we find that entrepreneurs keep a larger proportion of ownership after an IPO than after a graduation. The coefficient of the dummy DIPO is 14.21: on average, the difference in TMT ownership between IPO firms and graduates is 14.21%. Hypothesis 4 is consequently rejected: there is a significant difference between the TMT ownership of graduates and IPO firms.

⁹ We test the robustness of our model by including the following explanatory variables: the hot and cold market dichotomy, the age of the listed firms (Age) and revenue growth before the TSX listing (Sales growth). Inclusion of these variables does not change the coefficient of the variable of interest (DIPO), so we do not report the results.

Insert Table 6 here

5. CONCLUSION

We examine the performance of an early-stage junior market by comparing two groups of growth-oriented ventures that reach the senior stock exchange using either the junior market (graduates) or the classical financial growth cycle (IPO firms). We get three main findings.

First, we find no statistical difference between the numbers of firms that list on the TSX using each strategy. The junior market seems to play a nurturing role in that it feeds the senior exchange with graduates as frequently as does the classical financial growth cycle. The graduation rate is higher than the rate of VCs' exit by IPO. Three years before the TSX listing, future graduates are less developed than future IPO firms. They differ significantly in terms of total assets, revenues, earnings and proportion of losses from firms that take the classical financing path. The growth rate of revenues is higher for graduates, which are younger than IPOs: the junior market seems to stimulate firm revenue growth and accelerate the meeting of the TSX's minimum listing requirements. These results show that the junior market is an efficient way to reach the senior exchange, and can fill the funding gaps for new businesses seeking small financing, particularly in the HT sector (Mason 2009).

Second, we find that graduates and IPO firms are priced similarly when the various value drivers are taken into account. This is an important result because valuation is a classical indicator of IPO success: graduates successfully reach the TSX. Achieving high value sends a positive signal for future financing rounds. The prices and trades observed on the junior market might have reduced the information asymmetry and the risk perceived by investors. Early access to public money could have boosted firm growth. This finding is robust to several specifications of the empirical model and to the matching procedure, which reduces the differences between both groups.

Third, the drawback of using the TSXV to reach the TSX lies in the proportion of ownership. Entrepreneurs have a significantly lower ownership interest in graduates than in IPO firms, probably because shares are sold at a later development stage in the classical financing path. The advantage of the classical financial growth cycle over the junior market is that it preserves entrepreneurs' ownership interest more effectively. The junior market seems to be a valid path to successfully reach the senior exchange, mainly for new HT firms, which represent most graduates. Entrepreneurs willing to list on the senior exchange should thus consider the junior market.

This work is partly exploratory and exhibits several limitations. First, we cannot rule out the possibility that firms with stronger teams and better prospects mainly opt for the classical financial growth cycle. This would be consistent with the lemon market proposition and the pecking order theory. However, there is presently no way to control for this possible self-selection because private firms' financial statements are not available. However, if better quality firms self-select in the classical financing path, this reinforces our general conclusion that the TSXV is an efficient way to finance an emerging venture. Second, we cannot determine the extent to which IPO firms used various sources of funds in the past. Although we attempt to fill this gap, insufficient information is available in the prospectus. Third, we cannot determine the extent that the benefits we posit outweigh the costs associated with the poor returns generally observed on junior markets. Lastly, IPO is not the only successful exit path for an entrepreneur, and trade sales are now the preferred exit path for VCs. A possible extension of our work could consider successful acquisitions of TSXV firms and of firms using the classical financial path. We have left the long-run survival and performance of IPOs and graduates for future research, together with the possible difference in proportions of high-growth firms.

Our findings have implications regarding the use of junior markets and their design when a reflection is required to determine policies to increase the number of IPOs and to consider the IPO pipeline (Mason 2011). As implemented in Canada, the junior exchange seems to be an efficient pipeline to feed the senior exchange. We contend that the substantial differences in liquidity and financing opportunities between the TSXV and the TSX create a situation where firms have a real incentive to reach the senior exchange to get stock liquidity, more extensive funding and a better reputation. This contrasts with the UK situation, where liquidity does not differ much between the AIM and the main market of the LSE (Jenkinson and Ramadorai 2013). The high graduation rate probably results from this incentive together with efforts by the TSXV to promote graduations and to ease the graduation process. The situation where numerous firms that meet the requirements of the senior exchange nonetheless list and stay on the junior market, as in the AIM, is therefore unlikely to occur in Canada.

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Table 1 Variable definitions. Listing means TSX listing.

Variable	Definition
Totassets	Total assets at the fiscal year-end closed before the listing, in \$ million
Lassets	Log transformation (trans.) of Totassets. $Lassets = \log_e (1+Totassets)$
BV	Book value of shareholders' equity in \$ million at the fiscal year-end closed before the listing
LBV	Log trans. of BV. $LBV = \log_e (1+BV)$ when $BV \geq 0$; and $LBV = -\log_e (1-BV)$ when $BV < 0$
Sales	Revenues reported at the fiscal year-end closed before the listing, in \$ million
Lsales	Log trans. of Sales. $Lsales = \log_e (1+Sales)$
Sales growth	Annual compounded growth of Sales for the three years prior to the TSX listing
DNOREV	Dummy variable set to 1 if the firm has no revenues, and 0 otherwise
INC	Net income before extraordinary items at fiscal year-end closed before the listing in \$ million
LINC	Log trans. of INC. $LINC = \log_e (1+INC)$ when $I \geq 0$; and $LINC = -\log_e (1-I)$ when $I < 0$
DNEGI	Dummy variable; $DNEGI = 1$ if $INC \leq 0$, and 0 otherwise
ROA	Return on assets = $INC / Totassets$
Age	Age of the firm, in years, at the listing
DHT	Dummy variable set to 1 for HT firms and 0 otherwise
DVCB	Dummy variable set to 1 if the company is backed by VCs and 0 otherwise
GP	Gross proceeds, in \$ million
EXPLIQ	Expected turnover estimated by the trade amount/market value of an IPO (graduation)-size-sector matched IPO (graduation) 12 months after the matched IPO (graduation)
Paudit	Dummy variable set to 1 if the auditor is prestigious and 0 otherwise
Price to book	Market value of shareholders' equity at the end of the first trading day/BV
OV	Overall value in \$ million. OV is the market price at the end of the first trading day multiplied by the number of shares outstanding immediately after listing
LOV	Log trans. of OV. $LOV = \log_e (1+OV)$
Size	Post-listing shareholders' equity: $GP + BV$ for IPOs and BV for graduates, in \$ million
Lsize	Log trans. of Size. $Lsize = \log_e (1+Size)$
Pct	Percentage of shares hold by top managers and founders after listing
GPTA	Ratio of gross proceeds to total assets
DIPO	Dummy variable set to 1 if the firm lists after an IPO, and 0 otherwise (if the firm graduates)
PRESSREL	Number of press releases about the listing firm in the month prior to the listing in Factiva
DVCB	Dummy variable set to 1 if VCs are involved at listing time and 0 otherwise

Table 2 Descriptive statistics and test of the difference in medians between the graduations and IPOs, for the full sample and the propensity-score matched sample, 1997-2015.

	Full sample				Propensity-score matched sample				
	All Obs. Median	IPOs Median	Graduations Median	Diff Median p value	All Obs. Median	IPOs Median	Graduations Median	Diff. Median p value	
Before listing									
Totassets, M\$	27.41	42.06	22.18	0.00 ***	20.01	22.97	19.36	0.28	
BV, M\$	14.08	12.61	15.62	0.04 **	11.70	7.26	13.83	0.00 ***	
Sales, M\$	17.42	36.56	9.63	0.00 ***	11.27	19.08	6.35	0.00 ***	
Sales growth	0.42	0.32	0.57	0.00 ***	0.49	0.40	0.64	0.14	
DNOREV, mean	0.08	0.07	0.10	0.32	0.09	0.10	0.09	0.67	
DNEGI, mean	0.45	0.46	0.45	0.91	0.54	0.55	0.52	0.71	
ROA	0.01	0.01	0.01	0.91	-0.04	-0.05	-0.03	0.84	
Age, year	8.56	10.68	7.81	0.00 ***	7.45	7.70	7.36	0.28	
DHT, mean	0.57	0.58	0.56	0.82	0.68	0.71	0.65	0.28	
DVCB, mean	0.24	0.43	0.06	0.00 ***	0.29	0.51	0.07	0.00 ***	
Listing									
GP, M\$	37.69	43.65	14.90	0.00 ***	26.45	34.75	14.90	0.00 ***	
EXPLIQ	0.30	0.29	0.31	0.74	0.32	0.27	0.34	0.32	
Paudit, mean	0.75	0.81	0.70	0.01 ***	0.75	0.80	0.70	0.08 *	
Price to book	5.29	8.56	4.04	0.00 ***	6.40	10.78	4.35	0.00 ***	
Post listing									
OV, M\$	94.12	154.04	66.96	0.00 ***	76.81	125.12	53.29	0.00 ***	
Size, M\$	32.24	61.47	20.87	0.00 ***	25.60	46.09	18.25	0.00 ***	
Pct, %	10.96	15.35	0.00	0.00 ***	11.9	16.4	2.51	0.00 ***	
Number of obs.	400	191	209		256	128	128		

***, **, * indicates significance at the 0.01, 0.05 and 0.1 levels respectively. Variables are defined in Table 1. Diff median p value means p value of non-parametric Kruskal-Wallis test of difference between the graduation and IPO groups. For dummies, we report the mean rather than the median, and diff median p value means p value of a Pearson chi-square test of difference between the graduations and IPOs.

Table 3 Number of IPOs, graduations, new listings on the TSXV, exit of VCs by IPO and new firms financed by VCs (new VC-financed firms) per year. Non res. means excluding natural resources firms.

Year	Number of IPOs TSXV non res.	Backdoor listing TSXV non res.	Total new listings TSXV non res.	Number of Graduations on the TSX non res.	Graduation Rate %	Number of TSX IPOs non res.	Number of new VC- financed firms	Number of exits of VCs by IPOs	Exit rate of VCs by IPO %
1997	68	68	136	22	16.18	40	346	10	2.89
1998	37	95	132	23	17.42	29	734	8	1.09
1999	30	95	125	18	14.40	20	304	18	5.93
2000	23	87	110	26	23.64	28	376	23	6.11
2001	10	81	91	11	12.09	5	191	8	4.19
2002	7	76	83	8	9.64	5	254	3	1.18
2003	5	69	74	11	14.86	5	240	1	0.42
2004	6	51	57	17	29.82	16	225	13	5.77
2005	4	55	59	8	13.56	17	261	9	3.45
2006	10	43	53	12	22.64	13	166	7	4.22
2007	8	119	127	15	11.81	19	170	12	7.06
2008	1	37	38	8	21.05	4	164	1	0.61
2009	7	26	33	4	12.12	3	148	1	0.68
2010	3	37	40	5	12.50	6	172	1	0.58
2011	4	28	32	8	25.00	6	156	2	1.28
2012	1	17	18	1	5.56	1	180	1	0.56
2013	5	34	39	1	2.56	7	210	4	1.90
2014	1	44	45	9	20.00	4	181	4	2.21
2015	1	29	30	3	10.00	10	203	4	1.97
Total	231	1091	1322	210	-	238	4681	130	-
Mean	12.16	57.42	69.58	11.05	15.89	12.53	246.37	6.84	2.78

Table 4 Analysis of the differences between future graduates and future IPOs three years before the TSX listing (t-3) using the full sample

	All Obs. Median	IPOs Median	Graduations Median	Diff. Median p value	
Totassets _{t-3} , M\$	8.46	22.80	5.55	0.00	***
BV _{t-3} , M\$	3.42	5.12	2.78	0.01	***
Sales _{t-3} , M\$	5.73	18.20	3.15	0.00	***
INC _{t-3} , M\$	-0.31	-0.04	-0.57	0.02	**
DNOREV _{t-3} , mean	0.10	0.10	0.11	0.83	
DNEGI _{t-3} , mean	0.59	0.51	0.66	0.00	***
DHT	0.57	0.58	0.56	0.82	
Sales growth	0.42	0.32	0.57	0.00	***
Number of obs.	400	191	209		

***, **, * indicates significance at the 0.01, 0.05 and 0.1 levels respectively. Variables are as defined in Table 1. Diff median p value means p value of non-parametric Kruskal-Wallis test of difference between the graduation and IPO groups. For dummies, we report the mean rather than the median, and diff median p value means p value of a Pearson chi-square test of difference between the graduations and IPOs.

Table 5 Ordinary least square regression of the overall value on the fundamentals

	Full sample	Propensity score matched sample	Propensity score matched sample restricted to VC-backed IPOs
	(1)	(2)	(3)
Intercept	2.37721	2.13507	2.72214
	15.46 ***	10.59 ***	9.85 ***
LINC	-0.02303	-0.07953	-0.13095
	-0.88	-2.22 **	-2.97 ***
Lsize	0.42879	0.53846	0.37278
	11.23 ***	9.15 ***	4.94 ***
Lsales	0.08341	0.02345	-0.00221
	2.51 ***	0.55	-0.04
DHT	0.23137	0.16352	0.09937
	2.64 ***	1.59	0.72
DIPO	-0.09502	0.03826	0.26068
	-0.90	0.29	1.67 *
Paudit	0.13385	0.13555	0.17687
	1.48	1.27	1.21
EXPLIQ	0.11756	0.23319	0.25601
	1.88 *	3.24 ***	2.71 ***
GPTA	0.10420	0.04063	0.03555
	3.15 ***	1.16	1.57
PRESSREL	0.01052	0.00660	0.00162
	6.08 ***	2.68 ***	0.56
Number	400	256	130
Adjusted R ²	0.4931 ***	0.4712 ***	0.4493 ***

Student's t are significant for an accepted error risk of 10 percent*, 5 percent**, and 1 percent***. Variables are as defined in Table 1. The dependent variable is the log transformation of the overall value (LOV). Propensity scores are calculated using the logistic model (2) with maximum caliper distance set to 10%. Numbers below the estimated parameters are Student's t.

Table 6 Ordinary least square regression of the percentage of shares hold by top managers and founders after the listing

	Full sample		Propensity Score matched sample	
Intercept	23.03004		15.02066	
	7.21	***	2.96	***
Lsize	-3.19124		-1.96579	
	-3.29	***	-1.24	
Age	-0.01855		0.40932	
	-0.29		1.83	*
GPTA	-1.55219		-0.88490	
	-1.89	*	-0.96	
DIPO	16.48295		14.20797	
	5.98	***	4.08	***
Number	400		256	
Adjusted R2	0.0791	***	0.0765	***

Student's t are significant for an accepted error risk of 10 percent*, 5 percent**, and 1 percent***. Variables are as defined in Table 1. The dependent variable is percentage of shares hold by top managers and founders after the listing (pct). Propensity scores are calculated using the logistic model (2) with the maximum caliper distance set to 10%. Numbers below the estimated parameters are Student's t.