Research Study

Do Companies Go Public Too Early in Canada?

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1. Executive Summary

This paper provides complementary analyses of Canadian venture capital ("VC") and Initial Public Offering ("IPO") markets. The first part of the paper presents evidence on the duration of investment in 557 Canadian and 1607 United States ("U.S.") VC-backed companies over the period 1991-2004. We compare the time from first VC investment to VC exit across the range of different VC exits, including IPOs, private exits (acquisitions, secondary sales and buybacks) and write-offs. The data indicate that time to VC-backed IPOs is shorter in Canada than that in the U.S., but time to VC-backed acquisitions and write-offs is longer in Canada than in the U.S.. The data further indicate a significantly smaller percentage of VC-backed IPOs in Canada relative to the U.S., and a greater percentage of private exits and write-offs in Canada relative to the U.S.. The data are consistent with the view that Canadian VCs are comparatively less capable at incubating companies than their U.S. counterparts, which is perhaps most appropriately explained by the institutional structure of Canada's VC market.

The second part of this paper studies Canadian IPOs and presents evidence on the share price performance of Canadian IPOs over the 1997-2004 period for the 1-day, 6-month, 1-year and 2-year horizon. The data indicate smaller companies that go public on the junior or venture exchange (the Toronto Stock Exchange – Venture Exchange or "TSX-V", and predecessor exchanges) suffer greater costs in terms of underpricing and worse long-term performance relative to the more senior exchange (the Toronto Stock Exchange, or "TSX") IPOs. Furthermore, among the TSX IPOs, there is evidence of greater 1- and 2-year returns for companies with greater assets at the time of IPO.

The data analyzed in this paper suggest some changes to public policy are warranted in Canada. The VC analyses are consistent with prior work that has argued for changes to public VC programs in Canada. The IPO analyses, however, do not necessarily imply that changes to public policy are warranted. The comparatively lower quality of Canada's VC market gives rise to a need for Canadian companies to access public capital markets earlier than their counterparts in the U.S.. Without changes to Canada's pre-IPO markets, changes to Canada's IPO markets would be premature.

2. Summary of Recommendations

Recommendation #1: Consistent with reforms in 2005 in Ontario, tax subsidies provided to Labour Sponsored Venture Capital Corporations ("LSVCCs") in other Canadian jurisdictions should be discontinued. LSVCCs have poorly designed governance mechanisms that lead to inefficient VC investment. LSVCCs also compete with private venture capital ("VC") funds and lower returns to VC investment in Canada, thereby discouraging private VC investment in Canada. Other forms of public support for VC markets that have been more successful (e.g., such as those in the United States) could be considered in Canada.

Recommendation #2: Only after a sufficient period of time (i.e., a number of years) in which there are improvements to VC (pre-IPO) markets, reconsideration should be given as to whether listing standards are too low. Listing standards should not be changed currently (as at 2006), since junior stock exchanges act as an imperfect substitute[1] for the comparatively lower quality of Canada's VC markets.

[1] They are imperfect substitutes as venture capitalists are typically considered to be value-added active investors while public stock investors are passive investors.

3. Introduction

Listing standards are significantly less onerous on Canada's stock exchanges relative to that in the United States. The significantly lower listing standards in Canada relative to the U.S. naturally give rise to the question of whether companies go public too early in Canada. This paper investigates this question by providing complementary empirical analyses of Canada's pre-Initial Public Offering ("IPO") and IPO markets. Our analyses of pre-IPO markets focus on the venture capital ("VC") and private equity ("PE") markets in Canada

If companies go public too early then there are economic and social costs to both the companies and their shareholders. In respect of the companies, going public too early means that the companies are faced with costly disclosure requirements and other associated disadvantages with being a publicly traded company. Going public also imposes large direct costs associated with preparing a prospectus, and indirect costs in terms of underpricing. Prior work is consistent with the view that the burden of these costs is more significant on smaller companies than larger companies.[2] In respect of company shareholders, it has been well documented that smaller and younger companies that go public are more likely to eventually delist (size and age are highly correlated, but size is more directly related to delisting than age in these studies). For example, Peristiani[3] that shows from a sample of 13,098 U.S. IPOs over the 1990-2000 period, there were 863 companies (6.6%) that delisted, and a primary determinant of whether a company delisted was its size in terms of the assets at the time of the IPO. Similarly, companies that go public in Canada tend to be much smaller than those in the U.S., and evidence shows a greater propensity to delist in Canada among smaller companies. In a sample of 1,891 Canadian IPOs over the 1991-2000 period, there were 195 delistings (10.3%).[4] As size has been shown to be a primary determinant of IPO survival, a natural concern in Canada is whether companies are going public when they are too young or too small. Overall, therefore, it is highly worthwhile to address the issue of whether companies in Canada go public too early.

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[2] See J. Ritter "Initial Public Offerings" (1998) in *Warren, Gorham, and Lamont Handbook of Modern Finance* edited by Dennis Logue and James Seward, Boston and New York: WGL/RIA. See also N. Ursel "Priced to Sell: The Evolution of Underpricing in Canadian Initial Public Offerings" (February 2000) *Canadian Business Economics* 15.

[3] S. Peristiani "Evaluating the riskiness of initial public offerings: 1980-2000" (2001) Federal Reserve Bank of New York Staff Report 167.

[4] C. Carpentier, M. Kooli and J.-M. Suret "Initial public offerings: status, flaws and dysfunctions," (2003) Research Paper Prepared for the Small Business Policy Branch, Industry Canada.

An analysis of the issue of whether companies go public too early requires an analysis of IPO performance in relation to size and age. Importantly, however, this type of traditional analysis of IPOs is not enough to fully assess the policy issue of whether companies go public too early in Canada. This issue also requires an analysis of *pre-IPO markets*; in particular, VC and Private Equity markets. All companies require capital to get to the IPO stage. To the extent that the pre-IPO capital market is inefficient, companies have an incentive to reach out to public markets sooner than might otherwise be preferred. If the pre-IPO market is grossly deficient and IPO listing standards are overly onerous, this would impose massive hurdles on companies trying to access capital. Longer VC backing prior to an IPO gives rise to superior IPO performance.[5]

This paper provides complementary analyses on pre-IPO markets and IPO markets. In the first part on pre-IPO markets, we study the Canadian VC market and provide comparisons to the U.S. VC market. We focus the analysis of VC markets on the time to exit. VCs may exit their investment by IPO, private exit (acquisition, secondary sale or buyback) or by write-off (liquidation). We study the time from first VC investment to VC exit for each of these exit vehicles in both Canada and the U.S.. The data analyzed comprise a sample of 557 Canadian and 1,607 U.S. VC-backed companies over the period 1991-2004. Our analysis significantly extends the analyses considered in prior studies on VC investment duration. For instance, Cumming and MacIntosh[6] provide international comparisons of VC investment duration based on 200 observations, but do not have sufficient data to separately examine VC investment duration for IPOs separately from other VC exit outcomes. Other studies[7] with more extensive U.S. data do not consider international comparisons, unlike our analyses. In this paper we provide econometric analyses of VC investment duration in Canada and the U.S. for the complete class of different exit outcomes.

In the second part of this paper, we assess the performance of Canadian IPOs in relation to age and size, among other variables. We study 345 Canadian IPOs on the senior exchange (TSX) and the junior or venture exchange (TSX-V) (including the predecessor exchanges of the TSX-V) for the period 1997-2004. We analyze the affect of size on share market performance, as well as provide complementary analyses of

[5] W.L. Megginson and K.A. Weiss "Venture capitalist certification in initial public offerings" (1991) 46 *Journal of Finance* 879; P.A. Gompers and J. Lerner *The Venture Capital Cycle*. Cambridge: MIT Press (1999).
[6] D.J. Cumming and J.G. MacIntosh "Venture capital Investment duration in Canada and the United States" (2001) 11 *Journal of Multinational Financial Management* 445. See also D.J. Cumming and J.G. MacIntosh "Venture Capital Exits in Canada and the United States" (2003a) 53 *University of Toronto Law Journal* 10; D.J. Cumming and J.G. MacIntosh "A Cross-Country Comparison of Full and Partial Venture Capital Exits" (2003b) 27 *Journal of Banking and Finance* 511.
[7] P. Giot and A. Schwienbacher "IPOs, Trade Sales and Liquidations: Modelling Venture Capital Exits Using Survival Analysis" (2003) *Working Paper, University of Amsterdam.*

the time to go public from the date of the preliminary prospectus. We further consider the frequency of IPOs each year in Canada relative to the U.S., as well as provide comparative summary data for company age at the time of IPO in Canada, Europe and the U.S.. Our analysis of IPO performance in Canada complements prior work[8] on Canada's IPO markets by focusing on a richer set of new information collected on asset size and company age in respect of IPO share price performance. The details introduced in this paper enable a new and richer interpretation of IPO performance in relation to size, among other things.

The data in this paper indicate the following results. First, Canadian VCs are significantly less successful at achieving IPOs than their U.S. counterparts. The data indicate that of 547 Canadian exits over the 1991-2004 period, VCs achieved 32 IPOs (5.7% of all exit outcomes), 411 private exits (acquisitions, secondary sales and buybacks) (73.8%) and 114 write-offs (20.5%). By contrast, among the 1,607 U.S. exits over the 1991-2004 period from private U.S. VC funds, 35.7% were IPOs, 54.6% were private exits and 9.7% were write-offs. In other words, there is a smaller percentage of VC-backed IPOs in Canada relative to the U.S., and a greater percentage of both private exits and write-offs in Canada relative to the U.S.. The data are thus consistent with the view that Canadian VCs are comparatively less skilled than their U.S. counterparts at incubating companies. For better companies, IPOs are typically the best exit vehicle. For less viable companies that cannot operate as a stand-alone publicly traded company, acquisitions are better exits than IPOs. Fewer IPOs means less successful companies are created in Canada.[9] Consistent with prior work,[10] we argue in this paper that the deficiencies in Canada are best explained by the improper design of public support programs for VC in Canada.

Second, despite the comparatively fewer VC-backed IPOs in Canada relative to the U.S., Canadian VCs are much quicker to take companies public than their U.S. counterparts. Over the 1991-2004 period, the average time to IPO from first VC investment was 2.45 years in Canada and 2.95 years in the U.S.. Note as well that Canadian VCs take a much longer time to exit by way of private sales and write-offs than their U.S. counterparts.

Third, there is evidence that asset size affects IPO performance. The average 1- and 2-year returns are greater among TSX IPOs with greater assets, and evidence of greater 2-year returns among companies that are older at the time of IPO. The data indicate greater underpricing and lower long-term performance

[8] P. Halpern, *Financing Growth in Canada*, (editor) University of Calgary Press (1997).
[9] Consistent with B.S. Black and R.J. Gilson "Venture Capital and the Structure of Capital Markets: Banks versus Stock Markets" (1998) 47 *Journal of Financial Economics* 243; Gompers and Lerner, *supra* note 5; Cumming and MacIntosh (2003a,b), *supra* note 6.
[10] Cumming and MacIntosh, (2001, 2003a,b) *supra* note 6.

among TSX-V IPOs relative to TSX IPOs. The data further indicate the time to IPO from the preliminary prospectus is shorter for TSX IPOs relative to the TSX-V IPOs, which suggests TSX IPOs are better prepared to go public and/or face less regulatory scrutiny in regards to their prospectus. VC-backed IPOs in Canada also show a lower 6-month return than non-VC backed IPOs. Note, however, that the number of IPOs per year in Canada is much more stable relative to the number of IPOs per year in the U.S., which suggests that Canadian companies do not rush to market when market conditions are stronger.

We argue in this paper that the poorer performance of smaller IPOs in Canada does not necessarily imply a need for regulatory change, such as imposing more onerous IPO listing standards. The comparatively lower quality of Canada's VC market gives rise to a need for Canadian companies to access public capital markets earlier than their counterparts in the U.S.. This paper argues that changes to Canada's pre-IPO markets are warranted before any changes are introduced to Canada's IPO markets. The suggested changes to Canada's pre-IPO markets are discussed in detail in this paper.

This paper is organized as follows. Section 4 focuses on Canada's pre-IPO markets and the time to VC exit in Canada and the U.S.. Section 5 focuses on Canada's IPO markets and performance in relation to size. The last sections discuss policy implications and concluding remarks.

4. Venture Capital in Canada and the U.S.

i. Institutional Details on Venture Capital in Canada

This section provides an overview of Canada's VC industry.[11] The summary statistics presented have been compiled from the Canadian Venture Capital Association ("CVCA") Annual Reports (1989 – 2005 for the years 1988 – 2004). Canada's VC funds collectively manage in total approximately $20 billion in capital in 2004 (in 2004 Canadian dollars). The growth of Canada's VC market for 1992-2004 by type of investor is depicted in Figure 1. Investor types include corporate, institutional, government, private limited partnerships, Labour-Sponsored Venture Capital Corporations ("LSVCCs"), and "other" types of investors with an interest in specific PE deals, but without a permanent market presence. In line with the different types of investors, there are also different types of VC and PE funds. Each of these types of funds in Canada has been described in previous research.[12] Private independent funds tend to be organized as limited partnerships comprising both high net-worth individuals and institutional investors as limited partners. Corporate VC funds are subsidiaries of large corporations. Federal or provincial governments invest in and run government funds by employing professional VC fund managers.[13] Hybrid funds are "funds which are formed in response to a government incentive or an investment by government alongside private investors, or which have secured more than 50% of their capital from another hybrid fund".[14] LSVCCs are tax-subsidized mutual funds that invest in private equity. Investors in LSVCCs are limited to individuals, unlike private limited partnerships that receive the majority of their capital from institutional investors like pension funds.[15] LSVCCs have accumulated the most capital under management in recent years (see Figure 1), which can be explained by

[11] See Gompers and Lerner *supra* note 5 for a collection of seminal articles on U.S. VC finance. Almost all of the VC funds in Japan (the focus of this paper) are generalists in the sense that they consider at least some traditional early-stage venture investment as well as at least some later-stage private equity investment; we control for different stages in our analyses, but do not (and cannot) exclude funds on the basis of considering certain stages in part of their portfolio investments.

[12] Halpern *supra* note 8 (1997); Cumming and MacIntosh (2001, 2003a,b) *supra* note 6; see also J.A. Brander, R. Amit, and W. Antweiler "Venture Capital Syndication: Improved Venture Selection versus the Value-Added Hypothesis" (2002) 11 *Journal of Economics and Management Strategy* 423; D.J. Cumming and J.G. MacIntosh "Crowding Out Private Equity: Canadian Evidence" (2006) *Journal of Business Venturing,* forthcoming; D.J. Cumming and S.A. Johan "Is it the Law or the Lawyers? Investment Covenants Around the World" (2006) *European Financial Management*, forthcoming.

[13] Examples of government funds include the Crown Investments Corporation of Saskatchewan and Innovatech du Grand Montreal. Pension funds affiliated with government bodies are classified as institutional investors by the Canadian Venture Capital Association (see http://www.cvca.ca/full_members/index.html).

[14] Since 2000, Macdonald and Associates, Ltd have adopted the category "institutional" instead of "hybrid"; see http://www.canadavc.com

[15] Cumming and MacIntosh, *supra* note 12 discuss LSVCCs in much greater detail. The CVCA Annual Reports (posted at http://www.cvca.ca/statistical_review/index.html) provide details on the sources of capital by type of institutional investor.

the tax incentives for investors in LSVCCs.[16]

Figure 2 presents data from the CVCA indicating capital under management, capital available for investment and new venture funds for the 1988-2001 period. The capital available for investment reflects the extent to which contributions to VC funds have outstripped the funds' ability to invest these contributions. On the basis of the CVCA data, it can be seen from Figure 2 that, historically, there has been a large "overhang" of uninvested capital in Canada. Cumming and MacIntosh[17] argue that the size of the overhang is accounted for by the comparative lack of skill of LSVCC managers. While no systematic evidence exists, anecdotal evidence suggests that many of the LSVCC fund managers have little or no background in VC investing. This has led to an inability to identify or have access to, and incubate, promising investments.

Figure 3 presents the performance of LSVCCs over the past 10 years. Figure 3 clearly indicates that an index of LSVCC performance has lagged comparable indices. This is consistent with related evidence documenting inferior LSVCC performance relative to U.S. venture investments,[18] and the inferior performance of LSVCC investments relative to private independent and other Canadian VC investments.[19] It is also consistent with evidence in Halpern's evidence that LSVCC performance generally has lagged both Guaranteed Investment Certificates ("GICs") and Treasury bills.[20]

The dominant presence of government subsidized LSVCC funds in Canada is in sharp contrast to the U.S. VC market. Prior work has shown that LSVCCs distort efficient VC investment patterns in Canada relative to the U.S..[21] Further, LSVCCs crowd out private VC funds.[22] LSVCCs have much larger portfolios of investee companies per fund manager than private independent VCs in Canada,[23] and distort the selected security in Canada.[24]

Overall, therefore, there are major distortions in the Canadian VC market as a result of LSVCCs. Consistent

[16] D. Osborne and D. Sandler "A Tax Expenditure Analysis of Labour-Sponsored Venture Capital Corporations," (1998) 46 *Canadian Tax Journal* 499; see also Cumming and MacIntosh (2001, 2003a,b) *supra* note 6.
[17] Cumming and MacIntosh, ibid.
[18] Cumming and MacIntosh, *ibid*.
[19] Brander *et al.*, *supra* note 12.
[20] Halpern's (1997) *supra* note 8.
[21] Cumming and MacIntosh (2001) *supra* note 6.
[22] Cumming and MacIntosh (2006) *supra* note 12.
[23] Cumming, D.J. (2005). "Agency Costs, Institutions, Learning and Taxation in Venture Capital Contracting," (2005) 20 *Journal of Business Venturing* 573; D.J. Cumming "The Determinants of Venture Capital Portfolio Size: Empirical Evidence," (2006) *Journal of Business*, forthcoming.
[24] Cumming (2005, 2006), *Ibid*.

with Cumming and MacIntosh, and Armour and Cumming,[25] we expect this to give rise to fewer successful exits in Canada. That is, Canadian VCs will be less able to successfully incubate companies and bring them to IPO. We further expect Canadian VCs will add less value to their investees relative to their U.S. counterparts. One way in which this will manifest itself is by virtue of the shorter time to IPO in Canada. Likewise, in view of the comparative lack of value-added provided by VCs in Canada, we further expect that quality entrepreneurs will be less inclined to seek VC in Canada and, instead, will access public venture markets via the TSX-V, as discussed further in Section 5 of this paper.

ii. Data and Summary Statistics

We study the time to VC exit in Canada and the U.S. from a sample of 557 Canadian and 1,607 U.S. VC-backed companies over the period 1991-2004. The Canadian VC data were obtained from Macdonald and Associates, Limited. The U.S. VC data were obtained from Venture Economics, Inc. The Canadian data comprise all investments and exits recorded by Macdonald and Associates over the 1991-2004 period. The U.S. data comprise similar information for the 1991-2004 period from private limited-partnership VC funds.

VC investment duration statistics for different exit outcomes in Canada and the U.S. are presented in Table 1 and Figures 4 and 5. The data indicate that of 547 Canadian exits over the 1991-2004 period, VCs achieved 32 IPOs (5.7%), 411 private exits (acquisitions, secondary sales and buybacks) (73.8%) and 114 write-offs (20.5%). By contrast, among the 1,607 U.S. exits over the 1991-2004 period from private U.S. VC funds, 35.7% were IPOs, 54.6% were private exits and 9.7% were write-offs. In other words, there is a smaller percentage of VC-backed IPOs in Canada relative to the U.S., and a greater percentage of both private exits and write-offs in Canada relative to the U.S.. The data are thus consistent with the view that Canadian VCs are comparatively less skilled than their U.S. counterparts at incubating companies, and this difference may be explained by the institutional structures in Canada (discussed above in Section 4).

Table 1 also provides comparative information on VC investment duration and exit success in Europe and Australasia. Canadian VCs have achieved a much smaller fraction of IPOs than their European and Australasian counterparts. In short, Canadian VCs have had the worst record in regards to IPO exit in North America, Europe and Australasia since the early 1990s.

Despite the comparatively fewer VC-backed IPOs in Canada, Canadian VCs are much quicker to take these companies public (Table 1). Time to IPO from first VC investment in Canada is on average 2.45 years,

[25] Cumming and MacIntosh (2001) *supra* note 6; J. Armour and D. Cumming "The Legislative Road to Silicon Valley" (2006) *Oxford Economic Papers*, forthcoming.

while time to IPO in the U.S. is 2.95 years from first VC investment over the 1991-2004 years. Time to VC-backed IPO is likewise shorter in Canada relative to European- and Australasian-VC backed IPOs. As well, Canadian VCs take a longer time to achieve private exits and write-offs than their U.S. counterparts.

The empirical analyses in this paper evaluate the factors that give rise to VC investment duration in Canada relative to the U.S.. The variables for the analyses are defined in Table 2. Summary statistics are presented in Table 3.[26] Table 3, Panel A compares the properties of VC-backed IPOs in Canada relative to the U.S. and presents difference of mean, median and proportion tests. Note that Canadian VC-backed IPOs are much less likely to be early-stage investments at the time of first investment (Panel A). This means that Canadian VCs are significantly less adept at incubating early-stage companies; rather, they invest in later-stage companies that are already closer to IPO.[27] Table 3, Panel B indicates that a smaller proportion of private exits are from earlier stages of development in Canada, which again suggests Canadian VCs are less capable at incubating companies.

Table 3, Panel A indicates U.S. VCs are much more likely to take companies public in times of stronger market conditions. In other words, Canadian VCs are much less able to time the IPO market than their U.S. counterparts. By contrast, Table 3, Panel B indicates that stock market returns are significantly higher in the three months prior to exit for private exits in Canada relative to the U.S.. It is further noteworthy that U.S. VCs are more likely to write off their investments in times of poor market conditions, unlike Canadian VCs. Table 3, Panel C shows market conditions were on average in decline for the write-off exits, while market conditions were improving when Canadian VCs wrote off their investments.

Table 3, Panel A indicates that the time to IPO is shorter in Canada than the U.S.. This univariate difference, however, is statistically insignificant (but the next subsection below considers the difference in investment duration in a multivariate context). Table 3, Panel B indicates that Canadian VCs take a significantly longer time to private exit than U.S. VCs (1,499 days on average in Canada and 1,152 days on average in the U.S.). Table 3, Panel C provides comparative information for VC-backed write-offs in Canada and the U.S.. Canadian VCs take a much longer time to write off their investments than U.S. VCs, which is again consistent with the view that Canadian VCs are less skilled. VCs that do not write off their bad investments in a timely manner develop a reputation for maintaining a portfolio of 'living dead' investments, which diminishes reputational capital.

[26] Table 3 Panel B does not provide separate details for acquisitions, secondary sales and buybacks due to a dearth of such details in the U.S. data.
[27] However, it is also noteworthy that there is not a statistically significant difference in firm age in years at the time of first VC investment in Table 3 Panel A.

Table 4 provides a correlation matrix for the subsample of IPO exits in both Canada and the U.S.. The statistics are consistent with the comparison tests presented in Table 3, Panel A. The statistics also provide guidance for potential collinearity problems in the multivariate analyses provided in subsection iii, below.

iii. Regression Analyses of Time to Exit

This section presents Cox[28] proportional hazard models of the time to VC exit for IPOs, private exits and write-offs. Hazard models are an econometric methodology used to estimate the time to exit, while avoiding certain statistical problems associated with simple ordinary least squares methods.[29] Hazard models are used primarily because they are the most well-accepted models for analyzing duration data. Hazard models have been used in prior work on VC markets.[30] We had considered other models (such as OLS and poisson regressions), and the results are quite robust (available upon request).

We split the data into three separate samples: IPOs, private exits and write-offs. For each of the subsamples, we run regressions for the Canadian-U.S. combined sample, as well as the subsamples for Canada and the U.S. separately. For each subsample, we present two different specifications with different right-hand-side variables to show robustness. The results are presented in Table 5, Panel A for IPO exits, Panel B for private exits and Panel C for write-offs. The explanatory variables are as defined in Table 2.

Table 5, Panel A, Models 1 and 2, present Cox Hazard Model estimates of time to IPO for the full sample of Canadian and U.S. VC-backed IPOs. The Canadian VC dummy variable is positive and significant. This indicates Canadian VCs are much quicker to exit in IPOs than U.S. VCs. This result is statistically significant at the 5% level in both Models 1 and 2. The result is also very economically significant: controlling for the other factors that affect investment duration, Canadian VCs exit IPOs 47% faster than their U.S. counterparts.[31] The economic significance of this effect is very robust to the other included variables (see Model 2; other specifications are available upon request).

Gompers and Lerner[32] show with U.S. data that younger, inexperienced VC funds take companies public earlier than would otherwise be optimal for the company. The reason is that it facilitates fundraising for

[28] Cox, DR "Regression Models and Life-Tables" (1972) 34 *Journal of the Royal Statistical Society*, Series B, 187.
[29] *Ibid.*
[30] E.g., Gompers and Lerner *supra* note 5.
[31] The calculation is exp(0.387)-1, which is based on the estimated coefficient in Model 1 of Table 5 Panel A.
[32] Gompers and Lerner *supra* note 5.

their follow-on funds. In other words, young VC funds 'grandstand' to their institutional investors that they are capable of incubating companies to bring them to IPO. The Canadian evidence is consistent with Gompers and Lerner's evidence insofar as Canadian VCs rush their better investee companies to IPO as soon as they can.[33]

Table 5, Panel A further indicates that other factors significantly affect the duration of investment prior to VC-backed IPO exits. Later-stage investments are likely to be exited quicker than earlier-stage investments (Models 1 and 5), but this effect is not significant in the Canadian subsample. Life science investments take longer to bring to fruition (Models 2 and 6) (which is expected), but again this effect is not significant in the Canadian subsample. Larger deals are exited after a shorter duration (as expected), except in Canada. Importantly, the comparative dearth of significant factors in the Canadian subsample is suggestive of a lack of skill among Canadian VCs in timing exit in response to economic factors.

The syndication variable is significant in Model 3 for Canada in Table 5, Panel A, but not in the other models for Canada or the U.S.. One interpretation is that syndicated investments take longer to exit in Canada as it is difficult to get agreement; however, this effect is not robust.

Table 5, Panels B and C present hazard model analyses of the time to private exit and write-offs, respectively. The data indicate, even after controlling for other factors, that Canadian VCs take a longer time to bring private exits to fruition (Panel B Models 1 and 2). This effect is both statistically and economically significant. Canadian VCs are 18% (Model 1) to 22% (Model 2) slower to exit via private exits than their U.S. counterparts. It is also noteworthy in Table 5, Panel B that better stock market conditions at the time of private exit give rise to shorter investment durations in Canada (Model 3), but longer investment durations in the U.S. (Model 5) (see the coefficients for the market returns three months prior to exit). This suggests U.S. VCs do not bring their companies to private exit in times of strong market conditions, unlike Canadian VCs. Canadian VCs are also more likely to achieve a write-off exit in times of stronger market conditions (Panel C, Model 3), which is in contrast to U.S. VCs (Panel C, Model 5). Again, this is evidence of comparatively higher skill among U.S. VCs relative to Canadian VCs. As well, there may be behavioural biases that investors tend to sell winners too soon and hold on to losers too long, and these biases may be more pronounced in Canada.

[33] *Ibid.*

iv. Summary

Healthy pre-IPO markets are an important pre-condition to successful IPO markets. This section of the paper presented clear evidence that Canada's VC market is significantly deficient relative to the U.S. VC market (as well as compared to VC markets in Europe and Australasia). Canadian VCs are much less capable at incubating companies in terms of bringing them to an IPO exit. Among those companies that are taken to exit, VC investment duration is shorter in Canada relative to the U.S., Europe and Australasia. Among Canadian VC-backed IPOs, investment duration does not systematically vary according to company-specific characteristics, such as industry factors, stage of development at first investment, and the size of the investment. Canadian VCs are more likely to undertake private exits and write-offs in good market conditions, unlike U.S. VCs.

Why is Canada's VC market so different? As discussed in Section 4, Canada's VC market is dominated by tax-subsidized LSVCCs. LSVCCs dominate the VC market with approximately 50% of capital under management (Figure 1). LSVCCs compete with private VCs and crowd out private VCs in Canada.[34] LSVCCs are not accountable to institutional investors, and have never achieved positive economic returns in excess of T-bill rates (with the sole exception of a few months around the Internet bubble; see Figure 3). The distortions to Canada's VC market created by LSVCCs are discussed at length by Cumming and MacIntosh.[35] Overall, this has an adverse effect for entrepreneurial companies seeking value-added advice from active VCs that incubate companies to make sustainable companies in Canada.

It is noteworthy that Canada is beginning to make progress in reversing the damage brought about by LSVCCs. For example, since 2004 Nova Scotia has placed funds under a year-to-year watch to see if the tax credit should continue.[36] On August 29, 2005, the Province of Ontario completely dropped the tax credits afforded to LSVCCs.[37] In 2005, Manitoba shut down one of the Province's two LSVCCs due to poor governance and scandals in misuse of public funds.[38] Further changes along these lines are warranted.

In the next section of the paper we focus specifically on IPO share-price performance, regardless of whether or not the company received VC finance prior to IPO. We consider the relation between IPO performance and VC backing pre-IPO, as well as asset size and age, among other things. Policy implications in view of the loose connection between IPO markets and pre-IPO markets are thereafter discussed in the latter part of this paper.

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[34] Cumming and MacIntosh (2006), *supra* note 12.
[35] *ibid*.
[36] http://www.gov.ns.ca/finance/taxpolicy/taxcredits/LSVCCreview2002.pdf
[37] http://www.fin.gov.on.ca/english/media/2005/nr08-lsif.html
[38] http://www.cbc.ca/news/background/personalfinance/labour_investmentfunds.html

5. IPO Markets

This section complements the analysis of pre-IPO markets in the last section with an analysis of Canadian IPO markets. As with Canada's VC markets, IPO markets represent a significant source of capital for Canadian companies. For example, in 2000 (2001), the total number of IPOs on Canadian exchanges was 101 (74) for a total value of $6.8 billion ($5.9 billion).[39] By comparison, in Canada in 2000 (2001), 2,671 (2,043) investments valued at approximately $6.6 billion ($3.8 billion) were completed for all stages of VC and PE. Total investment activity in Canada's VC and PE markets amounted to approximately 0.38% of GDP in Canada over the 1998-2001 period, compared to 0.63% in the U.S. and 0.30% in the European Union.[40]

Our analysis of IPOs focuses on share-price performance in Canada. We also present evidence in regards to the number of days from the date of the preliminary prospectus to the date of the IPO. The analysis proceeds as follows. Subsection i discusses prior work and institutional details on Canada's IPO markets. Subsection ii presents the data used in the empirical analyses. Subsection iii presents multivariate analyses of IPO share price performance. Subsection iv discusses delistings. Subsection v presents multivariate evidence of the duration between preliminary prospectus and IPO date, including both the predicted and actual IPO date. A summary follows in subsection vi. Policy implications and concluding remarks follow in Section 6.

i. Institutional Details and Hypotheses

One of most notable differences between IPO markets in Canada and the U.S. is that listing standards are significantly less onerous on Canada's stock exchanges relative to those in the U.S.. In particular, listing standards on the TSX-V Tier 2 require pre-tax earnings of $50,000; TSX-V Tier 1 requires $100,000; the TSX requires $300,000; NASDAQ small-cap requires U.S.$750,000; and NYSE requires U.S.$10,000,000 over the last 3 years, and U.S.$25,000,000 in each of the last 2 years. The TSX-V Tier 2 requires a public float of $500,000; TSX-V Tier 2 requires $1,000,000; TSX requires $4,000,000; NASDAQ small-cap requires U.S.$5,000,000; NASDAQ national requires U.S.$20,000,000; and NYSE requires U.S.$100,000,000. In addition to these quantitative standards, there are many other qualitative and quantitative standards that are relevant.[41]

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[39] Source: http://www.pwc.com/extweb/ncsurvres.nsf/DocID/FE3FEFD25A793A8485256B9D00527270.
[40] Source: OECD http://r0.unctad.org/en/subsites/dite/pdfs/Frank_Lee.pdf.
[41] For details, see D. Harris "The TSX Technology Company Listing Standards as a Response to the "Hot Issue" Market of 1995-2000," (2003) Working Paper, University of Toronto Faculty of Law.

The significantly lower listing standards in Canada relative to the U.S. naturally give rise to the question of whether companies go public too early in Canada. Listing standards on a stock exchange facilitate signals of minimum quality levels associated with companies listed on the exchange and thereby enhance investor confidence levels.[42] Listing standards prevent companies from raising capital on the exchange if they do not meet such standards, and thereby limit the risk that investors can assume.

Prior work studying Canada's IPO markets has documented, among other things, share price performance and delistings in relation to size. In terms of company age at time of IPO in Canada, Jog and Wang[43] provide the most comprehensive details in terms of the number of years from date of incorporation to date of IPO for a sample of TSX IPOs. These details are summarized immediately below.

Age	**Total #**	**1990-94**	**1995-99**
less than 1 year	44	17	27
1 year	38	14	24
2-4 years	43	15	28
5-10 years	53	32	21
more than 10 years	56	27	29
Unknown	18	14	4
Total	**252**	**119**	**133**

Source: Jog and Wang (2002)

Table 6 provides international comparative statistics of company age at the time of IPO. The data indicate companies that go public in Canada on the TSX-V tend to be younger in Canada relative to the U.S.. In regards to TSX-V IPOs, however, there is mixed evidence. Data from McConomy and Jog[44] and Jog and Wang[45] indicate approximately the same mean and median age of TSX IPOs relative to IPOs in the U.S.. One major difference, however, is that there are significantly more smaller-scale TSX IPOs in Canada than that which would be permissible in the U.S. (as reflected in the Chart immediately above from Jog and Wang[46] and the lower TSX listing standards relative to NASDAQ and NYSE listing standards).

[42] J.R. Macey and M. O'Hara "The Economics of Stock Exchange Listing Fees and Listing Requirements" (2002) 11 *Journal of Financial Intermediation* 297.
[43] V. Jog and L. Wang "Aftermarket Volatility and Underpricing of Canadian Initial Public Offerings" (2002) *Carleton University Working Paper*.
[44] B. McConomy and V. Jog "Voluntary Disclosure of Management Earnings Forecasts in IPO Prospectuses" (2003) 30 *Journal of Business, Finance & Accounting* 30.
[45] Jog and Wang (2002) *supra* note 43.
[46] *Ibid.*

A very interesting feature of IPO markets across countries is the age of European IPOs: companies are much older relative to the IPO companies in North America. Table 6 indicates that European companies that go public tend to be between two to four times older than IPO companies in the U.S..

The fact that a significant number of Canadian companies go public earlier than their counterparts in Europe and the U.S. means that Canadian companies are faced with comparatively costly disclosure requirements and other associated disadvantages with being a publicly traded company at a time that may be suboptimal for such companies. Going public also imposes large direct costs associated with preparing a prospectus, and indirect costs in terms of underpricing. Prior work is consistent with the view that the burden of these costs is more significant on smaller companies than larger companies.[47] Smaller and younger companies that go public are also more likely to eventually delist. For example, Peristiani[48] shows from a sample of 13,098 U.S. IPOs over the 1990-2000 period, there were 863 companies (6.6%) that delisted, and a primary determinant of whether a company delisted was the size in terms of the assets at the time of the IPO. In a sample of 1,891 Canadian IPOs over the 1991-2000 period, there were 195 delistings (10.3%).[49]

The smaller size of IPOs in Canada has been a growing concern among policy analysts in the Canadian government ("Industry Canada").[50] Industry Canada notes that of the 153 companies with gross proceeds under $1 million that launched an IPO between 1991 and 1995, "53 percent were unsuccessful, either because they were written off, had negative net assets or ended up with net assets worth less than their transaction values; 28 percent survived over five years and had a positive book return with net assets worth more than the proceeds of the IPO; and 6 percent survived over five years with net assets exceeding $10 million, and these could be considered real successes."[51]

ii. Data and Summary Statistics

In this paper we investigate IPO performance in relation to assets and age, among other variables. We study 345 Canadian IPOs on the TSX and TSX-V (including the predecessor exchanges of the TSX-V) for the period 1997-2004. We analyze the affect of size on share market performance, as well as provide complementary analyses of the time to go public from the date of the preliminary prospectus. We further

[47] E.g., Gompers and Lerner, *supra* note 5; Ritter, *supra* note 2; Ursel, *supra* note 2.
[48] Peristiani *supra* note 3.
[49] Carpentier *et al.*, 2003 *supra* note 4.
[50] http://strategis.ic.gc.ca/epic/internet/insbrp-rppe.nsf/en/rd01036e.html.
[51] http://strategis.ic.gc.ca/epic/internet/insbrp-rppe.nsf/en/rd01424e.html.

consider the frequency of IPOs each year in Canada relative to the U.S., as well as provide comparative summary data for company age at the time of IPO in Canada, Europe and the U.S.. Our analysis of IPO performance in Canada complements work on Canada's IPO markets by focusing on a richer set of new information collected on asset size and company age in respect of IPO share-price performance.[52] The new details enable a new and richer interpretation of IPO performance in relation to size, among other things. The shorter time to IPO in Canada in this study is attributable to the bubble years in the sample. For the bubble years, time to IPO was shorter by a median [average] of 13 [32] months on the TSX-V and 11 [15] months on the TSX relative to time to IPO in the non-bubble years. Time to IPO in Europe is much longer due to institutional reasons and risk preferences among investors, as discussed in Ritter.[53]

Table 7 defines a number of variables collected from share price and prospectus data for Canada. Note that for the data collected for this paper, the age of the TSX IPOs is somewhat distorted by reincorporations. The age figures in the data collected for this paper are based on the date of the most recent incorporation. Where companies reincorporated immediately prior to the IPO (which appears to sometimes happen prior to TSX IPOs, but not TSX-V IPOs), the initial incorporation date was used if it was indicated in the prospectus. If the initial incorporation date was not indicated (and/or if reincorporation was not indicated), the most recent incorporation date was used. Importantly, we use the incorporation date that is visible and available to investors via the prospectus.[54] This is appropriate insofar as investors base the investment decisions on the IPO based on the information made available in the prospectus.

Figure 6 presents the number of IPOs in Canada each year. The number of IPOs per year in Canada is very stable, and much more stable relative to the U.S.. This suggests companies in Canada do not rush to market to take advantage of hot issue markets, unlike the U.S..[55] Changes in the number of IPOs in the U.S. around 2002-2003 may in part be due to the Sarbanes Oxley Act of 2002 which significantly increased the costs of going public in the U.S..[56]

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[52] Halpern, *supra* note 8.
[53] J. Ritter, "Differences between European and American IPO Markets," (2003) 9 *European Financial Management* 421.
[54] That is, it was not visible to the research assistants that collected the data, and hence would not be apparent to the actual investors.
[55] T. Loughran and J. Ritter "Why has IPO underpricing changed over time?" (2003) 33 *Financial Management* 5; T. Loughran, J. Ritter, and K. Rydqvist "Initial Public Offerings: International Insights" (1994) 2 *Pacific-Basin Finance Journal* 165; T. Loughran and J. Ritter "Why don't issuers get upset about leaving money on the table in IPOs?" (2002) 15 *Review of Financial Studies* 413.
[56] K. Litvak, K. "The Effect of the Sarbanes-Oxley Act on Non-U.S. Companies Cross-Listed in the U.S." (2005) *U of Texas Law, Law and Econ Research Paper No. 55* Available at SSRN: http://ssrn.com/abstract=876624

Table 8 presents summary statistics for the TSX and TSX-V IPOs in the data. The average (median) degree of underpricing on the TSX is 6% (0%), while the average underpricing is 49% (4%) on the TSX-V. This shows significant indirect costs associated with going public on the TSX-V relative to the TSX. In the one-year horizon both TSX IPOs perform better than TSX-V IPOs in terms of average and median returns. Average (median) TSX returns are 3% (-5%), while average (median) TSX-V returns are -12% (-38%). Returns over the 2-year period are on average greater for TSX-V IPOs (due to a small number of very large returns) than the TSX, but median returns are lower on the TSX-V relative to the TSX. TSX-V 2-year IPO returns are on average 271% (median returns are -50%), and TSX IPO returns are on average -2% (median returns are -19%). Overall, consistent with international evidence,[57] median TSX and TSX-V IPOs in Canada are underpriced in the short run and overpriced in the long run.[58] TSX-V IPOs show evidence of significant potential for large gains in terms of 2-year returns for a select few IPOs.

An interesting property in Table 8 is that TSX IPOs have a shorter time between preparation of preliminary prospectus and IPO date (around 47 days on average) relative to TSX-V IPOs (around 104 days on average). This is suggestive of greater regulatory scrutiny around TSX-V IPOs and/or a comparative lack of preparedness of TSX-V IPOs.

Table 9 presents a correlation matrix for the subsample of TSX IPOs (Panel A) and the TSX-V IPOs (Panel B). An interesting property in the univariate correlations in TSX data in Panel A is that larger companies are more likely to be underpriced, but also more likely to perform better in the 1- and 2-year horizons. Larger companies also perform better among TSX-V IPOs over the 1-year horizon, but do not show significant differences for other horizons on the TSX-V (Table 9 Panel B). Federal Canadian incorporations are also more likely to perform better in the 1- and 2-year horizons on the TSX (Table 9 Panel A). This latter result is consistent with anecdotal evidence[59] that there is a perception (not a substantive reason) that companies are 'better' when they project a national image by virtue of being incorporated under the laws of Canada, and not merely one of the provincial statutes. Note, however, that Federal Canadian incorporations do not materially affect IPO share price performance among TSX-V IPOs (Table 9, Panel B).

Another very interesting finding in Table 9, Panel A is that VC-backed IPOs on the TSX tend to show higher underpricing and worse long-term performance. The correlations between the VC dummy variable

[57] Loughran *et al., supra* note 53.
[58] Consistent with Halpern, *supra* note 8; Jog and Wang, *supra* note 43; Jog and McConomy, *supra* note 44.
[59] Halpern, *supra* note 8.

and returns, however, are only statistically significant for the 6-month horizon. One explanation for this importance of the 6-month horizon is the tendency of insiders such as VCs to sell their holdings around the expiration of the lock-in period, although the lack of uniform hold periods in Canada over the period considered makes this difficult to confirm empirically.[60] VC-backed TSX-V IPOs show stronger performance for the 6-month and 1-year horizons (Table 9, Panel B), but no material differences are observed for VC-backed TSX-V IPOs in terms of underpricing and/or 2-year returns.

Subsection iii, immediately below, investigates IPO performance in relation to asset size, among other things, in a multivariate setting for both the TSX and TSX-V. Thereafter subsection iv considers multivariate analyses of the duration between IPO preliminary prospectus and IPO date. This complementary evidence in subsection iv provides further insights into the readiness to go public among companies on the TSX versus the TSX-V.

iii. Regression Analyses of IPO Performance

Table 10 presents multivariate analyses of IPO performance for TSX and TSX-V IPOs for 1-day returns (underpricing) (Panel A), 6-month returns (Panel B), 1-year returns (Panel C) and 2-year returns (Panel D). Consistent with prior work,[61] the explanatory variables for IPO performance include market returns, exchange characteristics, size, age and VC backing. As indicated, our analysis complements recent studies of IPO performance in Canada[62] by using a new dataset that focuses on a more complete set of information in terms of asset size and age at time of IPO. The expanded data herein focuses on the issues in this paper, and provides new insight into the role of company size and age, etc., on IPO performance in Canada. The explanatory variables used in this study are as defined in Table 7 and described above in subsections ii and iii.

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[60] In Canada, hold periods (lock-in periods) were typically 12 months in the period up to March 30, 2004, but there was little consistency. Hold periods were reduced to 4 months effective March 30, 2004. See http://www.torys.com/publications/pdf/CM04-8T.pdf. Hold periods prior to this time were typically 12 months, but could vary depending on contractual relations with the underwriters. As well, hold periods previously varied by province and the nature of the underwritten issue. The absence of a uniform approach proved to be "cumbersome and confusing for issuers and their investors" Tucker, D., 1999, Proposed National Escrow Regime. Enterprise (Canadian Venture Capital Association, June), 2-3. See also Cumming and MacIntosh *supra* note 6 (2003a,b), and MacIntosh (1997, 1994). MacIntosh, J.G., 1994. "Legal and Institutional Barriers to Financing Innovative Enterprise in Canada" (1994) monograph prepared for the Government and Competitiveness Project, School of Policy Studies, Queen's University, Kingston, Discussion paper 94-10.

[61] Loughran *et al*. (1994) and Loughran and Ritter (2004) *supra* note 53.

[62] Halpern, *supra* note 8.

Nine different models are presented in each of Panels A-D in Table 9. Models 1-3 focus on a merged sample of IPOs on both the TSX and TSX-V, and include a dummy variable for the TSX IPOs. Models 4-6 comprise the subsample of TSX IPOs only. Models 7-9 comprise the subsample of TSX-V IPOs only. Three different models are presented for each subsample in order to focus on the effect of size, age and Federal incorporation on IPO performance. These variables are not studied simultaneously, as they are highly correlated (see Table 9). Simultaneous consideration of such variables in the same regression model would bias the results.

Table 10, Panel A focuses on the determinants of IPO under pricing in Canada. In the combined sample (Models 1-3), the only statistically significant variable is the TSX dummy variable. The models indicate TSX IPOs are underpriced by approximately 45-51% (depending on the specification in Models 1-3) relative to TSX-V IPOs. Hence, companies face a significant cost for going public on the TSX-V. The multivariate analyses in Table 10, Panel A do not indicate other significant factors that systematically affect under pricing for either the TSX or the TSX-V.

Table 10, Panel B presents evidence of IPO share price performance in the 6-month horizon. The data indicate market conditions are a primary determinant of IPO performance. It is noteworthy that the sensitivity of company-specific IPO returns to market returns (the company's beta) is slightly less than 1 for TSX IPOs (Models 4-6), and slightly greater than 1 for TSX-V IPOs (Models 7 and 9, although not in Model 8). While these differences are not that significant, they are nevertheless expected, as TSX-V IPOs are companies for which we would expect systematic risk to be more pronounced. Table 10, Panel B, Models 2 and 3 further provide evidence that TSX IPOs have superior 6-month returns (by approximately 17%) than TSX-V IPOs. Consistent with Table 9, Panel A, Model 4 indicates VC-backed TSX IPOs have lower 6-month returns by approximately 25%, although this effect is not robust to the alternative specifications in Models 5 and 6.

Table 10, Panel C indicates market conditions are an important determinant of 1-year returns for TSX IPOs, but not TSX-V IPOs. Industry effects (as proxied by the industry market/book ratio, consistent with Fama and French[63]) are an important determinant of 1-year returns on the TSX and TSX-V, but the sign of this effect differs for the two exchanges. Market/book factors are negatively related to 1-year returns on the TSX and positively related to 1-year returns on the TSX-V. One possible explanation for this difference is that TSX-V investors are more risk-seeking and higher market/book industries offer

[63] E.F. Fama and K.R. French "The cross-section of expected stock returns" (1992) 47 *Journal of Finance* 427.

greater scope for more pronounced growth opportunities among TSX-V companies. Table 10, Panel C also shows some evidence of asset size as an important determinant of 1-year IPO returns on the TSX (Model 4) and TSX-V (Model 7). Further, Federal Canadian incorporations perform better on the TSX (Model 6) but not the TSX-V (Model 9).

Table 10, Panel D presents regression evidence for the 2-year returns on the TSX and TSX-V. The data do not indicate any significant relation between size and/or market conditions for TSX-V IPOs, among other things, thereby suggesting TSX-V IPO performance is due to idiosyncratic factors not picked up by the explanatory variables. By contrast, 2-year performance for TSX IPOs is explained by market conditions (and statistically significant at the 1% level), such that betas are approximately equal to 1 depending on the specification (Models 4-6). TSX IPO 2-year performance is also explained by asset size, age and Federal incorporation (Models 4-6, respectively), and those variables are all statistically significant at the 5% level. In regards to size, an increase in assets from $500,000 to $1,000,000 would improve IPO share-price returns by approximately 0.7% in the 2-year horizon (Model 4).[64]

iv. Delistings

One concern with our data is that, in some cases, details used in the multivariate tests were not available (our coverage for the regression analyses is about 1/2 of the population of IPOs; missing data are attributable to the details required from the prospectuses in the analysis; often they were not available). We considered this issue by employing two-step regression estimates in the spirit of Heckman[65] which accounted for unobservable information for some of the firms. We also considered the more traditional approach of skipping observations for which data were not available. Our results were in the main not materially different under either approach (due to the randomness in the datapoints that were missing), so our focus is on the latter approach of skipping the observations for which complete data were not available. Alternative specifications not presented below are available upon request. Below we also discuss the delistings from these exchanges as well as the reasons why the companies were delisted.

To complement the analysis of performance in the prior subsections, this subsection briefly considers reasons why IPO companies end up delisting their shares. First, we refer to a report prepared by

[64] The calculation is 0.026* [log(1,000,000) – log (500,000)]. Logs are used to reflect diminishing returns to larger asset sizes.
[65] J. Heckman., "The Common Structure of Statistical Models of Truncation, Sample Selection, and Limited Dependent Variables and a Simple Estimator for Such Models" (1976) 5 *Annals of Economic and Social Measurement* 475; J. Heckman, "Sample Selection Bias as a Specification Error" (1979) 47 *Econometrica* 153.

Carpentier *et al.* for Industry Canada.[66] That report indicates smaller IPO offerings are much more likely to eventually delist their shares. Based on new listings in 1991-1995, the delisting status as at 2002 in their data is indicated in Figure 7. Companies that raised less than $1 million at the time of initial listing are more than three times more likely to delist than other companies. The details are indicated immediately below.

GP	Delisted	Acquired	Bought/Sold			Total
			SE<0	0<SE<GP	GP<SE	
Under $1M	41 (26.80)	29 (18.95)	28 (18.30)	12 (7.84)	43 (28.10)	153
$1 to $5M	15 (15.79)	36 (37.89)	8 (8.42)	4 (4.21)	32 (33.68)	95
$5 to $10M	8 (29.63)	11 (40.74)	2 (7.41)	1 (3.70)	5 (18.52)	27
$10 to $50 M	9 (8.04)	54 (48.21)	4 (3.57)	7 (6.25)	38 (33.93)	112
$50M or Over	0 (0)	17 (48.6)	1 (0.3)	1 (0.3)	16 (45.8)	35

Distribution of Canadian companies with IPOs in 1991-1995, based on their status in 2002, the book value of their shareholders' equity (SE) and gross proceeds (GP) at the time of issue. Excluded are privatizations, issues under the CPC program and issues by companies headquartered abroad. Relative frequency for the different size categories is shown as a percentage in brackets. Source: Carpentier et al. (2003), which is based on Financial Post Report of New Issues, Cancorp Financials, www.sedar.com, www.tsx.com, and Carpentier et al.'s additional research on the Internet.[67]

Cumming et al.[68] built on the analysis in Carpentier *et al.* (2003) by gathering delisting data from the TSX company manuals over the 1999-2002 period. Cumming et al[69] recorded all delistings and the reasons why the companies delisted (although the more detailed type of Prospectus level data analyzed above are not systematically available for the delistings). The data are summarized in Figure 8. The data indicate that the primary reason that new listings eventually delist their shares is attributable to market conditions. Smaller companies are much more likely to delist than larger companies in periods of poor market conditions (after April 14, 2000), for reasons of failing to meet listing requirements and/or failure to pay their listing fees.

[66] Carpentier *et al. supra* note 4.
[67] *Ibid.*
[68] D.J. Cumming, A. Kaul and V. Mehrotra "Financing Value Chain in Canadian Capital Markets" (2004) Report Prepared for the Toronto Stock Exchange.
[69] *Ibid.*

v. Regression Analyses of Time to IPO from Preliminary Prospectus

Table 11 presents Cox hazard model regressions on the time to IPO from the date of the preliminary prospectus: Panel A considers the determinants of the time to predicted IPO; Panel B considers the time to actual IPO, and Panel C considers the time between the predicted and actual IPO date. As in Table 10, regression models are presented for the combined TSX and TSX-V sample (Models 1-3), as well as the subsample of TSX IPOs (Models 4-6) and TSX-V IPOs (Models 7-9). Three models are presented for each grouping of data to test the effect of different right-hand-side variables in terms of asset size, age and Federal Canadian incorporations (those three variables are not included simultaneously due to collinearity; see Table 9), alongside other variables for market conditions.

Consistent with the summary statistics presented in Table 8, the regressions in Table 11 indicate a much shorter time to predicted and actual IPO on the TSX relative to the TSX-V (see Models 1-3 in Table 11, Panels A and B). Panel C further indicates that there are greater differences between actual and predicted IPO dates on the TSX-V than the TSX. Taken together, the evidence indicates TSX-V IPOs are less well prepared to go public and/or face greater regulatory scrutiny in regards to the content of their preliminary prospectus.

It is interesting to note that, among the TSX IPOs (Models 4-6), larger IPOs take longer to get to market from the date of preliminary prospectus for both the predicted date as well as the actual IPO date. In light of the TSX-V IPOs taking a longer time between preliminary prospectus and IPO date, we might have similarly expected smaller TSX IPOs to take longer between preliminary prospectus and IPO. Similarly, note that VC-backed IPOs take a longer time to get to market from date of preliminary prospectus. One explanation for this result is that larger IPOs on the TSX spend more time book-building to prepare for the IPO.

vi. Summary

Share-price returns data in this section indicated the following: IPO underpricing is roughly 50% more pronounced on the TSX-V than the TSX; and market conditions systematically impact long-term IPO performance for TSX IPOs, but not TSX-V IPOs; long-term IPO performance on the TSX is also positively impacted by asset size in the 1- and 2-year horizons, and negatively impacted by the presence of VC-backing prior to the IPO in the 6-month horizon.

This section also considered complementary evidence of companies' readiness to go public by studying the time to IPO from the date of preparation of the preliminary prospectus. Larger TSX IPOs take a longer time to get from preliminary prospectus to IPO. TSX-V IPOs, however, also take much longer to get to market relative to TSX IPOs, which suggests TSX-V IPOs face greater regulatory scrutiny associated with their IPO.

6. Policy Implications and Conclusions

Healthy pre-IPO markets are a precursor to successful IPO markets. The VC market in Canada is deficient in a number of respects. In this paper, we presented comprehensive data from the CVCA that showed that Canadian VCs have achieved scant success in achieving IPO exits, and the proportion of exits taken as IPOs among VCs in Canada has been lower than that observed in the U.S., Europe and Australasia. Making matters worse, Canadian VCs have the shortest investment duration to IPO relative to VC investment duration in the U.S., Europe and Australasia. This indicates Canadian VCs are less actively involved in incubating companies that will become successful stand-alone companies on stock exchanges. We argued, consistent with prior work, that the dominance of the LSVCCs in Canada is the primary reason for the distortions in Canada's VC market. Tax subsidies to LSVCCs crowd out private VC in Canada, and give rise to numerous other distortions in the VC market in Canada.[70]

Canada's deficient pre-IPO market gives rise to a need for a public stock exchange to act as a form of substitute VC. Hence, our analysis of pre-IPO markets in this paper was complemented by an analysis of IPO share price performance and readiness to go public in Canada. The data indicated significant under pricing among TSX-V (venture exchange) IPOs relative to TSX IPOs. Hence, while the venture exchange acts as a public market form of VC that acts as a substitute for traditional forms of VC, there are costs to companies that raise capital in the public market.[71] We further presented evidence of a negative association between returns and asset size over the one- and two-year horizon.

[70] Halpern, *supra* note 8; MacIntosh, *supra* note 59; Cumming and MacIntosh (2001) *supra* note 6, (2006) *supra* note 12.

[71] And, as a related matter, prior research has established that VCs, if more rigorous, would have offered better pricing; see Gompers and Lerner, *supra* note 5. Going public too early exacerbates underpricing. VCs in Canada, however, add less value to their investee companies. In this paper we noted an insignificant impact of VC financing on underpricing in Canada because there are very few VC-backed IPOs (another explanation is that IPO investors view VCs as ineffectual on average). The main difference between smart/dumb money that should be considered is in terms of whether the VC adds value to the investee company. Prior evidence from U.S. VCs indicates that VCs provide lots of value-added advice to their investees... So despite the fact that U.S. VCs have stringent prices for their deals (i.e., they take high equity % from the investee company), they still add more value than the cost of the investment. It is best to think of the pricing regime of public IPO markets versus VC markets in the context of the value added. Public IPO investors typically do not add value. Good VCs do add value (sit on boards of directors, provide strategic advice, etc). The IPO evidence suggests Canadian VCs do not add value (and the 6-month horizon regressions suggests negative value added), which is consistent with earlier work on Canada's VC markets. In sum: overall, it is better to get VC money when the VC adds value, even when VC money costs a lot, because the value-added provided is worth the cost. But there is not much in the way of value-added VCs in Canada. The other mode of early stage finance - going public on the TSX-V - can impose costs on the issuer (e.g., underpricing), but this is not necessarily a bad thing given the state of Canada's VC markets.

Are the lower listing standards and riskier IPOs bad for Canadian companies and their investors? Not necessarily. In respect of investors, we noted in this paper that mean TSX IPO returns are in excess of 200% (despite median returns at approximately -50%). Relatedly, prior work on Canadian IPOs[72] has shown TSX trading volume is typically higher among smaller, riskier new issues, thereby indicating significant demand for risky IPOs in Canada and a voluntary assumption of risk. Stock exchanges face a trade-off in deciding which firms should be eligible for a listing. On one hand, lower listing standards enable a greater number of companies to meet those standards, and this increases the exchange's listing revenues and associated fees, at least in the short run. On the other hand, lower listing standards promote the listing of lower quality firms, diminish an exchange's reputational capital, discourage investors from participating in the market and eventually lower market quality (e.g. liquidity and trading costs), which might negatively affect the exchange in the long-term.[73]

In respect of very young companies raising capital, there is a choice between an early, small IPO on the TSX-V relative to financing from a Canadian VC fund. The number of TSX-V and TSX IPOs is remarkably stable each year, particularly over the years of the Internet bubble. By contrast, we showed in this paper (Figure 6) there is massive variation in the number of IPOs per year in the U.S.. This suggests companies in Canada do not rush into the IPO decision with a view to taking advantage of hot issue markets. Rather, the decision to go public early in the company's life-cycle with all the direct and indirect costs of a new issue is traded off against the comparatively weak alternative pre-IPO financing options in Canada.

Canadian stock exchanges that facilitate early-stage IPOs therefore seem quite appropriate in view of Canada's VC market. Policymakers in Canada should focus on correcting the VC market prior to implementing policy changes on IPO markets that restrict earlier stage listings.

[72] Cumming *et al*, *supra* note 66.
[73] Macey and O'Hara, *supra* note 42; Harris, *supra* note 41.

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