Is Exchange Regulation Effective for Junior Public Equity Markets?

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Introduction

The development of a vibrant junior equity market is important for the economic growth of a country. Securities market regulators also recognize the importance of access to capital for growth-oriented companies, but they also have a responsibility to protect investors, especially the less sophisticated individual investors. Balancing these two objectives is a difficult exercise, and the experience of some countries has shown that finding the proper compromise is difficult to implement in practice.

For example, there was a significant amount of stock market fraud in the US in the 1980s, especially in the penny stock market (see Reimer, 2007). Pandes and Robinson (2014) also report a significant level of fraud with respect to firms listed using exchange regulation on the Canadian junior public market in the mid-1980s. Cumming and Johan (2013) confirm that fraud is higher in the US junior public market than in the senior market between 2005 and 2001, and conclude that higher listing standards result in a lower incidence of US stock exchange fraud. In examining Canadian and UK stock exchanges, Cumming and Johan (2013) find a much lower level of fraud in those countries versus the US, and an overall level of fraud that is lower for the junior versus the senior stock markets in those countries. They suggest that the lower level of detected fraud in Canada and the UK may be due to lower levels of enforcement, or a different method of enforcement, compared to the US.

In response to the US junior equity market fraud of the 1980s, the US Securities and Exchange Commission (SEC) passed the Penny Stock Reform Act (PSRA) in 1990. At the time, Lampe (1991) suggested that the legislation was too restrictive and would harm the ability of

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legitimate firms to raise equity capital. Indeed, Heyman (2007) documents that there was a significant decline in junior public market financings after 1990. Gao, Ritter and Zhu (2013) report that the ability of US firms with a market capitalization under $50 million to access the public equity markets was significantly reduced after the year 2000 for a number of reasons, including regulatory overreach by the SEC. By way of contrast, Pandes and Robinson (2014) find that changes in 1986 to the exchange regulations associated with certain junior Canadian public equity IPOs significantly reduced the incidence of fraud in that market without decreasing the ability of firms to conduct an IPO on that exchange. Cumming, Dannauser and Johan (2015) provide an excellent summary of the results of a number of international studies that examine a broader range of instances of financial markets misconduct and identify the impact of different types of enforcement and regulatory responses.

The US junior public equity markets are regulated by the SEC and as such are an example of a sequential equity market (as defined by Vismara, Paleari and Ritter (2012)). Under this form of market structure, the securities regulator makes all listing decisions. The regulatory overreach hypothesis argues that the passage of the Sarbanes-Oxley legislation in 2002, which applies to all public firms regardless of size, has placed excessive costs on smaller companies. The recent Jumpstart Our Business Startups (JOBS) Act has attempted to reverse some of these costs on smaller firms.

Vismara, Paleari and Ritter (2012) note the different types of regulatory regimes that have been adopted for the junior public equity markets in Europe. These include the sequential, sectorial, and demand-side segmentation models. In the sequential segmentation model, a firm is accepted for listing on an exchange by the securities regulator and the firm is expected to become "seasoned" on the junior market and to use the experience to grow and then graduate to the senior exchange. The sectorial segmentation model is similar in design to the sequential model but the market is established to assist in the development of specific types of firms (i.e. with a technology focus in Europe). Under the demand-side model (also called an exchange-regulated market), securities

market regulators provide an overall securities market framework and guidelines, but the actual listing decisions are delegated to a particular stock exchange.

Early evidence of the ability of European stock markets to help develop junior firms is provided in Rasch (1994), which notes that while the exchanges were able to attract listings in their first few years of operations, the exchanges did not perform well over time as they began to experience significant illiquidity in both the primary and secondary markets. More recently, Vismara, Paleari and Ritter (2012) report that European exchanges that adopted the sequential and sectorial segmentation models were successful in helping firms raise capital in both the primary and secondary markets prior to 2000, but not after 2000. The authors report that few firms from the exchanges that use the sequential and sectorial regulatory models are able to graduate to a senior exchange, and that the long-run performance of the firms is rather weak.

Vismara et al. (2012) report that the demand-side segmentation model like the London Alternative Investment Market (AIM) is more successful in helping firms access capital and graduate to a senior exchange. In a subsequent study, however, Gerakos, Lang and Maffett (2013) find that newly listed AIM firms underperform firms that are listed on more established exchanges with higher regulations. Jenkinson and Ramadorai (2013) examine firms that switch between the AIM and main market over the period 1995-2006 and find 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. The authors conclude that firms appear to choose their optimal level of regulation depending on their specific needs. In a study of 38 Korean junior public firms that graduate to the senior Korean exchange between 1999 and 2010, Park, Binh and Eom (2016) examine the market microstructure of the graduated firms and find that those firm's trading-related market quality deteriorated, or at best remained unchanged, following the graduation. The authors confirm the Jenkinson and Ramadorai (2013) finding that firms should choose their exchange based upon their specific characteristics and that a senior exchange listing may not be ideal for all firms.

Canada's Junior Equity Market Regulations

Canada has a unique securities regulatory structure in that decisions are made at the provincial level rather than at the federal level (a separation which was reinforced by a 2011 Supreme Court of Canada decision). However, there is great harmony in regulations across Canada as the 10 provinces and 3 territories have formed the Canadian Securities Administrators (CSA) to work collaboratively on securities regulations. The various jurisdictions have developed a number of National Instruments that have standardized certain regulations across the country. In addition, there is a push underway by the Canadian federal government to have provinces voluntarily agree to the development of a national securities regulator, but this initiative has been delayed until at least 2018.

Canada had four distinct junior equity markets in effect until late 1999, when the two largest markets (the Alberta Stock Exchange and the Vancouver Stock Exchange) agreed to merge and create the Canadian Venture Exchange (CDNX). Soon thereafter, the other junior exchanges (the Winnipeg Stock Exchange and the small capitalization portion of the Montreal Stock Exchange) were merged into the CDNX and the exchange was purchased by the Toronto Stock Exchange (TSX) in 2001 and renamed the TSX Venture Exchange (TSX-V). The importance of Canada's junior public equity markets is highlighted in Nicholls (2006), which finds that Canada's publicly traded companies had a total market capitalization of approximately 110% of Canada's GDP in 2005 (compared to the US value of 130% and the UK value of 79%), but that the largest 200 listed Canadian firms represented 88% and the smallest 2,000 firms represented only 9% of the entire market's capitalization. Nicholls (2006) thus concludes that Canadian issuers are compelled (or incentivized) to go public at an earlier stage in their development than U.S. firms.

In fact, the TSX-V is specifically 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".[3] Pandes and Robinson (2013) note the long history of Canada's junior public equity markets and the TSX-V, which is primarily used by retail investors to provide capital to 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.

Johan (2010) examines Canadian initial public offerings (IPOs) of senior TSX and junior TSX-V firms over the period 1997-2005 by comparing their pre-IPO behavior and post-IPO performance. She finds that the senior TSX firms have a shorter time period between their IPO announcement date and IPO date, and lower IPO underpricing, suggesting that higher listing standards screen out firms less able to go public. When examining longer term firm performance measures (e.g. 1-year share price performance and trading volume), however, she finds that firm specific factors are more important than the choice of the exchange, suggesting that once listed, TSX-V firms are not at a significant disadvantage compared with TSX firms.

An interesting aspect of the TSX-V is that it provides firms with two distinct regulatory regimes within the same exchange: a sequential regulatory model and a demand-side segmentation model. In particular, a junior firm seeking a public listing can have an IPO on the TSX-V and be subject to scrutiny by the appropriate provincial securities regulator (a sequential regulatory model). Most previous TSX-V studies, including the Johan (2010) study, examine firms that use the sequential regulatory model. Alternatively, a firm may seek a public listing through a reverse takeover of a Capital Pool Company (CPC) shell, which would place the firm under the sole review of the TSX-V (a demand-side segmentation model).

The CPC program originated in the Province of Alberta on the Alberta Stock Exchange in 1986. The program developed as a response to a request by firms for a low-cost method of raising equity capital during an economic downturn in the province at that time. The program essentially

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[3] See the TSX guide to listing: www.tsx.com/resource/en/181/guide-to-listing-2015-06-26-en.pdf.

allows a set of founders to raise a "blind" pool of public market capital that can be used to acquire assets or otherwise increase its size so that the firm meets the minimum regular listing requirements of the exchange. As was the case with US "blind" pools over this time period, there was significant fraud in the early days of the CPC program. A quick regulatory response by Alberta's security market regulators allowed the program to survive and continue to attract listings and help firms grow (see Pandes and Robinson, 2014). The program was only available to investors in Alberta until 1998, at which point the Vancouver and Winnipeg Stock Exchanges adopted a similar program, which then expanded to the remaining major provinces in Canada in 2002.

The CPC program is based on a two-stage listing process. In the first stage, a group of founders (seed capital providers) seek an IPO to increase the pool of capital that they have under their control. Under an amended agreement between the TSX-V and the majority of provincial securities regulators (see TSX-V, 2005), the TSX-V is given the responsibility to review and approve the CPC IPO prospectus, although a provincial securities regulatory has the right to review any such prospectus if it so chooses. The information in the IPO prospectus is quite limited, as the CPC is not allowed to have any operating assets or material contracts when it goes public, and includes information about the backgrounds and capabilities of the founders.

The second stage of the listing process is for the publicly listed CPC shell to conduct a significant transaction (called a Qualifying Transaction (QT)) which could involve the acquisition of assets, the raising of secondary market capital, or the acquisition of an operating company such that the firm is able to meet the TSX-V's minimum listing requirements for the firm's chosen industry. The TSX-V is also responsible for approving a firm's QT, which requires prospectus level disclosure with respect to the transaction. To prevent shirking on the part of the CPC's founders, the QT must be completed within a prescribed time period (18 months prior to 2002 and 24 months thereafter) or face penalties and possible delisting from the TSX-V.

The QT is a form of a reverse merger (RM) although not all RMs are CPCs. A regularly listed IPO on an exchange can perform so poorly over time that it becomes a shell corporation and

then can be subject to a RM. A previous study of Canadian RMs by Carpentier, Cumming and Suret (2012) over the period 1993 to 2003 finds that RMs perform poorly compared with regular IPOs on the same exchange, reinforcing the benefit of the higher regulatory scrutiny associated with an IPO versus a RM. A US study of RMs over the period 2006 to 2008 by Floros and Sapp (2011) finds a positive abnormal return of 48.1% for investors in the shell at the time of the RM, but annual post-RM performance of -91.2%, which reinforces the Canadian results of poor post-RM performance. Both the Canadian and US studies include all forms of RMs, including clean shells such as a CPC firm, and one difference in this study is that we focus solely on the post-RM performance of clean CPC shells only.

Purpose of this Study

Given the earlier discussed European findings that a demand-side segmentation regulatory model leads to better outcomes than the sequential segmentation model, it is worthwhile examining whether this is true in the Canadian context. Pandes and Robinson (2013) note that of the 2,629 IPOs that occurred on the TSX-V between 1993 and 2010, 854 (32.5%) were regular IPOs and 1,775 (67.5%) were CPC IPOs (although the average size of a regular IPO was $1.3 million versus $0.4 million for a CPC IPO).

There have been a few prior studies examining the effectiveness of the CPC program. Robinson (1997) provides evidence that during the early years of the CPC program, over 85.9% of CPC shells were able to complete a QT and 8.3% experienced a successful exit either by being acquired or graduating to a more senior exchange. In a more recent study, Carpentier and Suret (2006) examine the performance of CPC firms after they complete their QT and report that 81.4% of such firms underperform the market after the transaction.

Other studies examine the performance of TSX-V firms that are able to graduate to the TSX (a more senior exchange) to see whether the TSX-V serves as an effective incubator market. Carpentier, L'Her and Suret (2010) find that over the period 1986-2006, there are a greater number

of TSX-V graduations to the TSX than VC-backed IPOs. The authors report that the TSX-V firms that do graduate perform well prior to their graduation but the results are mixed with respect to their post-graduation performance. One issue with their study is that it combines both regular TSX-V IPOs and CPC IPOs, and thus it does not discriminate between the two different types of regulatory regimes used in that market. Meoli, Pandes, Robinson, and Vismara (2016) focus solely on the performance of regular TSX-V IPOs that subsequently graduate to the TSX and find that the post-graduation performance is positive and stronger than the performance of VC-backed IPOs on the TSX, providing support for the sequential segmentation model as an effective regulatory structure.

The purpose of this study is to examine the post-graduation performance of CPC IPOs to see if a demand-side segmentation market can be effective in developing firms to the point where they can successfully transition to a more senior exchange.[4]

Data and Sample Statistics

Even though the CPC program has been in existence since 1986, we have chosen to examine the performance of CPC graduations to the TSX over the period 2000-2014. During the period 1986-1997, the CPC program was only available in the province of Alberta and thus was a more regional as opposed to a national program. As discussed in Pandes and Robinson (2014), it was not until 1998 that a similar program was adopted in other Canadian jurisdictions when this form of financing became more widely adopted across the country. The start year of 2000 is chosen since it coincides with the merger of the two major junior exchanges in Canada, the Alberta Stock Exchange and the Vancouver Stock Exchange, which formed the Canadian Venture Exchange (CDNX) in late 1999. The year 2000 is therefore the first year in which there existed a truly national junior equity market in Canada, and this market was afforded increased credibility when the Toronto Stock Exchange (TSX) acquired it in 2001.

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[4] Of the 128 firms that graduated in our sample, 127 graduated to the TSX and 1 graduated to NASDAQ. All graduations are included in our study, but for simplicity of exposition we will consider all firms to have graduated to the TSX in our discussion.

To be precise, we restrict our study to those CPCs that graduated to the TSX during the period 2000-2014 and which completed their QT during that same interval. Our logic is that until a CPC has completed its QT it is a public shell with no operating assets. It is only once the QT is completed that the firm begins to trade as a regular firm, has operating assets, and begins the process of developing to the point where it can graduate to the TSX.[5] The data used in this paper is gathered from a number of sources. Information about the CPC IPOs is obtained from the Financial Post (FP) Advisor[6] database and these IPOs were verified against a list of CPC IPOs provided by the TSX-V. Each of these CPCs was tracked over time using the TSX-V Infoventure website to identify which of the CPCs successfully completed a QT and which of the CPCs subsequently graduated to the TSX. Stock return data for the CPCs prior to their graduation was also gathered from the TSX-V Infoventure website, while the returns information for firms after their graduation was obtained from the TSX/CFMRC database.[7] Finally, financial and other data for the graduating firms was gathered from Compustat and augmented with data from company financials and filings accessed through the Canadian System for Electronic Document Analysis and Retrieval (SEDAR).

Table 1 presents information about the sample of QTs and graduations during the sample period. There are a total of 1,230 firms that completed a QT between 2000 and 2014, with the annual numbers ranging from 51 to 142. The average time to complete a QT is 1.78 years and, although unreported in Table 1, the median is 1.67 years, and the minimum and maximum times are 0.11 and 16.76 years, respectively.[8] As discussed earlier, the regulations required a CPC to complete its QT within 18 months prior to, and within 24 months starting in, 2002. Consistent with

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[5] As will be discussed in the data analysis section, there were actually a significant number of CPCs that were able to complete their QT and graduate to the TSX immediately (16 CPCs completed their QTs and graduated to the TSX at the same time, and two CPCs completed their QTs and graduated to the TSX within 8 days of their QT).

[6] The FP database is a new issues database in Canada. It is equivalent to the Securities Data Corporation (SDC) new issues database in the US.

[7] The post-graduation performance of the firm that graduated to NASDAQ was computed using CRSP data for both the firm and the index returns.

[8] If a firm does not complete its QT within the regulated time limit, it may ask for an extension but eventually will be moved to the "NEX" board of the TSX-V. If the firm ultimately does complete a QT, it can then move back to the regular TSX-V exchange.

these regulations, the average time to complete a QT was under 1.5 years in 2000 and 2001, and increased thereafter, exceeding 2 years several times.

[TABLE 1 SOMEWHERE HERE]

Table 1 also shows that there are a total of 132 CPC firms that completed their QT between 2000 and 2014 and that subsequently graduated to the TSX (some CPCs merged prior to their graduation, so the actual number of graduations is 128).[9] The average time it takes a CPC to graduate following a QT is 2.79 years for the full sample, but there is wide variation across the years from a low of 0.73 years in 2002 to a high of 4.67 years in 2014. While unreported in Table 1, the median number of years to graduation for the full sample is 2.32 years, and the minimum and maximum times are 0.00 years 13.38 years, respectively. In fact, 18 of the CPC firms graduated concurrently with the completion of their QT since the resulting firm size was large enough to meet the TSX listing requirements. These times to graduation for CPC firms are slightly longer than the times for Canadian VC-backed firms to exit via an IPO, as Cumming and Johan (2010) report mean and median times for those IPOs of 2.45 and 2.17 years, respectively.

In Table 2 we report the descriptive statistics for the sample of 128 CPC graduations.[10] We note that in addition to the 18 firms that graduated concurrently with the QT, there were a significant number of firms that graduated to the TSX before they had generated any revenue. Thus, the descriptive statistics are presented for the full sample of all 128 graduations, for the 18 CPCs that graduated concurrently with the QT, for the 45 firms that were pre-revenue at the time of graduation, and for the remaining 65 firms. We first report that the average size of a firm at the time of its graduation ($SIZE_{GRADUATION}$) is \$88.23 million for the full sample, \$141.18 million for concurrent graduations, \$27.70 million for pre-revenue firms, and \$116.55 million for all other

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[9] Overall, 944 (76.7%) of the 1,230 CPC firms could be considered successful as they either graduate, merge or are acquired, voluntarily delist, or are still trading at the end of 2014.

[10] Although we report that 132 CPC firms graduate to the TSX, a number of CPCs merge prior to the graduation such that the actual number of TSX-V firms that graduate to the TSX is 128.

firms (the pre-revenue firm sizes are statistically significantly smaller at the 1% level than the concurrent graduations and all other firms). The average annual revenue at the time of the firm's graduation is $22.45 million for the full sample, $40.19 million for the concurrent graduations, $0.00 for the pre-revenue firms, and $33.09 million for the remaining firms. In addition, the average time to graduation averaged 2.79 years for the full sample, 0.00 years for the concurrent graduations, 3.25 year for the pre-revenue firms, and 3.45 years for all other firms.

We also measure the average lagged monthly market return ($LMRET_{INITIAL}$) during the month prior to the firm's graduation. We find the mean $LMRET_{INITIAL}$ to be 0.82% for the full sample, while it is 1.98% for concurrent graduations, 0.48% for the pre-revenue firms, and 0.74% for all other firms, and these differences are not statistically significant. We do, however, find that the overall mean results and the results for the concurrent graduations are statistically significantly different from zero at the 1% level, and the mean results for the all other firms category are statistically significantly different from zero at the 5% level. These result suggests that junior public firms are more likely to graduate when there is positive momentum in the capital markets and that larger firms that are ready to list directly on the TSX may be using the CPC program to time their entry onto the senior exchange.

Next, we report the geographic dispersion of our sample. For the purposes of this analysis, we use the location of the firm's assets, which is not necessarily where the firm's head office is located. For the full sample, the largest percentage of observations are found in Ontario, Alberta and British Columbia, which are important centers of economic activity in Canada. This finding is consistent with the results in Sibold (2005), which finds that large public firms are overrepresented in Ontario, while Canada's smaller public companies are overrepresented in BC and to a lesser extent Alberta. There are a few surprises in the results, however, including the relatively low percentage of assets located in the province of Quebec, and the large percentages of assets in the US and other foreign jurisdictions. Interestingly, when we break the sample down by the type of graduation, we see a lower percentage of Alberta-based assets and a higher percentage of US and

other foreign assets for the concurrent graduations. For the pre-revenue firms, the assets from other foreign jurisdictions become even more important and the assets from Alberta becomes much less important. An industry breakdown of the graduating firms sheds further light on these last two results. The most important industry category for the full sample is the extraction industries, predominantly oil & gas and mining, and this industry category is even more important for the concurrent graduations and the pre-revenue firms. For the pre-revenue resource firms, the TSX listing requirement is to have sufficient funds to complete the firm's development program. Thus, the higher percentage of assets from foreign jurisdictions in the extraction industries for the pre-revenue firms is consistent with the idea that many of the world's resource plays are located outside Canada. The second most important industry for the full sample is the finance, insurance and real estate category, but firms from this category are less likely to have a concurrent graduation or graduate before they have any revenue. The third most important industry is the health, education, and legal category, and this involves primarily pre-revenue health-care firms. Overall, the within Canada findings are consistent with the geographic dispersion of economic activity in the country, but the high representation of foreign assets in QT transactions and firm graduations suggests that the CPC program has grown in popularity world-wide.[11]

[TABLE 2 SOMEWHERE HERE]

Returns Analysis

Before examining the returns of CPC firms that graduate to the TSX following their graduation, it is worthwhile examining their performance during the time they are listed on the TSX-V. Robinson (1993) examines the performance of CPC firms listed in the 1986-1991 period

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[11] There is anecdotal evidence that firms from outside Canada, even technology firms from the US, have started to appreciate the development opportunities associated with a TSX-V CPC. For example, in 2011 the US-based technology firm ePals Corporation went public and raised capital in a secondary financing using the TSX-V (see Critchley, 2011). More recently, a Silicon Valley startup, Frankly Inc., decided to turn down VC financing and instead pursued an RTO of a CPC shell on the TSX-V to go public and raise $23 million (US) (see McGee, 2014).

for the three years following their IPO and reports raw returns that are on average positive with large positive skewness. These results do not differentiate between pre-QT and post-QT performance. More recently, Carpentier and Suret (2006) examine post-QT performance in the period 1995-2001 and find quite negative performance on average. The differing results between the two studies could be due to the different sample periods.

To conduct our analysis, we gather public market pricing data for each CPC that had a QT over the period 2000-2014 at three distinct time periods: the traded price at the time of the initial IPO (i.e. the traded price at the end of the first month of a firm's listing); the price of the CPC firm immediately after the completion of its QT; and the price of the firm just prior to its graduation to the TSX (or immediately after graduation if it was halted for an extended period prior to its graduation). As these prices are public market prices, as opposed to the IPO offer price, the returns represent a return that could have theoretically been earned by an investor who purchased the firm's shares in the secondary market. This data collection is very labor intensive and also requires tracking the various name changes and share consolidations or share splits that a firm experiences during its transition from a CPC firm to a TSX-listed firm.

Summary statistics of the returns for the firms that graduated to the TSX are presented in Table 3. Panel A presents the returns from the IPO price to the price immediately after the QT, Panel B presents the returns from the QT price to the pre-graduation price, and Panel C presents the returns over the entire period from the IPO to the firm's pre-graduation price. We can see that over all three time periods, the mean annual return[12] of the CPC firms that graduated are statistically significant and quite large at 39.30% across all firms from the IPO closing price to the QT closing price (Panel A), 47.50% from the QT closing price to the pre-graduation price (Panel B), and 44.41% from the IPO closing price to the pre-graduation price (Panel C). In all cases, the median price is quite a bit lower than the mean price, suggesting a high degree of skewness in the returns

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[12] For periods greater than one year, the returns are annualized, while for periods of less than one year the holding period return is presented. This approach is consistent with the CFA Institute's GIPS standards, which require that returns of less than one year are not annualized.

data. This skewness is also reinforced when we look at the minimum and maximum returns values in Table 3. An illustration of this skewness is presented in Figure 1, which shows the distribution of annualized returns over the three different measurement periods. The distributions of returns over the three measurement intervals are reasonably similar, with the QT to Close returns having slightly less skewness and a larger concentration around 0% returns due to the fact that the QT and closing prices are the same or very close for the 18 concurrent graduations.

Overall, examining the pre-graduation performance by type of graduate reveals that the mean and median (with the exception of the median for pre-revenue graduates) returns for concurrent graduates, pre-revenue graduates, and all other graduates are significantly positive when measured over the IPO to QT and the IPO to graduation periods, with the returns to the concurrent graduates being the largest. Over the QT to graduation period, the concurrent graduate results are close to zero, but both the mean and median values are significantly positive for the other two types of graduates.

[TABLE 3 SOMEWHERE HERE]

To examine the post-graduation performance of CPC firms, we first compute the holding period return from the post-graduation price to the time of the firm's delisting from the TSX, to the end of December 2015, or to three and five years after the graduation (whichever is shortest). We then annualize the returns for intervals of more than one year. The results are presented in Table 4. Panel A presents the three-year post-graduation returns results and Panel B presents the five-year post-graduation returns results. Focusing on Panel A, we can see that across all the graduating firms, the mean and median annual returns are statistically significantly negative, and the returns are positively skewed. The positive skewness is further illustrated by the histogram of annualized returns for the three- and five-year time periods in Figure 2. Panel A of Table 4 also shows that the returns for the concurrent graduations are not statistically significantly negative and are higher than

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those of all other graduating firms, which are higher than those of the pre-revenue graduations. These results suggest that the larger and more established firms are better able to succeed after graduation than the firms that are still figuring out their business model. The results in Panel B confirm the results of Panel A.

[TABLE 4 SOMEWHERE HERE]

We also compute buy-and-hold abnormal returns (BHARs) for each graduation to the TSX over the same three- and five-year time periods. BHARs are calculated as in Loughran and Ritter (1995) using monthly returns from the beginning of the holding period until the minimum of

$$BHAR_i = \left[\prod_{t=1}^{\min(T,delist)}(1 + R_{i.t})\right] - \left[\prod_{t=1}^{\min(T,delist)}(1 + R_{M,t})\right] \qquad [1]$$

where $R_{i,t}$ is the return on stock i at time t, T is the time period in which the BHAR is to be determined, and $R_{M,t}$ is the raw return of the TSX/CFMRC value-weighted index.[13]

The results in Panel A and Panel B of Table 4 show that across most of the graduation categories, the BHARs are statistically significantly negative in both mean and median values over both the three- and five-year periods following the firm's graduation. The mean and median BHAR results for the concurrent graduations are not statistically significantly different from zero over the three- and five-year period, but these BHAR returns for the concurrent graduations are heavily influenced by outliers in the returns data. Overall, the results indicate that all three types of graduations in our sample – concurrent graduations, pre-revenue graduations, and all other graduations – perform much worse, and for the latter two categories significantly worse, than the overall market after their graduation. These results are consistent with the findings of Carpentier,

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[13] The TSX/CFMRC value-weighted index is the market value weighted average monthly return for all domestic common equities in the CFMRC (Canadian Financial Markets Research Centre) database. This index is the Canadian equivalent of the CRSP value-weighted index in the US.

Cumming and Suret (2012) and Floros and Sapp (2011) regarding the relatively poor performance of RMs, and are also consistent with the results in Ritter (2016), which documents three-year market-adjusted returns of -42.1%, -35.1% and -22.2% for the three smallest market capitalization groups of US IPOs over the period 1980-2014.

In unreported tests, we also conduct multivariate analyses to determine the factors that influence a firm's post-graduation performance (as measured by both the three-year and five-year BHAR values). Our right-hand-side independent variables include firm size, the book-to-market ratio, operating performance, leverage, and dummy variables for whether the firm is a concurrent graduation, whether the QT assets are in Canada or not, and whether the CPC underwriter is in the top 20 in the league tables. The underwriter dummy variable is included since Cumming, Pandes and Robinson (2015) find that in the Canadian private equity market, high-quality agents provide certification and networking benefits to their client firms. None of these independent variables turn out to be significant at the 5% level of significance in our results. We also included control variables for the year of the QT and the industry of the QT's assets. Our results indicate that graduations from SIC codes 5 (Trade) and 9 (Public Administration and Other) significantly underperform SIC code 1 (Mining, Energy and Construction) at the 10% level for the three-year BHAR values. Moreover, SIC codes 3 (Heavy Manufactured Products) and 4 (Transportation and Utilities) underperform SIC code 1 at the 10% level and SIC code 9 (Public Administration and Other) underperforms SIC code 1 at the 5% level of significance for the five-year BHAR values. These results provide limited evidence that the firms in the oil and gas and the mining industries perform relatively better than firms from some other industries after graduating to the TSX.

Summary and Conclusions

The purpose of this study is to examine whether a junior public equity market exchange that is regulated under a demand-side segmentation model can be effective in helping firms access capital and grow. We focus on the CPC program on the TSX-V in Canada, which is an exchange-

regulated program. Our results suggest that the CPC program has helped increase the number of junior public firms within Canada, and that a reasonable percentage of these firms (in excess of 10%) have been able to grow and graduate to a more senior exchange within a relatively short period of time (on average under 3 years). The number of listings and the rate of graduation have also been consistently high over the 2000-2014 sample period.

Our results also indicate that these graduating CPC firms have experienced strong secondary market performance while listed on the TSX-V, both before and after their QT transactions. However, we further show that the post-graduation performance of these firms is much worse than the market index in the three- and five-year periods after the graduation. This underperformance holds across various types of graduating firms, such as concurrent graduates, pre-revenue graduates, and all other graduates.

Overall, our results regarding the effectiveness of a demand-side segmentation market in Canada are mixed. Although such a market can help junior public firms access capital and grow, it appears that the firms try to time their graduation based on the performance of the overall equity markets, and this could indicate that the firms are graduating too soon and thus experience relatively poor performance subsequent to their graduation. This result is interesting in light of other recent research that finds regularly listed TSX-V IPOs that graduate to the TSX perform relatively well after their graduation. The contrasting results provide some evidence that a demand-side segmentation market is not as effective as a sequential segmentation market.

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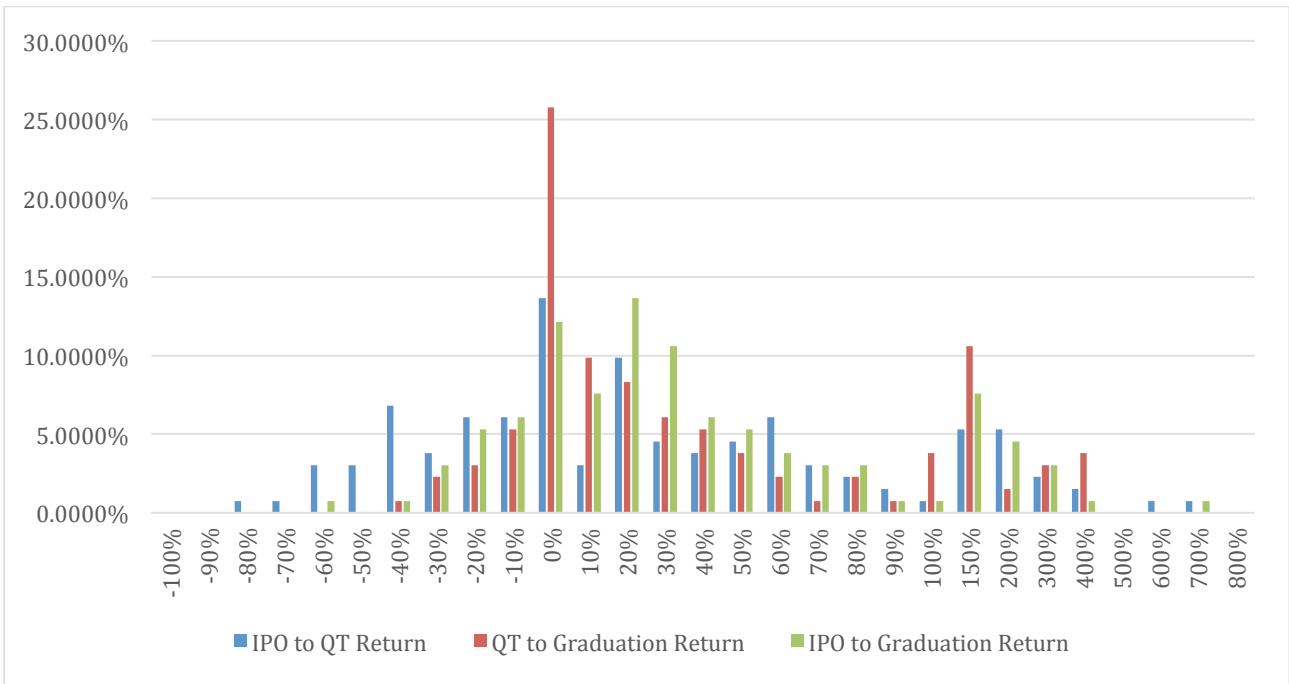
Figure 1: Annualized CPC returns prior to graduation to the TSX
This figure presents a histogram of annualized returns for CPC firms while listed on the TSX-V and prior to the graduation. The returns are computed over three time periods: the CPC IPO to the QT transaction; the QT transaction to the pre-graduation delisting date; and the CPC IPO to the pre-graduation delisting date. All holding period returns are then annualized for intervals of more than one year.
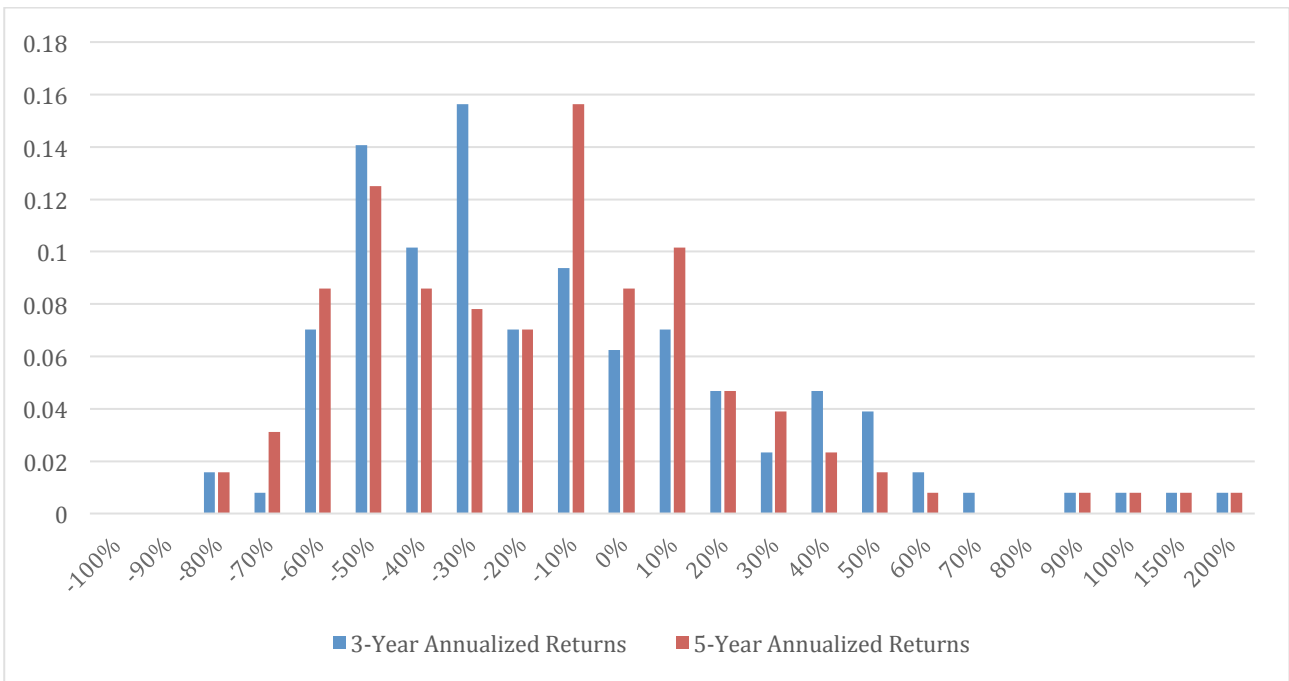
Figure 2: Annualized CPC post-graduation returns
This figure presents a histogram of annualized returns over the three- and five-year periods after the CPC graduation. The holding period return is computed from the post-graduation price to the time of the firm's delisting from the TSX, to the end of December 2015, or to three and five years after the graduation (whichever is shortest). The holding period returns are then annualized for intervals of more than one year.

Table 1. Sample Overview

This table reports a yearly breakdown of the population of 1,230 Canadian CPC firms that experience a Qualifying Transaction during the period 2000-2014. The yearly breakdown includes the number of firms that completed their QT in a given year and the average time it took a firm to complete this transaction. The table also reports the yearly number of firms that completed a QT between 2000 and 2014 and that graduated to the TSX, as well as the average time it took each firm to graduate.

Year	Qualifying Transactions	Average Time to Complete the QT	TSX Graduations	Average Time to Graduation
2000	79	1.38	-	-
2001	67	1.35	-	-
2002	87	1.90	2	0.73
2003	96	2.52	7	0.93
2004	75	2.18	11	2.38
2005	73	1.26	12	2.21
2006	71	1.25	13	2.12
2007	81	1.30	20	3.09
2008	96	1.42	11	1.94
2009	93	1.81	4	1.55
2010	142	2.10	14	2.85
2011	89	1.83	13	4.00
2012	61	1.88	8	3.61
2013	69	1.87	8	3.39
2014	51	2.31	9	4.67
Total	1,230	1.78	132	2.79

Table 2. Descriptive Statistics: CPC Graduations

Average values are computed for the set of 128 CPC firms that experience a Qualifying Transaction (QT) during the period 2000-2014 and that graduate to a more senior exchange during that interval. In addition, the average values are presented for three distinct types of graduations: those that occurred at the same time as the QT (Concurrent Graduations), those that occurred for firms that had not yet achieved first sales (Pre-Revenue), and all other graduations (All Others). We also note that the reason there are 128 firms in this table, while there are 132 firms in Table 1 and Table 3, is that some former CPC firms merged prior to graduating to the TSX. Thus, only 128 firms actually graduate but they represent 132 CPC firms.

	Total	Concurrent Graduations	Pre-Revenue	All Others
$SIZE_{GRADUATION}$ (mCAD)	88.23	141.18	27.70	116.55
$REVENUE_{GRADUATION}$ (MCAD)	22.45	40.19	0.00	33.09
$TIME_{GRADUATION}$ (years)	2.79	0.00	3.25	3.45
$LMRET_{INITIAL}$ (%)	0.82	1.98	0.48	0.74
Province = AB (Alberta) (%)	21.09	11.11	6.67	33.85
Province = BC (British Columbia) (%)	17.19	16.67	24.44	12.31
Province = MB (Manitoba) (%)	3.13	0.00	2.22	4.62
Province = NB (New Brunswick) (%)	0.78	0.00	2.22	0.00
Province = NL (Newfoundland and Labrador) (%)	1.56	0.00	4.44	0.00
Province = NS (Nova Scotia) (%)	3.13	0.00	4.44	3.08
Province = ON (Ontario) (%)	25.00	33.33	20.00	26.15
Province = PEI (Prince Edward Island) (%)	0.78	0.00	0.00	1.54
Province = QC (Quebec) (%)	6.25	5.56	4.44	7.69
Province = SK (Saskatchewan) (%)	1.56	0.00	0.00	3.08
Location = US (%)	8.59	22.22	8.89	4.62
Location = Other Foreign (%)	10.94	11.11	22.22	3.08
SIC=1: Mining, Energy and Construction (%)	50.00	55.56	73.33	32.31
SIC=2: Light Manufactured Products (%)	1.56	0.00	0.00	3.08
SIC=3: Heavy Manufactured Products (%)	4.69	16.67	2.22	3.08
SIC=4: Transportation and Utilities (%)	0.78	0.00	2.22	0.00
SIC=5: Trade (%)	0.78	0.00	0.00	1.54
SIC=6: Finance, Insurance and RE (%)	16.41	5.56	0.00	30.77
SIC=7: Services and Technology (%)	9.38	11.11	0.00	15.38
SIC=8: Health, Education, Legal (%)	14.84	5.56	22.22	12.31
SIC=9: Public administration and other (%)	1.56	5.56	0.00	1.54
Obs.	128	18	45	65

Table 3. Return Calculations: TSX-V

Average returns values on the TSX-V are computed for the set of 132 CPC firms that experience a Qualifying Transaction (QT) during the period 2000-2014 and that graduate to a more senior exchange during that interval. In addition, the average values are presented for three distinct types of graduations: those that occurred at the same time as the QT (Concurrent Graduations), those that occurred for firms that had not yet achieved first sales (Pre-Revenue), and all other graduations (All Others). ***, ** and * represent statistical significance (from zero) at less than 1%, 5% and 10%, respectively.

Panel A: IPO to QT Return

	Total	Concurrent Graduations	Pre-Revenue	All Others
Mean (%)	39.30***	87.80**	30.66***	32.70***
Median (%)	13.61***	13.84*	3.06	14.51***
Minimum (%)	-84.44	-60.44	-66.83	-84.44
Maximum (%)	666.67	666.67	367.79	588.52
Obs.	132	18	46	68

Panel B: QT to Pre-Graduation Return

	Total	Concurrent Graduations	Pre-Revenue	All Others
Mean (%)	47.54***	-0.36	45.37***	61.70***
Median (%)	12.27***	0.00	21.77***	19.62***
Minimum (%)	-43.81	-4.27	-43.81	-30.14
Maximum (%)	380.66	0.00	356.85	380.66
Obs.	132	18	46	68

Panel C: IPO to Pre-Graduation Return

	Total	Concurrent Graduations	Pre-Revenue	All Others
Mean (%)	44.41***	86.83**	38.15***	37.42***
Median (%)	19.97***	13.84*	24.44***	19.97***
Minimum (%)	-60.29	-60.29	-40.63	-33.50
Maximum (%)	650.00	650.00	236.40	352.34
Obs.	132	18	46	68

Table 4. Return Calculations: TSX

Average post-graduation returns values are computed for the set of 128 CPC firms that experience a Qualifying Transaction (QT) during the period 2000-2014 and that graduate to a more senior exchange during that interval. In addition, the average values are presented for three distinct types of graduations: those that occurred at the same time as the QT (Concurrent Graduations), those that occurred for firms that has not yet achieved first sales (Pre-Revenue), and all other graduations (All Others). ***, ** and * represent statistical significance (from zero) at less than 1%, 5% and 10%, respectively.

Panel A: 3-Year Returns

	Total	Concurrent Graduations	Pre-Revenue	All Others
Average Annual Return				
Mean (%)	-18.02***	-3.55	-24.82***	-17.32***
Median (%)	-29.44***	-15.27	-31.55***	-26.97***
Minimum (%)	-83.29	-82.32	-77.76	-83.29
Maximum (%)	157.73	157.73	48.83	107.64
BHAR				
Mean (%)	-33.80***	25.12	-50.93***	-38.27***
Median (%)	-63.94***	-51.15	-62.66***	-65.05***
Minimum (%)	-158.26	-103.64	-146.19	-158.26
Maximum (%)	614.35	614.35	183.16	331.55
Obs.	128	18	45	65

Panel B: 5-Year Returns

	Total	Concurrent Graduations	Pre-Revenue	All Others
Average Annual Return				
Mean (%)	-19.55***	-11.33	-26.47**	-17.04***
Median (%)	-19.22***	-28.18	-23.57***	-15.82***
Minimum (%)	-83.29	-82.32	-77.76	-83.29
Maximum (%)	157.73	157.73	45.69	107.64
BHAR				
Mean (%)	-42.04***	0.95	-63.54***	-39.07***
Median (%)	-70.40***	-78.09	-80.43***	-61.30***
Minimum (%)	-199.64	-141.10	-195.38	-199.64
Maximum (%)	614.35	614.35	168.03	331.55
Obs.	128	18	45	65