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Financing Entrepreneurs

Better Canadian Policy for Venture Capital

Douglas Cumming

In this issue...

Canadian policymakers should pursue new options for facilitating investment in innovation and entrepreneurship. Better venture capital policy is the place to start, because existing tools for delivering financial investment to start-ups are not succeeding.

The Study in Brief

Innovation and growth depend in large part on entrepreneurship, which in turn may require financing in the form of venture capital investment.

In Canada, Labour-Sponsored Venture Capital Corporations (LSVCCs) have become the dominant source of venture capital. There is reason for concern over this development, because evidence suggests LSVCCs are inefficient investment vehicles, charging high fees and yielding disappointing results: very few funds generate positive returns. Moreover, government tax subsidies to LSVCCs may crowd out private venture investment.

Accordingly, Canadian policymakers should investigate other ways to facilitate entrepreneurial investment. Potential changes to the legal environment begin with capital gains taxation: evidence shows that a reduction in the capital gains tax rate stimulates venture capital funding. More generous treatment for employee stock options is also an option for Canada.

Also on the legislative front, improving the entrepreneur-friendliness of bankruptcy laws to encourage startups, and less-onerous securities regulation are liberalizing approaches that may offer important benefits, although with potential costs if, for example, relaxed prospectus requirements increased the incidence of fraud.

Among the suite of broader policy choices: direct government investment programs, such as the United States' Small Business Innovation Research Program and Australia's Innovation Investment Funds. While these programs involve public subsidization of venture capital, the US and Australian examples have generated records indicating effectiveness in fostering innovation and economic development.

In short, Canada's key venture capital initiative, the LSVCC, has run its course and should not be retained. Numerous options exist, and Canadian policymakers can learn from successes and failures abroad and at home.

The Author of This Issue

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The Organisation for Economic Co-operation and Development (OECD 1996) argues that the financing of entrepreneurship and innovative ideas will facilitate economic growth and the competitive advantage of nations in the 21st century. Much evidence, albeit not all, indicates that small, growth-oriented, high-technology start-up companies contribute disproportionately to innovation and economic growth.[1] The primary source of capital for these companies is venture capital, and venture capital facilitates the success of firms that eventually list on stock exchanges. For example, during the 1983–92 period, while venture firms averaged less than 3 percent of corporate research and development, they were nevertheless responsible for more than 8 percent of industrial innovation in the United States (Kortum and Lerner 2000).

A widely held perception is that entrepreneurial companies are not able to raise all the capital they need and that good companies are not getting funded.[2] In theory, one might expect such a "capital gap" because investment in entrepreneurial companies not listed on stock exchanges is typically highly illiquid and riskier than most other investments due to information asymmetries and the nascent technologies such firms are developing. As well, there is a perception that innovating entrepreneurs and their investors do not fully capture returns to innovation because there are broader returns to the development of an innovative society — in other words, that the social rate of return to financing entrepreneurial high-tech start-up companies is greater than the private rate of return. As an empirical matter, however, capital gaps are difficult to measure, and there is little consensus as to the extent of the capital gap for entrepreneurial firms (Canada 2002). Regardless, given the perception of such a gap, a major strategic focus of policymakers around the world has been the high-tech sectors and the stimulation of venture capital markets through direct government investment programs and laws that are appropriately designed to facilitate entrepreneurship and entrepreneurial finance. For example, the World Bank spent more than US$10 billion in the 2001–05 period to promote small enterprises (Beck et al. 2005).

In most Canadian jurisdictions, the primary government support mechanism for venture capital since the 1980s has been the Labour-Sponsored Venture Capital Corporation (LSVCC) program. One estimate places the cost of the LSVCC program between 1992 and 2002 at $3 billion at least (Cumming and MacIntosh 2004). Yet the data reported in recent studies of the LSVCC program point to a lack

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1 See World Bank (1994, 2002, 2004); see also Canada (2002, 2006) for Canadian-specific analyses and policy discussions that are closely related to the discussion herein.

2 On this apparent capital gap, see, for example, http://strategis.ic.gc.ca/epic/internet/insbrp-rppe.nsf/en/rd01918e.html. Some commentators on an earlier draft of this paper suggested that capital gaps exist in Canada for late-stage venture capital, so that Canadian firms must seek capital from US investors to get suitable financing. Data in one recent empirical study (Cosh, Cumming, and Hughes 2006) show, however, that entrepreneurs typically are able to raise the capital they want, although not always in the form they would like. More data collection and further empirical analyses are warranted.

of success.[3] Accordingly, in the first part of this *Commentary*, I review the reasons the LSVCC program has not been successful. LSVCCs differ in quality, and not all labour-sponsored funds have been failures; nevertheless, reasons exist for questioning the benefits of government expenditures on LSVCCs.

In the second part of the *Commentary*, I review evidence from other countries on a range of alternative mechanisms that could replace the LSVCC program.[4] These mechanisms, which focus on strategies other than intervention programs in the form of the LSVCC, include capital gains taxation, taxation of stock options, securities laws, bankruptcy laws, patent policy, labour laws, accounting rules, and regulation of venture capital funds. I also discuss programs in other countries (such as the United States and Australia) that match government money with private contributions to venture capital funds.

An Overview of LSVCCs

LSVCCs are tax-subsidized investment funds designed like mutual funds. Unlike mutual funds that invest in companies listed on stock exchanges, however, LSVCCs invest in privately held companies that are not listed — typically, high-growth companies in the technology sectors. In exchange for tax subsidies, LSVCCs face statutory covenants that restrict their investment activity. LSVCCs have a three-pronged mandate to maximize employment, shareholder value, and economic development in the jurisdiction in which they are based. Most LSVCCs, however, state publicly that their only interest is in maximizing shareholder value (see MacIntosh 1994, 1997; Halpern 1997; Cumming and MacIntosh, forthcoming). LSVCCs must be sponsored by a labour union, but critics charge that labour unions merely rent their name to LSVCCs without providing any additional governance over the funds' operations.[5]

LSVCCs were first introduced in Quebec in 1983. Thereafter, the federal government adopted LSVCC legislation in 1987, British Columbia in 1989, Manitoba in 1991, Ontario, Saskatchewan, and Prince Edward Island in 1992, New Brunswick in 1993, and Nova Scotia in 1994. Only Alberta and Newfoundland and Labrador have not yet adopted such legislation. In 2005, there were 125 Labour-Sponsored Venture Capital Funds (LSVCFs) in Canada,[6] including 16 federal

3 This part of the *Commentary* draws on a number of recent studies of Canada's venture capital market, including work the author has prepared with Professor Jeffrey MacIntosh of the University of Toronto; see Cumming and MacIntosh (2003a, 2003b, 2004, 2006, 2007). For related studies, see also MacIntosh (1994, 1997); Halpern (1997); Amit, Brander, and Zott (1998); Osborne and Sandler (1998); Brander, Amit, and Antweiler (2002); Anderson and Tian (2003); and Cumming (2005a, 2005b, 2006a).

4 This discussion is based on a survey of a number of recent academic studies of venture capital markets in other countries, including, but not limited to, Lerner (2002); Armour and Cumming (2006); Cumming and Johan (2006b, 2006d); and Cumming (2007).

5 For example, testimony before the Manitoba legislature in 1997, six years after Manitoba's LSVCC legislation was introduced, is consistent with this view; see http://www.gov.mb.ca/legislature/hansard/3rd-36th/vol_061a/h061a_4.html.

6 Some LSVCCs manage more than one LSVCF, such as GrowthWorks and the Canadian Medical Discoveries Fund.

Table 1: *Tax Savings from an Individual Investment of $5,000 in a Labour-Sponsored Venture Capital Fund, by Taxable Income Bracket*

Type of Tax Savings	Up to 20,753	30,754 – 30,813	30,813 – 53,811	53,812 – 61,508	61,509 – 61,628	61,629 – 63,505	63,505 – 100,000	Over 100,000
				(dollars unless otherwise specified)				
Registered Retirement Savings Plan (RRSP) Investment	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000
Federal tax credit	750	750	750	750	750	750	750	750
Provincial tax credit[a]	750	750	750	750	750	750	750	750
Combined federal and provincial tax credit	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500
RRSP tax savings	1,110	1,410	1,560	1,655	1,855	1,970	2,170	2,320
Combined federal and provincial income tax rates	Up to 22.2%	28.2%	31.2%	33.1%	37.1%	39.4%	43.4%	46.4%
Total tax credits and tax savings	Up to 2,610	2,910	3,060	3,155	3,355	3,470	3,670	3,820
Net out-of-pocket cost	At least 2,390	2,090	1,940	1,845	1,645	1,530	1,330	$1,180
Initial return[b] = ($5,000 - out-of-pocket cost) / out-of-pocket cost	109%	139%	158%	171%	204%	227%	276%	324%

[a] This table uses Ontario provincial rates as of August 2005; for other provincial rates, see http://www.bestcapital.ca/why_invest.htm.

[b] Calculation does not include any returns (losses) that may be generated by a LSVCF's investment activities.

Sources: http://www.bestcapital.ca/why_invest.htm; Canada, Department of Finance; and Cumming and MacIntosh, forthcoming.

funds, 67 in Ontario, 7 in British Columbia, 2 in each of Saskatchewan and Manitoba, 3 in Quebec, and 28 in the Atlantic provinces.

Only individuals (retail investors) may invest in a LSVCC; while tax credits are capped, there are no restrictions on the size of their investment. Investors receive tax subsidies so long as the LSVCC follows the statutory covenants that govern the fund. Investors are, however, subject to an eight-year lock-in period, which restricts their ability to vote with their feet by moving their capital out of poorly performing funds, thereby limiting competition among LSVCCs (see Cumming and MacIntosh (2006, forthcoming). That only individuals may invest in LSVCCs clearly means that no one has the ability or incentive to control managers; by contrast, pension funds with large holdings in a firm have incentives to have a "chat" with managers.

Most individuals invest in LSVCCs to take advantage of the tax savings that are provided through individual registered retirement savings plans (RRSPs) — indeed, LSVCCs typically advertise such savings as the most advantageous reason for investing in them (Cumming and MacIntosh, forthcoming). Tax benefits vary depending on the individual investor's tax bracket, as Table 1 shows, and are more favourable for those in higher tax brackets. In the Ontario example shown in the table, for an investor in the highest tax bracket, the initial tax-generated return on a $5,000 investment was more than 323 percent.

LSVCCs are bound by a number of statutory constraints, which are similar in each province (for details, see Cumming and MacIntosh 2004). These include

limits on the geographical range of investment opportunities to within the sponsoring jurisdiction, constraints on the size and nature of investment in any given entrepreneurial company, and requirements to reinvest fixed percentages of contributed capital in private entrepreneurial companies within a stated period of time (typically one to three years, depending on the jurisdiction). These constraints are extremely inefficient, however, because they limit investment opportunities and, at times, force LSVCCs to make investments in inferior companies without adequate due diligence (Cumming and MacIntosh, forthcoming). Private independent limited partnership venture capital funds also have constraints or restrictive covenants, imposed by their institutional investors, but they differ significantly from those placed on LSVCCs. For instance, covenants on the former include restrictions on the use of debt (to prevent fund managers from leveraging the fund and increasing the risk to institutional investors), and time restrictions on fundraising by fund managers for their subsequent funds (to force fund managers to spend their time pursuing and nurturing investments that further the interests of the current fund beneficiaries).[7] These covenants also vary depending on the agreed-on needs of the fund investors and fund manager, which enables the limited partners and the general partner to design covenants that are best suited to the fund's particular objectives. LSVCC constraints, in contrast, are invariant across funds and change over time only with statutory changes.

To provide some sense of the relative importance of LSVCC venture capital in Canada, Figures 1 through 4 present relevant data on such funds. For example, by 2005, LSVCCs accounted for roughly half of all venture capital under management, with more than $10 billion (in 2004 dollars) under management (see Figure 1), while much of the capital allocated by institutional investors but not yet invested over the 1988–2004 period has accumulated in LSVCCs (see Figure 2).[8] At the same time, however, LSVCCs do not even outperform risk-free, 30-day treasury bills (see Figure 3), and only three LSVCCs have earned a positive rate of return over the past five years (see Figure 4); indeed, even the best LSVCCs do not earn rates of return that are comparable to the worst performers among small-cap funds.[9]

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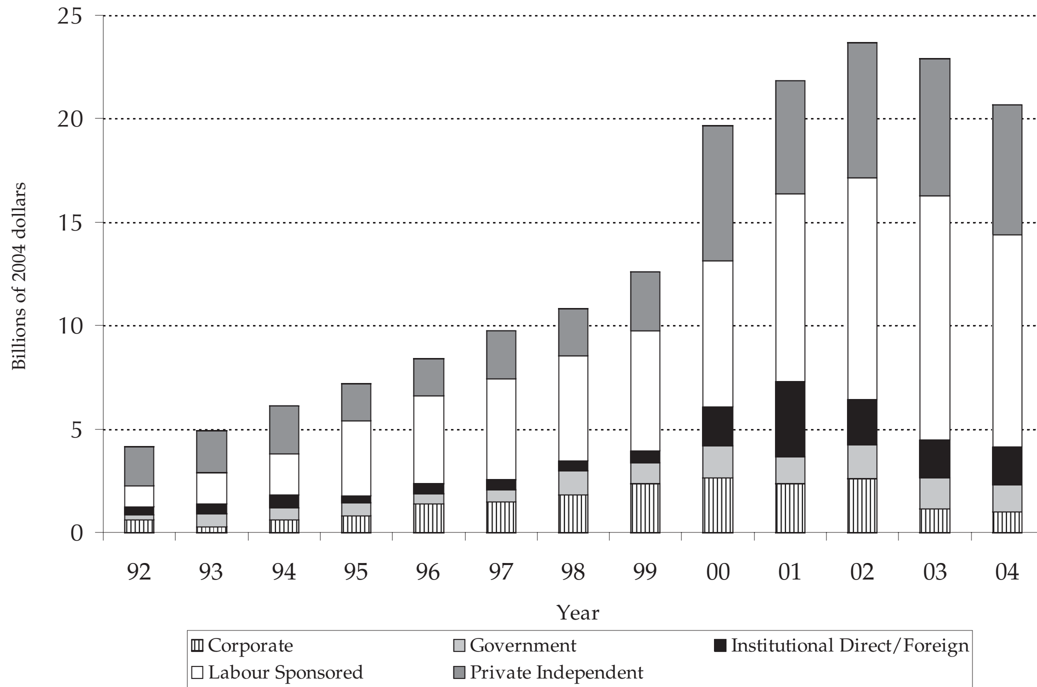
7 For US evidence, see Gompers and Lerner (1999); for international evidence, see Cumming and Johan (2006b).

8 Some LSVCCs (such as Working Ventures in 1997 and Fonds de Solidarité in 2002/03) had an excess of capital available for investment and thereby had to limit their capital contributions from individual investors, since they could not reinvest the money on time; that is, they did not want to face the statutory penalties for not reinvesting the contributed money within the time constraint.

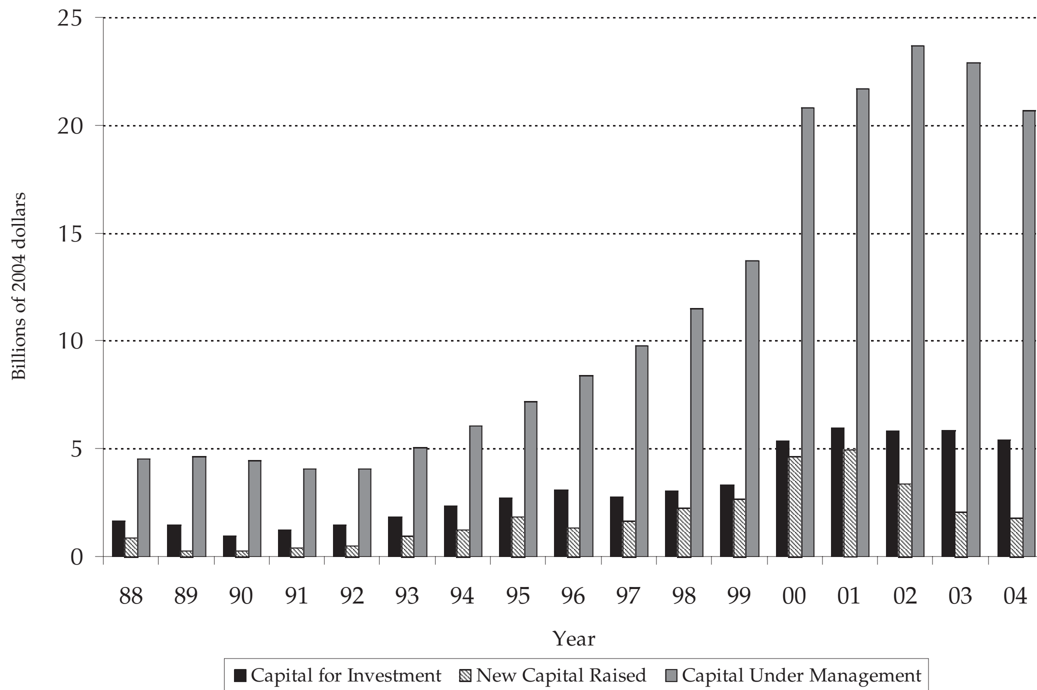
9 One common explanation of the poor performance of LSVCCs is that they are not pure profit maximizers. Some commentators state there is anecdotal evidence that certain funds are doing a good job when viewed in conjunction with their multifaceted statutory objectives (profit maximization, labour growth, regional development, and so on). A commentator on an earlier draft of this paper pointed out that LSVCCs in Quebec differ from those in the rest of Canada, and that labour unions in that province play a larger role in the governance of the activities of labour fund managers than do unions in other provinces. The data are lacking to evaluate this anecdotal evidence, but it is natural to expect differences across funds, and the characteristics of the people involved with the funds clearly play a significant role in their eventual outcomes. It is also possible that the people involved might have done a better job had the statutory constraints of the LSVCC program been designed differently. Nevertheless, there is ample room for improvement in the program design.

Figure 1: *Venture Capital under Management, by Investor Type, Canada, 1992–2004*



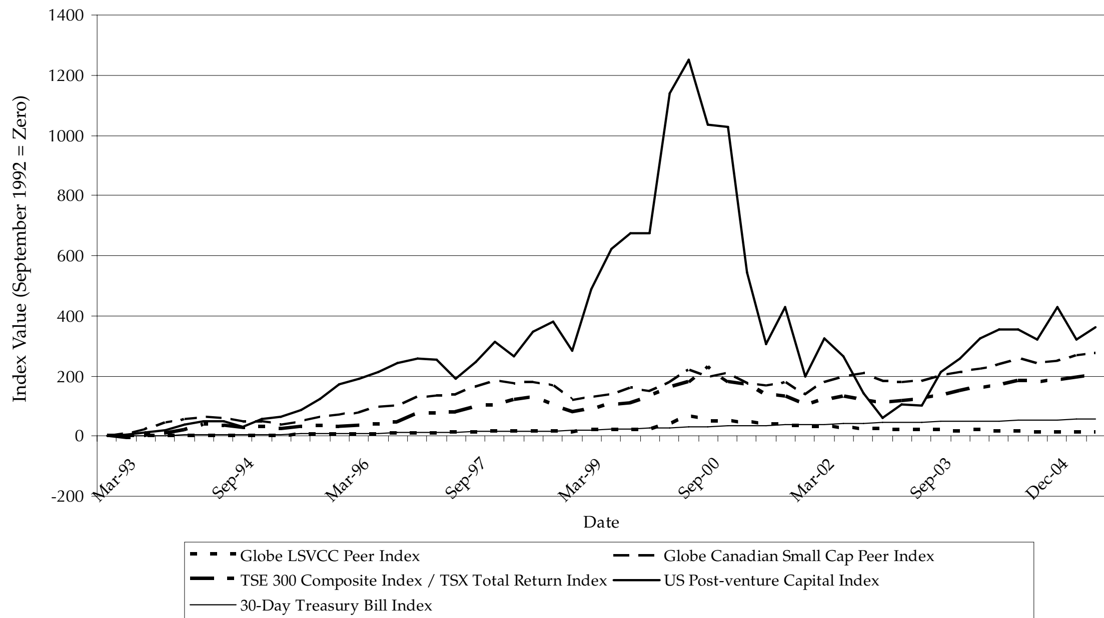
Source: Canadian Venture Capital & Private Equity Association; Macdonald and Associates, Limited.

Figure 2: *Capital for Investment in Canada, 1988–2004*



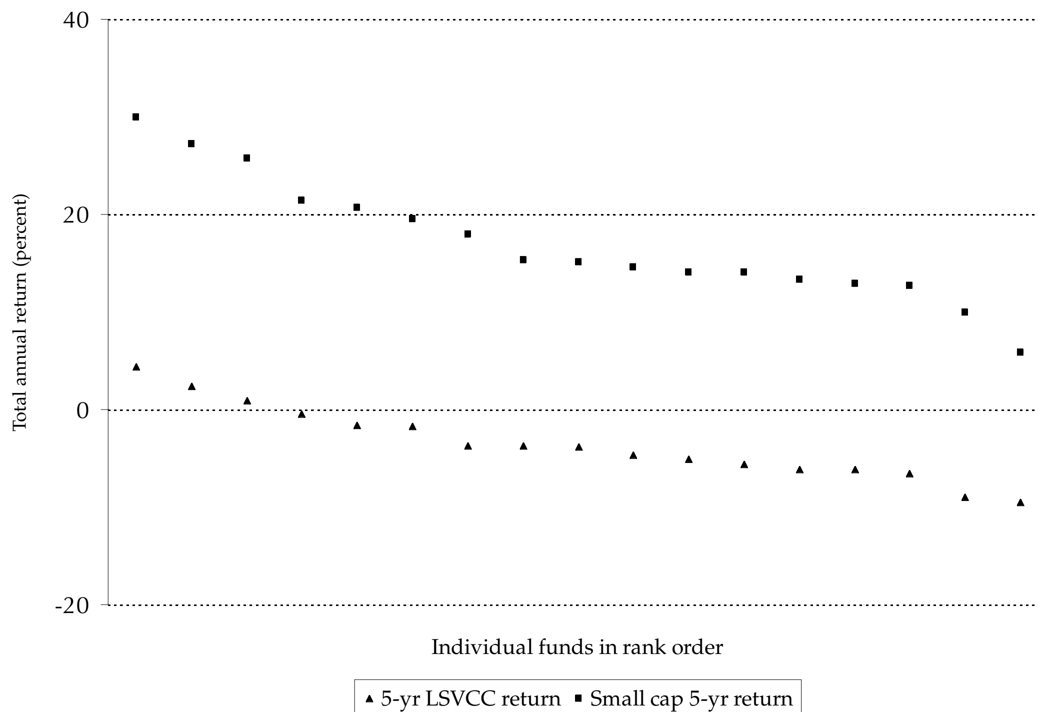
Source: Canadian Venture Capital & Private Equity Association; Macdonald and Associates Limited.

Figure 3: *Selected Indices, 1992–2005*



Source: Thomson Financial; www.globefunds.com; www.morningstar.ca.

Figure 4: *Returns of LSVCCs versus Returns of a Random Sample of Canadian Small Cap Equity Mutual Funds, as of December 2006*



Source: Prepared by Finn Poschmann, C.D. Howe Institute, Toronto, based on data from www.morningstar.ca.

The average LSVCC ratio of management expenses to assets (MER) is more than 4 percent, which is substantially higher than that for all other types of mutual funds in either Canada or the United States (Cumming and MacIntosh, forthcoming). Given that the economic rates of return for LSVCCs shown in Figures 3 and 4 do not include management expenses, most LSVCCs clearly are negative-value-added investment vehicles. Indeed, in the absence of tax subsidies, it would not be rational for an investor to contribute capital to an LSVCC. One can only conclude that, in Canada, venture capital has been inefficiently allocated due to the tax breaks afforded to LSVCCs.

Perhaps relevant to the poor performance of LSVCCs, the managers of these funds tend to have massive portfolios: on average, 6.5 investee companies per investment manager, compared with 2.5 investee companies per manager for private independent limited partnership venture capital funds (Cumming 2006a). Normally, venture capital managers undertake the supervision of a few investee companies only in order to spend time adding value to their investees by sitting on boards of directors and providing strategic, finance, marketing, and human resource advice.[10] Research has shown, however, that a learning curve is associated with venture capital investing — that is, a major hurdle in creating sustainable venture capital markets involves developing skilled venture capital managers (see, for example, Keuschnigg and Nielsen 2004b; Gompers and Lerner 1999). Yet there is no empirical evidence that older LSVCCs perform better than those more recently formed (Cumming and MacIntosh, forthcoming). One possible explanation is that, with such massive portfolios, LSVCC fund managers have little or no time to get involved in the management of their investee companies. Of course, many LSVCC managers are likely highly capable individuals, but policymakers might consider alternative mechanisms to improve the training of younger fund managers other than the environment offered by the typical LSVCC.

The inefficient allocation of venture capital through LSVCCs involves significant costs. First, there are the direct costs of the tax subsidies, estimated to be in excess of $3 billion over the 1992–2002 period (Cumming and MacIntosh 2004). Second, there are the indirect costs of LSVCCs' competing directly with other types of venture capital funds — in effect, crowding them out (see Cumming and MacIntosh 2006). Tax subsidies enable LSVCCs to out-bid other venture capital funds for investee companies, thereby discouraging institutional investors and private fund managers from starting private venture capital funds, since LSVCCs inefficiently drive up deal prices and lower returns in the market. Risk-averse institutional investors commit capital prior to knowing the increase in LSVCC fundraising in any given year. Risk-averse institutional investors are thereby likely to overestimate the extent of LSVCC funding and so reduce their commitments to private venture capital funds. In effect, LSVCCs might even reduce the size of the venture capital market if the crowding out is pronounced.

10 Other evidence indicates that LSVCCs are much less likely to have successful exit outcomes than private independent limited partnership venture capital funds, and much more likely to have unsuccessful buyback exits and secondary sales than initial public offerings and acquisitions. See Cumming and Johan (2006a); for earlier work, see MacIntosh (1997) and Cumming and MacIntosh (2003a, 2003b).

In sum, LSVCCs have fallen short of achieving their intended objectives for bolstering the Canadian venture capital market. In response to this failure, provincial governments have recently shown signs of the need to reform the public subsidization of LSVCCs. For example, Nova Scotia has placed its funds under a year-to-year watch since 2004 to determine if the tax credit should continue, and in August 2005 Ontario announced plans to completely drop the tax credits afforded to its LSVCCs.[11] As another example, the lack of supervision of fund manager activities gave rise to a situation in which bad management persisted for years in Manitoba's Crocus Fund. Scandals were so pronounced that the Crocus Fund had to halt trading on share redemption in December 2004, and was thereafter shut down.[12] Concern over the structure and governance of LSVCCs and evidence that they crowd out private venture capital investment suggest that Ontario's taking the lead in abandoning LSVCCs may be timely.

Alternatives to LSVCCs

If LSVCCs are not working, are there better policy options? Broadly classified, public policies toward venture capital come in one of two primary forms: law — which can be categorized further into taxation, securities law, and other types of laws for facilitating entrepreneurship and entrepreneurial finance; and direct government investment schemes; for an overview, see Table 2, where I briefly review the properties, benefits, and drawbacks of these different policies.

Taxation

At least four important types of tax incentives enable entrepreneurial finance around the world: capital gains taxes, research and development (R&D) tax policies, the taxation of stock options, and double taxation treaties for offshore tax havens (see Table 2, panel A).

Perhaps the best-known and most important tax mechanism affecting venture capital markets is the capital gains tax. Indeed, theory and empirical evidence suggest a direct causality between lower capital gains taxation and more venture capital.[13] For example, the United States reduced its capital gains tax rate from 35 percent in 1977 to 20 percent in 1982, and during the same period venture capital fundraising increased from US$68.2 million to US$2.1 billion (see Figure 5 for details). As entrepreneurial companies typically do not have the positive cash flows to pay interest on debt and dividends on equity, venture capitalists invariably invest with a view toward exiting the market and taking the ensuing capital gains.

11 For details of these provincial initiatives, see http://www.gov.ns.ca/finance/taxpolicy/taxcredits/LSVCCreview2002.pdf; and http://www.fin.gov.on.ca/english/media/2005/nr08-lsif.html.

12 See http://www.cbc.ca/money/story/2005/05/30/crocusaudit-050530.html.

13 See Poterba (1989a, 1989b); Gompers and Lerner (1998); Jeng and Wells (2000); Keuschnigg (2003, 2004); Keuschnigg and Nielsen (2001, 2003a, 2003b, 2004a, 2004b, 2004c); and Armour and Cumming (2006). I do not address tax-neutrality issues here, but they are worth considering by policymakers.

Table 2: *Summary of Alternative Public Policy Initiatives for Providing Venture Capital Support*

Feature	Description	Potential Benefits	Potential Drawbacks	Examples	Related Research
A. Taxation					
Capital gains taxes	Government charges low rates on capital gains taxes	Incentives for private investors to contribute capital to venture capital funds and entrepreneurial companies	Lower tax revenues	United States, 1975-80	Poterba 1989a, 1989b; Gompers and Lerner 1998; Keuschnigg 2004; Keuschnigg and Nielsen 2001, 2003a, 2003b; Armour and Cumming 2006
R&D tax policy	Government provides special tax incentives for R&D	Increases R&D expenses, which benefit society generally due to spillovers	Costly forgone tax revenues	Adopted in various forms in most developed countries around the world	Bloom, Griffith and Van Reenen 2002; Cumming 2006b
Taxation of stock options	Government does not scrutinize low valuations of stock options provided to entrepreneurial companies	Incentives for entrepreneurs to start their own companies	Lower tax revenues	United States	Sandler 2001; Gilson and Schizer 2003
Offshore tax haven double taxation treaties	Government enters into double taxation treaties and allows private investors to set up funds offshore	Incentives for private fund managers to establish venture capital funds	Lower tax revenues	Bermuda; Cayman Islands; Labuan (Malaysia); Luxembourg	Cumming and Johan 2006b
B. Securities Laws					
Minimal prospectus requirements; maximum prospectus exemptions for companies	Cost of preparing prospectus lower; prospectus not required for small companies; greater scope of prospectus exemptions	Incentives for individuals to start companies; better access to capital	Fraud	Canada versus United States comparisons	MacIntosh 1994
IPO hold periods and escrow requirements	Low cost of going public	Lower costs of going public facilitate capital raising for small companies	Fraud	Canada versus United States comparisons	MacIntosh 1994
Foreign ownership of majority shares in companies	Majority foreign ownership is permitted	Foreign ownership a substitute for bad laws, as foreign owners subject to higher standards	Transfer of knowledge and wealth abroad, particularly for high-tech industries, which the countries want to keep internally	South Korean limits to foreign ownership; US limits to foreign ownership for certain industries	Denis and Huizinga 2004

Table 2: *Summary of Alternative Public Policy Initiatives for Providing Venture Capital Support continued*

Feature	Description	Potential Benefits	Potential Drawbacks	Examples	Related Research
		C. Miscellaneous Laws			
Bankruptcy law	Government minimizes time to discharge in personal bankruptcy	Encourages entrepreneurial activity and people to start their own companies, thereby increasing self-employment and the size of venture capital markets	Default and fraud	Netherlands and Germany introduced discharge from personal bankruptcy in 1997 and 1999, respectively.	Armour and Cumming 2005, 2006
Labor laws	The ease with which labour laws enable employees to be fired	Regulatory barriers inhibit company size and growth, and hamper the entry of new companies	Employment security and social welfare	United States versus Europe versus less developed countries	Klapper, Laeven, and Rajan 2006
Incorporation	The number of procedures to start a company	Regulatory barriers inhibit company size and growth, and hamper the entry of new companies	Fraud	United States versus Europe versus less developed countries	Klapper, Laeven, and Rajan 2006
Institutional investor (e.g. pension fund) regulation	Prudential management rules enable institutional investors to invest in venture capital	Increases flow of funds to entrepreneurial companies	Risk pension plan and insurance firms' (beneficiaries') assets	ERISA (United States 1979) FTK (Netherlands 2006)	Gompers and Lerner 1998; Cumming and Johan 2006b
Venture capital fund reporting requirements	Dearth of reporting standards of venture capital funds discourages participation of institutional investors	Increased disclosure increases flow of funds	Costs of reporting and disclosing sensitive materials	CalPERs lawsuit (2002) in United States	Cumming and Johan, forthcoming; Cumming and Walz 2004
Regulatory harmonization	Harmonization of laws governing institutional investors	Facilitates venture capital investment with different types of institutions (or institutions in different countries) acting with same regulatory guidelines within the same limited partnership	Lack of regulatory competition	The Netherlands 2006 FTK; Basel II; IFRS	Cumming and Johan, forthcoming
Patent policy	The extent to which intellectual property is protected	Rewards innovators	Creates a monopoly; and "patent trolls" that acquire patents only for suing	BlackBerry lawsuit	Jaffe and Lerner 2004

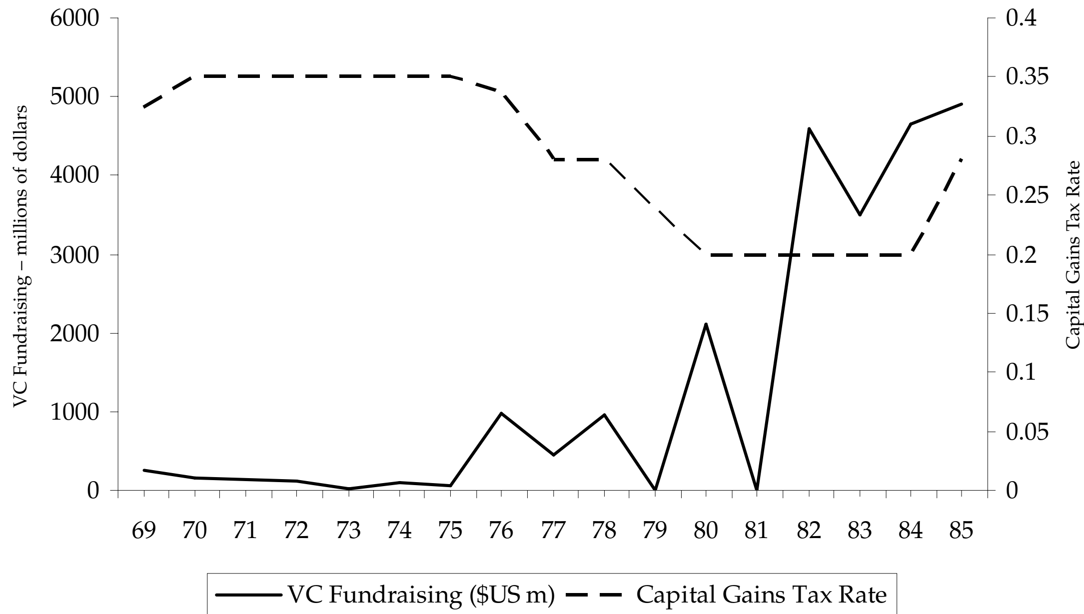
Table 2: *Summary of Alternative Public Policy Initiatives for Providing Venture Capital Support continued*

Feature	Description	Potential Benefits	Potential Drawbacks	Examples	Related Research
D. Direct Government Venture Capital Programs and Other Incentives					
Tax subsidies for one type of venture capital fund	Government provides tax breaks to individuals who invest in one type of venture capital fund	Greater fundraising (at least for one type of venture capital fund)	Crowds out other types of funds; lowers returns in the market	Canada, LSVCCs; United Kingdom, VCTs	Cumming 2003; Cumming and MacIntosh 2001, 2003a, 2003b, 2006, forthcoming
Government research grants	Government provides 100% of funding needed for a particular project	Encourages entrepreneurial activity and people to start their own companies, thereby increasing self-employment and size of venture capital markets	Direct costs of providing grants; scientists using funds on non-commercializable projects, or excessive risk taking	United States, SBIR	Lerner 1999, 2002
Government subsidies for operating costs	Government subsidizes venture capital management firm to cover part of operating costs	Lowers fixed costs and thereby increases the returns to operating a fund	Venture capital fund managers do not have the same incentives to invest in new projects in a timely manner; may also give rise to excess staff or unnecessary operating expenses	European Seed Capital Scheme	Jääskeläinen, Maula, and Murray 2006
Government loans	Government provides loans with interest	Maximum incentives for the investee entrepreneurial company to work towards success as the investee does not have to give up equity	Entrepreneur has incentive to take on excessively risky projects	United States, SBIC	Lerner 1999, 2002
Government participation in a venture capital fund as a limited partner	Government matches investments by private investors	Increased fundraising opportunities for venture capital funds; sometimes structured with limited upside potential for the government	Costly; uncertain politicized selection process of fund managers; possible lack of independence in selection of investee entrepreneurial companies	Australia, Innovation Investment Fund (IIF); Australian Pre-Seed Fund has limited upside for government	Cumming 2007; Cumming and Johan 2006c
Government lower priority	Government investor last to get paid	Increases expected rate of return for private investors	Venture capital fund managers have incentive to take on excessively risky projects	United Kingdom, Regional Venture Capital Funds	Jääskeläinen, Maula, and Murray 2006
Government guarantees in downside	Government incurs losses of fund	Increases expected rate of return for private investors	Venture capital fund managers have incentive to take on excessively risky projects	Germany, WFG; France, SOFARIS; Denmark, Equity Guarantee Program	Jääskeläinen, Maula, and Murray 2006

Table 2: *Summary of Alternative Public Policy Initiatives for Providing Venture Capital Support continued*

Feature	Description	Potential Benefits	Potential Drawbacks	Examples	Related Research
Private investor option to buy out government	Private investors given option to buy government's shares at predetermined rates and over preset period	Government capital more liquid and can be reinvested; private investors' returns potentially enhanced	Timing constraints may distort incentives to do things that are in the best interest of the entrepreneurial company	Israel, Yozama; New Zealand, Venture Investment Fund	Jääskeläinen,Maula, and Murray 2006
100% government-owned venture capital fund	Government-run and -funded venture capital fund	Finances companies that would otherwise not receive capital, such as regionally isolated companies; provision of trade education, consulting services	Costly, depending on how it is structured and operated; uncertain politicized selection process of fund managers; possible lack of independence in selection of investee entrepreneurial companies; inefficient projects if private investors would not finance such projects; otherwise, possible competition with private venture capital	Canada, many provincial and federal sources, such as Canada Community Investment Plan	Bates 2002; Lerner 2002
Privatization of government entities	Privatization of government companies and assets; particularly for developing countries and transition economies	Increases scale and scope of viable projects for venture capitalists to consider as investment opportunities	Politicized process in terms of who gets to buy the company; conflicts of interest	Russia, eastern Europe	Megginson et al. 2004
Export financing	Financing companies with exports and assisting actual exports of companies; pre-shipment financing, equity investments, note payables, credit, contract, and political insurance	Encourages exports and enables companies to be more competitive internationally	Potentially induces reliance on government for assistance; potentially politicized process with selection of companies that receive assistance	Canada, Export Development Corporation	Canada 2006

Figure 5: *Capital Gains Taxes and Fundraising in the US, 1969–1985*



Source: Poterba 1989a, b.

Tax incentives for R&D expenditures represent another important public policy toward venture capital markets and one that many countries have adopted (see Bloom, Griffith, and Van Reenen 2002). Australia, for example, had a flat R&D tax concession of 125 percent, prior to 2001, for all firms with eligible R&D expenses in that country. In 2001, a policy change introduced a 125 percent rebate (or offset) for firms with R&D expenses between AU$20,000 and AU$1 million and turnover of less than AU$5 million. The most interesting feature of the policy change, however, was the introduction of a premium 175 percent R&D tax concession as an incentive to accelerate R&D expenses, available only for incremental R&D above the firm's most recent three-year history of average R&D expenditures.[14] This Australian R&D tax policy design has induced significantly more R&D in a cost-effective manner, and suggests Canada's tax policy toward R&D[15] might benefit from implementing similar kinds of premium concessions.

A third important mechanism for facilitating entrepreneurship is the taxation of stock options. In the United States, for example, the Internal Revenue Service passively acquiesces in valuations of employee stock options that motivate people to start companies. As Gilson and Schizer (2003, 876-78) note:

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14 In Cumming (2006b), I estimate the "inducement rate" — or the amount of additional R&D expenditure made for every dollar of benefit from tax concessions given to a firm — for the tax offset to be significantly greater than 100 percent for the premium tax concession with incentive hurdles to spend more on R&D than in previous years, and much higher than that in countries without special hurdles, as estimated by Bloom, Griffith, and Van Reenen (2002) among others.

15 For details of that tax policy, see http://www.parl.gc.ca/information/library/PRBpubs/899-e.htm.

> [Venture capital] [p]ortfolio companies issue convertible preferred stock to achieve more favorable tax treatment for the entrepreneur and other portfolio company employees. The goal is to shield incentive compensation from current tax at ordinary income rates, so managers can enjoy tax deferral (until incentive compensation is sold, or longer) and a preferential tax rate... [by assigning an artificially low value to the entrepreneurs' common equity claim at the time of investment].

Evidence suggests that the application of this type of tax incentive is much less prevalent in Canada than in the United States.[16]

The fourth tax mechanism affecting venture capital markets is tax incentives for venture capital fund managers to establish offshore funds in tax havens, such as Bermuda, the Cayman Islands, and Labuan, Malaysia. As Cumming and Johan (2006b) explain, offshore funds come in two types: inbound — those established by institutional investors from other countries and where the fund invests specifically in one country; and outbound — those established by institutional investors from one country and where the fund invests in other countries.[17] Overall, significant incentives exist for establishing venture capital funds in offshore jurisdictions, as investors are able to take advantage of double taxation agreements when they repatriate their profits from the various jurisdictions in which the fund has invested. The Canadian government, however, benefits from venture capital companies established abroad only to the extent that investment dollars flow to entrepreneurial companies in Canada. Thus, governments need to be careful to monitor offshore funds that invest within their jurisdiction to ensure that the investment is not facilitating excessive tax avoidance or evasion.

Analogous to offshore tax haven funds, many European venture capital funds invest in German entities through an intermediate holding company resident in Luxembourg in order to take advantage of the Grand Duchy's more favourable tax rules. Industry commentators believe this is an important incentive for venture capital investment in Germany, and proposals to curb this tax incentive have been criticized despite the loss of tax revenues for that country.[18] The lesson from the Luxembourg-Germany example is that a balance should be found between the provision of favourable tax treatment to facilitate investment and the country's need to collect tax revenues.

Securities Laws

Securities laws constitute another form of public policy relating to venture capital markets. They facilitate entrepreneurial finance in two main ways (see Table 2, panel B). First, where securities laws make exemptions from prospectus requirements more readily available for entrepreneurs seeking to raise capital,

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16 Sandler (2001) discusses the Canadian tax treatment of employee stock options.

17 Cumming and Johan (2006b) find, in a sample of 50 funds from 17 countries, that 28 percent were outbound offshore and 12 percent were inbound offshore.

18 See, for example, comments by S.J. Berwin at www.sjberwin.com, September 8, 2006.

they lower the costs of raising funds.[19] Second, if securities laws make hold period and prospectus requirements overly onerous for companies that seek an initial public offering (IPO), the costs of IPOs increase, particularly for smaller companies. Less onerous prospectus requirements, however, risk encouraging fraudulent behaviour (as, for example, in the infamous 1997 Bre-X case).

Foreign-ownership restrictions implemented by protectionist governments can also adversely affect entrepreneurial finance. Such restrictions are still in place in Canada for a number of industries; lifting them would facilitate foreign investment in this country, increase the supply of capital, and give Canadian entrepreneurs better access to capital. Similarly, Canadian investors would benefit from the lifting of foreign-ownership restrictions abroad; some of those benefits might be repatriated back to Canada. Moreover, in countries with weak standards for minority shareholders, the lifting of foreign-ownership restrictions would make companies better off, since majority foreign owners would be held to the higher standard of the foreign country when it comes to the rights of minority shareholders.

Regulations on the Demand for Entrepreneurial Capital

Since part of the mandate of LSVCCs is to provide capital for entrepreneurs, it is worth addressing other legislative tools for facilitating entrepreneurship and the demand for entrepreneurial capital. Among such tools are laws on bankruptcy, labour, and business incorporation (see Table 2, panel C). Bankruptcy laws, in fact, explain many of the international differences in rates of entrepreneurship and venture capital, and there is ample evidence that entrepreneur-friendly bankruptcy laws facilitate self-employment and entrepreneurship, thereby spurring the demand for venture capital (see, for example, Armour and Cumming 2005, 2006).[20] Also spurring entrepreneurship are labour laws that make it easier to fire employees and laws on incorporation that reduce the number of procedures for starting a business (Klapper, Laeven, and Rajan 2006).

Another potentially important legislative instrument is patent law. Conventional wisdom suggests patent laws encourage entrepreneurial activity by rewarding innovators, but an academic debate has raged regarding the suitability of patents. Some researchers argue that, since private incentives to invest in R&D exist, innovators should not rely only on government.[21] Others suggest that patents create monopolies and reduce competitive pressures, but competitive pressures to innovate may be as important as patents; perhaps less controversial is

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19 MacIntosh (1994) argues that Canadian prospectus requirements are too onerous and prospectus exemptions too narrow, thereby making entrepreneurial capital relatively more costly than in other countries, notably the United States. Since the passage of the United States Public Company Accounting Reform and Investor Protection Act of 2002 (better known as Sarbanes-Oxley), it is less clear whether capital costs are cheaper in Canada or in the United States; further research is warranted.

20 Entrepreneur-friendly bankruptcy laws directly benefit entrepreneurs, of course, but they can also indirectly benefit investors, to the extent that investors capture part of the returns to more risk-taking entrepreneurs.

21 See, for example, Aghion and Howitt (2005) and, more controversially, Boldrin and Levine (2002).

the idea that patents encourage disclosure and technology transfer (see Gallini 2002).

One well-known problem with patent law and policy in both the United States and Canada concerns "patent trolls": firms and individuals that acquire patents, not to further entrepreneurial activity, but to sue others that invent similar technologies (see Jaffe and Lerner, 2004). For Canadians, the most illustrative example is that of Waterloo-based Research in Motion (RIM) and its hand-held BlackBerry computer device, where patent trolls obtained patents relevant to the device but did not make use of them, then successfully sued RIM for a majority of the profits.[22] Patent trolls clearly dissuade entrepreneurial activity, but patent laws as they currently stand offer ample support for such behaviour.

Regulations on the Supply of Entrepreneurial Capital

In addition to laws that favour entrepreneurial activities, regulations governing investments of institutional investors also encourage investment in venture capital and private equity. In the United States, the Employee Retirement Income Security Act of 1974 established standards for the appropriate investment in venture capital for part of the portfolios of pension funds (see Gompers and Lerner 1998); standards that have since evolved as benchmarks for Canada as well. Similarly, in 2006, the Netherlands introduced the Financieel Toetsingskader (FTK), which changed pension fund portfolio management standards to enable a closer matching of assets and liabilities, thereby facilitating investment in venture capital (see Cumming and Johan, forthcoming). Similar regulations that harmonize the rules European institutional investors face also enable different types of institutions (such as banks, insurance companies, and pension funds) as well as institutional investors from different countries to act as limited partners in venture capital funds (ibid.). As a related matter, there is evidence that dissimilar regulations in Quebec exacerbate the fragmentation of Canada's venture capital market (Cumming and Johan 2006c).

Unlike institutional investors, however, venture capital fund managers face few regulations, which has hindered institutional investment in venture capital. Institutional investors' commitments to venture capital are influenced by the fund performance reports they receive from venture capital funds and by their ability, in turn, to disclose such reports to their clients and beneficiaries (such as pensioners, in the case of pension plans). Prior to a lawsuit involving the California Public Employees' Retirement System (CalPERS), venture capital funds in the United States enjoyed complete secrecy in terms of disclosure of their performance to the public generally, and reports by venture capital funds to their institutional investors were not regulated.[23]

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22 See, for example, http://cliffreeves.typepad.com/dyermaker/2005/12/rim_blackberry_.html.

23 The CalPERS lawsuit forced United States venture capital funds to disclose returns to public institutional investors. As a result, some funds have restricted participation by public limited partners. For example, Sequoia Capital ejected the University of Michigan as an institutional investor in its funds; see http://www.mercurynews.com/mld/mercurynews/business/6390139.htm.

The effect of a comparative dearth of regulations on the flow of funds into the venture capital market is not certain without empirical scrutiny. On the one hand, the lack of such regulations might facilitate the flow of funds into the venture capital market by giving the funds the flexibility they need to carry out their investment activities without interference from regulatory oversight and reporting requirements, a view often put forward in the popular press by venture capital funds and commentators.[24] On the other hand, institutional investors often argue that the comparative dearth of regulation of venture capital funds and lack of reporting standards act as a disincentive to contribute to venture capital funds, a view supported by Cumming and Johan (forthcoming);[25] as a result, some pension funds have been forced to rethink their investment strategy with respect to venture capital funds.[26]

Thus, rules (or at least formal guidelines) that increase investment transparency clearly would facilitate institutional investment in venture capital. The lack of well-accepted standards for reporting returns on unexited venture capital investments has, in fact, turned institutional investors away from venture capital funds, since fund managers tend to overreport such returns (see Cumming and Waltz 2004). Attempts to curb this problem include the introduction in 2006 of new generally accepted accounting principles and clearly described industry standards for valuation by the Canadian Venture Capital & Private Equity Association and similar associations in other countries.[27]

Direct Government Investment Programs

Aside from legal incentive structures, the second main form of government support for entrepreneurial finance is via direct, government-created, or government-subsidized venture capital funds (see Table 2, panel D).[28] Such funds need to partner with, not compete with, other types of venture capital funds, however; they also need to bridge the gap when the market fails — due to, for example, structural impediments giving rise to a dearth of capital. Further,

24 See, for example, Cobley (2005), who argues that, in the United Kingdom, regulations hamper the flow money flow into venture capital, while a dearth of such regulations in continental Europe facilitates flows there. Other examples are Dickson (2005); Mackie (2005); and Tricks (2005), who argue that new United Kingdom disclosure laws are making venture capital groups uncomfortable. See also Hill (2005), who argues that overly strict regulations hamper the expansion of investments in alternative asset classes.

25 In the United States, for example, the Institutional Limited Partners Association has been working toward setting standards for reports from venture capital funds, while in March 2004 the National Venture Capital Association rejected a proposal on valuation guidelines by the Private Equity Industry Guidelines Group, which has created controversy among the various industry associations; see http://www.privateequityonline.com/TopStory.asp?ID=4498&strType=1.

26 For example, CalPERS has been forced to reconsider its venture capital allocations in ways that differ from what it might otherwise have done but for the public disclosure; see http://www.ventureeconomics.com/vcj/protected/1070549534318.html.

27 See, for example, http://www.privateequityvaluation.com/documents/IPEV_Press_Release_15.11.2006.pdf.

28 This section draws on material presented in Cumming and MacIntosh (2007); an earlier version was presented in Cumming (2007), as a report to the Australian government. See also Lerner (1999, 2002); Cressy (2002); and Cumming and MacIntosh (2006, 2007).

government funds should be structured to minimize agency costs associated with the financing of small and high-tech companies. As discussed earlier, the covenants implemented under the LSVCC program are precisely the opposite of what would be an efficient investment vehicle.

Countries have adopted different forms of direct government investment programs for venture capital. The United States, for example, has the Small Business Innovation Research (SBIR) Program, administered by the Small Business Administration (SBA). The SBIR program is the largest government support program for venture capital in the world, with SBIRs having invested more than US$21 billion in nearly 120,000 financings of small businesses since the 1960s. Investee companies include such successes as Intel Corporation, Apple Computer, Federal Express, and America Online.

SBIRs, which are run by private investment managers, operate like private, independent, limited partnership venture capital funds, except that they are subject to statutory terms and conditions on the types of investments they make and the manner in which investments are carried out.[29] SBIRs do not distinguish between types of businesses, although investments in buyouts, real estate, and oil exploration are prohibited. Investee companies are required to be small (as defined by the SBA) — and generally smaller than companies that would be considered for private independent limited partnership venture capital financing. The SBA provides capital to SBIRs at a lower required rate of return than typical institutional investors in private, independent, limited partnership venture capital funds. Excess returns to SBIRs flow to the other non-governmental private investors and fund managers, thereby increasing or leveraging their returns. Empirical evidence shows that early-stage companies financed by SBIRs have substantially higher growth rates than non-SBIR financed companies (Lerner 1999).

The SBIR program has been quite effective in spurring venture capital investment and creating sustainable companies, but Canada's existing institutional environment might not enable an effective SBIR-like program to operate here.

In Australia, the federal government adopted an Innovation Investment Fund (IIF) program in 1997. In each of the nine funds created so far, the ratio of government capital to privately sourced capital is as much as two to one, a substantial government share deemed necessary because of the scant early-stage venture capital investment available in Australia when the program was established. As with the United States SBIR program, a key feature of the Australian IIF program is that it operates like a private independent limited partnership venture capital fund. Investments generally take the form of equity and must be in small, new-technology companies. At least 60 percent of each fund's committed capital must be invested within five years. Unless specifically approved by the Australian government's Industry Research and Development Board, an investee company cannot receive more than AU$4 million, or 10 percent of the fund's committed capital, whichever is the smaller.

29 For example, the minimum period of investment is one year, and an SBIR can indirectly or directly control the investee company for a maximum period of seven years. For a summary of these terms and conditions, see http://www.sba.gov/INV/overview.html.

Evidence suggests that IIFs are fostering the development of the Australian venture capital industry in a statistically and economically significant way (Cumming 2007). Indeed, both the United States SBIR and Australian IIF programs indicate the tremendous potential governments have to foster innovation and economic development through the public subsidization of venture capital.

For its part, the United Kingdom has adopted a type of fund, similar to Canada's LSVCCs, known as the Venture Capital Trust (VCT). Like LSVCCs, the VCTs are mutual funds listed on stock exchanges, and are not operated like private independent limited partnership venture capital funds as are United States SBIRs and Australian IIFs. As in Canada, VCT investors are individuals (retail investors), who receive substantial tax incentives for contributing capital to the funds. In exchange for the tax subsidy, VCT managers agree to adhere to a set of statutory covenants that constrain their investment decisions and activities. Like their Canadian counterparts, however, the VCTs have not been as successful in achieving their objectives as the Australian and United States models, prompting some commentators to argue that the United Kingdom would benefit significantly benefit from adopting a United States-style SBIR Program (see, for example, Connell 2006).

Other Kinds of Government Support

Governments offer a number of other kinds of support to venture capital markets in addition to the examples discussed above, including loans, paying government investors last in the event of insufficient funds, and bailouts for losses (see Table 2, panel D; for an extended discussion, see Jääskeläinen, Maula, and Murray 2006). But such provisions also create potentially distortionary agency problems associated with debt, such as underinvestment,[30] risk shifting,[31] and asset stripping.[32] Empirical evidence suggests, however, that debt is not used when the agency costs associated with it are expected to be pronounced (see Cumming 2005a, 2005b). Similarly, if managers of government-supported venture capital funds expect such problems to be pronounced, then these schemes are not likely to be as valuable as one might think.

Governments have also delved into wholly government-owned venture capital organizations, such as the Canada Community Investment Plan,[33] although research suggests that such programs are more likely to finance companies that might not otherwise receive capital, such as entrepreneurial companies in

30 *Underinvestment* refers to situations where equity investors do not want to spend more time on or add value to a venture that is facing bankruptcy, since they (unlike debt holders) would obtain no economic benefit from doing so.

31 *Risk shifting* refers to the tendency of equity holders to undertake excessively risky projects to transfer expected wealth from debt holders to equity holders. If the venture does well, equity holders earn more money and debt holders gain no extra benefit. If the venture does poorly, both equity holders and debt holders lose their capital.

32 *Asset stripping* refers to the incentives equity holders have to steal assets out of companies that face bankruptcy. A common example is when equity holders pay themselves a large dividend shortly before announcing bankruptcy. See, for example, Jensen and Meckling (1976); and Green (1984).

33 See http://strategis.ic.gc.ca/epic/internet/inccip-picc.nsf/en/h_cw01102e.html.

regionally isolated communities (see Bates 2002; Lerner 2002). Other government programs, such as Canada's Export Development Corporation, focus on increasing the exports of domestic firms, or on privatization, which increases the scope of viable projects that venture capitalists consider to be investment opportunities (see Megginson et al. 2004). The success of these various policy strategies depends on a wide range of structural, political, and economic factors, and on the way the policies are implemented.

Summary

Canada's LSVCCs are inefficient, may have poor governance structures, charge high fees, and earn economic returns that lag those of 30-day, risk-free treasury bills. Further, government expenditures on LSVCCs have not resulted in value-added venture capital investment, and appear to have crowded out private venture investment in Canada. Ontario abandoned tax subsidies to LSVCCs in 2005, and research suggests that the federal and other provincial governments should follow suit.

In place of LSVCCs, a variety of other ways exist to promote entrepreneurship and efficient entrepreneurial investment. Canadian policymakers should investigate these alternatives fully, including such appropriate legal changes as entrepreneur-friendlier bankruptcy laws, lower capital gains taxes, and less-onerous securities regulation, as well as direct government programs such as those in place in the United States and Australia.

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