

LOOK OUT TO THE WORLD**ENTREPRENEURIAL FINANCING:
PROGRAM REVIEW AND POLICY PERSPECTIVE¹****Jin Joo Ham²**

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Abstract:

Entrepreneurial financing³, such as publicly initiated venture capital or grant schemes, serves as an important policy instrument that aims to bridge the financing gap facing young, innovative businesses, a gap that is mainly due to higher risk and growing uncertainty, and to strategically promote the creation of new ventures through the revitalization of their venture capital industries. This study examines public venture capital initiatives in Australia, Canada, and Sweden, and discovered that all three countries actively foster their venture capital industry through the formation of funds or the provision of tax incentives. It is notable that the majority of financing initiatives heavily depend on supply-side measures rather than demand-driven policies that focus on stimulating private investment in technological innovations and discoveries. This paper discusses in-depth the policy impact of public financing initiatives and their subsequent side-effects raised in the process such as overlapping in funding structure across the country, lack of monitoring and evaluation for feedback, fragmentation across the government ministries and agencies, and competition with the private sector, which may cause inefficiency as a result of public intervention. Financial constraints may arise for many reasons, partly resulting from the lack of investment readiness of young entrepreneurs. This signals a policy shift towards the creation of market-driven demand away from the traditional supply-push approach, and is a grand challenge to policymakers in entrepreneurial financing. Attention is leaning towards the efficiency and effectiveness of these public-financing initiatives in terms of their policy roles. It is worth noting that policy should focus on generating synergy so available resources can be channeled into the early, risky stage of new ventures, working as a facilitator to the achievement of an intended policy goal.

Keywords: *Entrepreneurial financing; Public venture capital; Funding gap; Investment readiness; Crowd out.*

¹ The author is greatly indebted to the Science and Technology Policy Institute (STEP1) in Korea for offering the opportunity to participate in this research project

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³ Entrepreneurial financing in this context refers to financing particularly for R&D-intensive, technology-based businesses at early, risky stages of a company's growth.

1. Introduction

1.1. Background and research question

It is a lengthy and complex process translating a scientific discovery into a commercially viable product. The value creation process from scientific research towards the competitive market entails much risk and uncertainty. Financing gaps in the early stages between entrepreneurs and investors is one of the pronounced issues that hamper entrepreneurial activities. Regarding the financing aspect faced by young innovative companies such as start-ups, access to finance is seen as the overarching concern to tackle. Financial conditions have worsened in the aftermath of the 2008 economic crisis, illustrated by certain indicators on business R&D and venture capital investment during the corresponding period. A 2011 survey (*EC, 2011*)⁴ on the access to finance by small and medium-sized enterprises (SMEs) in the European area reveals that SMEs considered access to finance as one of the most pressing problems in the region. Financial constraints have primarily been a chronic issue particularly for fledgling businesses in their early stages of growth.

The main reason for choosing Australia, Canada, and Sweden for policy analysis on entrepreneurial finance focusing on publicly initiated venture capital is significant learning effect generated from their policy experimentations. The three countries are advanced economies, but their economic conditions have stagnated over the years due to the aftermath of the global economic crisis. In an effort to address these issues, the three countries based on an extensive review of their venture capital industries and innovation policies took a variety of stimulus measures that are expected to play a pivotal role in meeting financing needs from young innovative entrepreneurs and boosting the economy as a whole.

The three countries are characterized by their significant distinctions in their venture capital industry such as: (i) Australia has relatively weak venture capital infrastructure, in contrast with compelling strengths in science-based research activities; (ii) Canada supports the invigoration of their domestic venture capital industry through public fund formation and tax incentives, although such policy initiatives proved not to be as successful as expected; and (iii) Sweden made substantial interventions in the venture capital industry by providing public venture capital funds, which cast some doubt on the efficiency of public venture capital schemes.

⁴ The survey "Access to Finance for SMEs in the Euro Area" was conducted between 22 August and 7 October 2011 under the request of the European Central Bank and the European Commission. The total sample size for the Euro area was 8,316, of which 7,690 (92%) had fewer than 250 employees. The target period was from April to September 2011.

Public intervention is regarded as a necessary and appropriate procedure to deal with financing challenges confronted by young innovative start-ups and SMEs (*Durufle, 2010*) in particular, even though it is likely to bring about a picking-the-winner problem in the process⁵ and political intervention. This research paper discusses the following policy questions: what is the rationale for market intervention, what policies work and what do not, what are the policy implications and impact, what is the role of government in the implementation process, and what are the future challenges.

1.2. Rationale for Public Intervention

Financial markets do not work properly under risky circumstances, mostly due to concern over capital loss. Furthermore, private R&D, a key driver of entrepreneurship, tends theoretically to reach below the socially optimal level of investment (*Schuelke-Leech, 2012*), largely due to considerable spillover effects⁶ (*Audretsch, Leyden, & Link, 2012; Griliches, 1992; Jaffe, 1998*). Knowledge as a “public good” can be utilized free of charge, irrespective of original investors due to the properties of its non-exclusivity, resulting in underinvestment in innovation.

It is important to note that young innovators tend to lack the track record, managerial expertise, business skills and networks, or even collateral as a guarantee for borrowing. Young technology-based entrepreneurs have no choice but to mobilize personal relationships such as family and friends rather than to use traditional financial institutions. This critical stage is known as the “valley of death”⁷, its name implying its financial risk (*House of Commons Science and Technology Committee, 2013*). Novel inventions are also an intangible asset class with high-risk and high-reward, making it difficult for financiers to quantify potential value. These reasons make it

⁵ The government’s picking of winners is considered one of the most common government interventions in the modern economy as part of industrial policy. According to the Economist, August 5th 2010, the author under the title of “Picking Winners, Saving Losers” discusses policy examples and developments of government intervention and explains four key drivers to the revival of industrial policy such as: (i) the weak state of the world economy; (ii) rebalancing of economies away from finance and property; (iii) emergency use of industrial policy tools; and (iv) emulation of the apparently successful policies of fast-growing economies. The author provided some lessons from the past such as: (i) the more it is in step with a national or local economy’s comparative advantage, the more likely industrial policy is to succeed; (ii) policy is least prone to failure when it follows rather than tries to lead the market; and (iii) industrial policy works best when a government is dealing with areas where it has natural interest and competence

⁶ Spillover occurs in diverse areas and therefore is confined to the additional benefits generated from the consequence of knowledge creation such as R&D and innovation. A number of studies on the spillover effect show overall R&D spillovers are both prevalent and important in driving innovations (*see Zvi Griliches, 1992*).

⁷ According to Investopedia, the “valley of death” is a commonly used term in venture capital referring to the period of time from when a startup firm receives an initial capital contribution to when it begins generating revenue. During the valley death curve, additional financing is usually scarce, leaving the firm vulnerable to cash flow requirements.

harder for innovators to obtain access to finance in their early entrepreneurial innovation process.

In short, the rationale for public financing initiatives can be found in: (i) risk aversion, which indicates that investors tend to move away from early stage, risky projects to later stage, less risky projects; (ii) positive externality, which implies that social return is higher than private return in the generation of knowledge (*Griliches, 1992; Lerner, 2002*); (iii) asymmetric information, which means skewed information between innovators and investors; and (iv) certification effect, or the so-called “stamp of approval”, which suggests certifying new firms to outside investors (*Lerner, 2002*).

Figure 1 shows financing needs at different stages of the entire innovation process, ranging from scientific research to market production. Entrepreneurial finance can be severely constrained around the valley of death, where risk is likely to hit highest, while return is likely to be lowest.

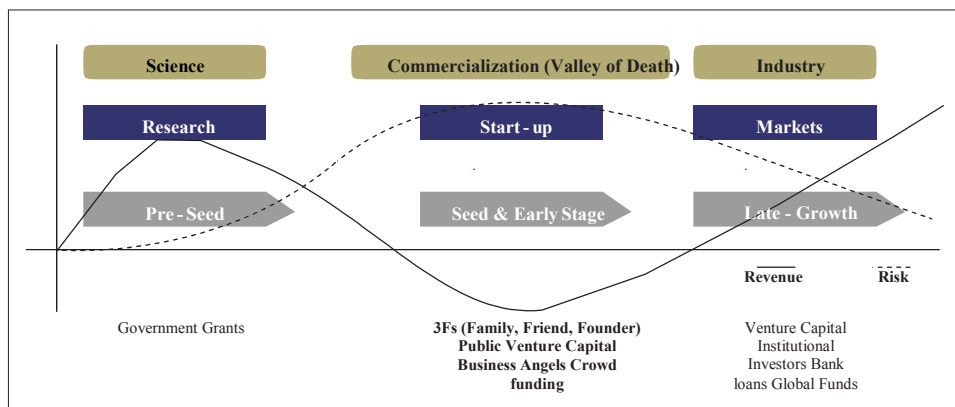


Figure 1. Financing needs at different stages of company growth

1.3. Research methodology

The research was done through literature review and diverse debates and discussions with policy-makers, business leaders, and experts in the area of entrepreneurial finance, shedding light on the major role, management and policy impact of public venture capital initiated by Australia, Canada, and Sweden. In addition, a variety of policy issues raised in the implementation process were discussed in-depth, aiming to explore policy insight from those countries' experiences.

At the micro-level, the research focuses on the formation, operation, and performance of publicly initiated venture capital funds in the selected

countries. Relevant policy and program examples are introduced, analyzed, and discussed. At the macro-level, the research explores policy impact, which may be positive or negative, managerial aspects, interactions among multiple actors, and then draws implications, lessons to learn, and challenges ahead from a public policy perspective.

2. Review of public venture capital

Venture capital (VC) as professionally managed funds has been in the center of entrepreneurial finance over the last several decades, aiming to finance new and innovative venture firms (*UN, 2007, 2009*). Young and technology-based firms commonly suffer from lack of funds at early stages largely due to uncertainty. Publicly initiated venture capital (PVC), as a complement to the private venture capital, has played an extremely important role in filling the financing gap especially for new entrepreneurial venture firms (*Hood, 2000; IKED, 2007*). The role of a government in the venture capital industry draws growing attention from the entrepreneurial community especially since the global economic crisis of 2008.

Small Business Investment Companies (*SBIC, 1958*) in the United States, the Scottish Development Finance (*SDF, 1982*)⁸ the Yozma Fund (1992) in Israel, the High-tech Start-up Fund (2005)⁹ in Germany, the Early Stage Venture Capital Limited Partnership (*ESVCLP, 2007*) in Australia, the Labor-sponsored Venture Capital Corporations (*LSVCC, 1982*) in Canada, and Industrifonden (1997) in Sweden, are some of the typical PVCs initiated by governments.

2.1. The Australian case

Venture capital investment as a share of gross domestic product (GDP) reached 0.06%¹⁰ in 2009, which is above the OECD sample average 0.03%, while gross expenditure on research and development (GERD) as a share of GDP came up to 2.24% in 2008. In an effort to revitalize the venture capital sector, the Australian government in 2005 reviewed the country's venture capital industry and assessed its state and the impact of existing government

⁸ The Scottish Development Finance was established in 1982 to provide both equity and secured loans for SMEs, which laid the foundation for bolstering early-stage finance for entrepreneurial businesses in Scotland. Some lessons from the SDF were drawn such as: (i) striking an appropriate balance between commercial achievement and economic development; (ii) specific challenges to be addressed; (iii) attraction of professional fund managers with expertise; and (iv) interactions between SDF and private sector venture capitalists.

⁹ The High-Tech Startup Fund in Germany was established to finance innovative high-tech companies in their seed phase through public and private partnership. The funds provide operational support through local coaches and hands-on/strategic support by investment managers.

¹⁰ Data for venture capital investments are drawn from the OECD Entrepreneurship Financing Database (OECD, 2011) and data for GDP are drawn from the OECD MSTI Database. Others are based on national sources.

programs. The key findings by the Review (*Australian Venture Capital Association Ltd., 2005*)¹¹ reveal, surprisingly enough, that the Australian venture industry was significantly underdeveloped compared to the breadth and quality of the country's R&D activities, and showed low investment levels, a lack of capital formation and scale, and a very low number of investment managers with a proven track record. In short, the review can be summarized as follows: (i) the Australian venture capital market as a whole is quite modest in size, as a percentage of GDP; (ii) the level of venture capital relative to the total private equity investment is considerably less than in many other nations; and (iii) the modest level of development of the venture capital sector is in sharp contrast with Australia's high academic scientific output.

Based on the findings from the Review, it is clear that the contribution of professional venture capital to Australian industry is relatively small. This comes as a significant challenge to the government, which leads the implementation of a suite of new policy initiatives recommended by the Review. Major initiatives to stimulate the venture industry include the introduction of the "Early Stage Venture Capital Limited Partnership (ESVCLP)"¹² in 2007 (which would be tax-free to investors), the implementation of the Innovation Investment Funds Round 3 (IIF3) co-investment program in 2008, and the easing of restrictions on the existing Venture Capital Limited Partnership (VCLP)¹³ in 2002 (which aims to encourage local and foreign investment in the venture capital and private equity sectors). These measures are aimed at both the short and long-term stimulation of the venture capital industry and the improvement of an important existing program.

The ESVCLP initiative is a significant development on what previous government programs were willing to contemplate in assisting the venture industry. It grants to all the investors in registered venture capital funds a tax-free entitlement to dividends or capital gains generated by those funds. This vehicle has the potential to considerably enhance the ability of early stage venture capitalists to raise funds given the "no tax" status of ESVCLPs for all investors, whether local or foreign, individual or

¹¹ The primary focus of the Review concerned the existing policy deficiencies in the VCLP reforms that were introduced by the government in 2002.

¹² The Early Stage Venture Capital Limited Partnership was established in 2007 as part of the follow-up measures after the extensive review on the venture capital industry in Australia in 2005. The aim was to provide tax concessions for Australian residents and foreign investors who invest in early-stage venture firms.

¹³ Venture Capital Limited Partnerships, which was formed in 2002, aims to precipitate equity investment in start-ups and growing Australian companies, and over forty registered VCLPs are under operation as of June 2012. The VCLP scheme was revised in 2007 to provide greater access to foreign investors in high-risk start-ups and expanding companies

institutional. Under the scheme, the tax benefits accrue to the investors only when the investments yield returns¹⁴. This may limit the impact of the new policy initiative in a context that no tax deductions are available for capital losses incurred by ESVCLPs. What is worth noting here is that investors are, in general, exposed to risk in a sense that they are not in a position to claim financial compensation from the losses. The impact of “back-end” tax incentives like ESVCLPs is likely to be not so influential as “front-end” tax incentives, which means tax deductions on investments rather than on returns. Under the new ESVCLPs scheme, investors may hesitate to invest, resulting in a weaker policy impact than originally intended.

The IIF3 program, which aims to establish new funds to invest in early-stage companies commercializing Australian research, will co-invest with private funding basically on a 50:50 basis and is expected to build up to A\$200 million over a five-year period with the formation of ten new early-stage venture funds. IIF was formed three times under the original IIF initiative to accelerate commercialization in Australia. IIF Rounds 1 and 2 were formed with five funds (A\$130 million in 1998) and four funds (A\$91 million in 2001) respectively. IIF Round 3 formed with seven funds (A\$140 million until 2011) financed by the Australian Government. Notably, the Cutler Review¹⁵ in 2008 recommended that IIF be maintained and extended with a 4th round after 2012.

Table 1. The innovation investment fund

Currency	Funding source	Round 1	Round 2	Round 3	Total
Million A\$ committed	Commonwealth	130	91	140	361
	Private	67	66	150	283
	Total	197	157	290	644
Million A\$ Returns	Commonwealth	105	47	0.6	153
	Private	266	54	0.8	320
	Total	371	101	1.4	473

Source: Venture Capital in Australia, as of 30 June 2012 (AusIndustry, 2012).

¹⁴ Taxation is an important vehicle that significantly leverages private investment behavior in the process of technological innovation. Therefore, tax policies heavily depend upon the nature or goal of a policy that is achieved, i.e. front-end tax incentive can be helpful to increasing investment, while back-end tax incentive is likely to increase ROI and prevent potential moral hazards in the process as well.

¹⁵ The review of the national innovation system in Australia was carried out by Terry Cutler in 2008 on the request of the Australian Government and produced the “Venturous Australia Report.” The recommendation on Innovation Investment Fund was that it should be maintained with a fourth round after 2012. The primary objectives are: 1) to invest in high growth potential firms, 2) to expand the pool of skilled fund managers, 3) to build downstream investor confidence in follow on investment, and 4) to build institutional fund confidence in supporting early-stage funds

Under the new initiative, various restrictions on the operation of VCLPs were removed or relaxed including Australian residency requirements for investees, the minimum fund size of A\$10 million, the country of residence of investors, and the appointment of auditors. These changes in turn are important not only for VCLP funds, and they flow through to benefit ESVCLPs that are effectively a subset of the VCLP scheme. The VCLP program has no limit on fund size, and is applicable to later-stage private equity activity. The main attractions of the regime are that foreign investors benefit from tax-free status on investment gains, and general partners are given capital gains tax treatment on carried interest rather than being taxed at ordinary income rates.

According to a 2010 evaluation (*Australian Government, 2011*), the IIF program was found to contribute both to the commercial development of targeted firms and to the early-stage venture capital market in general. The IIF program has been critical in channeling additional equity capital to genuinely early-stage and high-risk young businesses primarily in new technology sectors. The IIF model is considered an effective way for Government to grow new firms and build a local venture capital market. It draws in private sector investment and provides attractive incentives to fund managers to operate in high-risk areas, leading to higher return on investment (ROI). However, the challenges ahead in the Australian venture capital industry are lack of critical mass in terms of fund size, weakness in exit markets, and lack of commitment from institutional investors such as pension funds (*Australian Government, 2011*).

It appears that most of the public venture capital funds in Australia focus on seed and the early-stage funding gap. A co-investment approach with private partners as with IIF contributes to creating synergy, diminishing the probability of crowding out and moral hazards. Importantly, public venture capital management by dedicated fund managers is significantly helpful as in the case of IIF and ESVCLP because they provide not only capital but also professional coaching to young innovative start-ups that have little expertise and business skills. As seen so far, it is important that the involvement of a government in the venture capital industry needs to focus on correcting market failure, leaving market forces working properly in the long run.

On balance, the policy measures taken by the Australian government appeared to be bold enough to influence the level of venture capital activity, and their impact would be more or less tangible over time. However, the development of a robust venture capital industry will not occur overnight. A public policy initiative usually takes a long time to prove its merits. The

U.S. example is instructive, where it took twenty years from the introduction of the Small Business Investment Company (SBIC) program¹⁶ in 1958 for the venture capital industry to attain critical mass (*Lerner & Watson, 2007*).

2.2. The Canadian case

Venture capital investment as a share of GDP reached 0.03% in 2009, which is about the same as the OECD sample average of 0.03%, while GERD as a share of GDP amounted up to 1.74% in 2011. Venture capital in Canada has been diminishing since 2000 in terms of total capital raised and invested. The total venture capital raised and invested in Canada hovers around US\$1 billion in 2010, steeply down from a peak of almost US\$ 4 billion in the late 1990s. In order to address the declining venture industry, the Canadian government has launched a variety of policy initiatives that aim to foster the venture capital industry at both federal and provincial levels. At the federal level in Canada are two major interventions. One is the Business Development Bank of Canada¹⁷ (BDC), a government-owned venture capitalist. The other is a labor-sponsored fund program, referred to as Labor-Sponsored Venture Capital Corporations¹⁸ (LSVCCs). In addition, at the provincial level, there are both provincially operated funds and the provincial equivalents of the LSVCC program.

The BDC directly and indirectly provides a great deal of venture capital through the implementation of various programs designed to close financing gaps during business development. The LSVCCs grant tax incentives to encourage venture capital investment and technological innovation as well. Furthermore, many provincial governments in Canada also offer subsidies and tax credits through a diversity of programs of their own, as well exemplified in the provincial governments like Quebec, Ontario, Manitoba, New Brunswick, etc. It is roughly estimated that

¹⁶ The SBIC Program is a multi-billion dollar, government-sponsored investment fund set up in 1958 to bridge the gap between entrepreneurs' need for capital and traditional sources of financing. It invests long-term capital in privately-owned and managed investment firms licensed as SBICs and for every \$1 an SBIC raises from a private investor, the Small Business Administration (SBA) will typically provide \$2 of debt capital, subject to a cap of \$150 million. Once capitalized, SBICs make debt and equity investments in some of America's most promising small businesses, helping them grow (SBA, 2014).

¹⁷ The Business Development Bank of Canada is Canada's small business bank and a financial institution wholly owned by the federal Government of Canada. It delivers financial and consulting services to Canadian small businesses with a particular focus on technology and exports.

¹⁸ LSVCCs, as a group, are the largest providers of venture capital in Canada. In fact, about 40% of venture capital is derived from LSVCCs. Canadian investors benefit from participating in LSVCCs because not only are they eligible for RRSPs and other retirement plans but they also yield both provincial and federal tax credits equivalent to 15% each. It is a fund managed by investment professionals and invested in small to mid-sized Canadian companies. The Canadian federal government and some provincial governments offer tax credits to LSVCC investors to promote the growth of such companies

government-sponsored venture capital funds, which include all LSVCCs, the BDC, all VCCs and venture capital funds operated by provincial governments, reach over 50% of all venture capital invested in Canada (Brander, Egan, & Hellmann, 2008). As a point of comparison, it is in sharp contrast with the U.S. that accounts for approximately 5% of the total invested capital.

The Venture Capital Industry Review (BDC, 2010)¹⁹ shows how the Canadian venture capital industry faces many gaps in several elements. Some of the gaps found were: shortage of entrepreneurs and skilled management with global networks, overinvestment in the early stages without adequate follow-on capital, a subscale of General Partners (GPs) with strong capability and experience, precipitous decline of venture capital investment, lower level of non-dilutive capital prior to the first venture capital investment, and inefficient allocation of government funds driven by public policy and misaligned incentives, etc. These weaknesses show that Canada must deal with a number of pressing challenges before it can lead the venture capital industry on the right track.

Further understanding on the gaps needs to be considered in the following terms: (i) the skill to commercialize and grow an idea into a commercially viable business is probably the most important aspect, which implies a need for skilled entrepreneurs in both capital and mentoring; (ii) a new model for government-sponsored investment through funds-of-funds approach appears promising, as well illustrated in Teralys²⁰ in Quebec and OVCF (Ontario Venture Capital Fund); (iii) skewed investment in early-stage companies, accounting for almost 70%, forces empirically entrepreneurs in Canada to spend too much time on fundraising and furthermore makes them suffer from insufficient capital available for follow-on rounds of investing; and (iv) attractive exit options, appropriate allocation of capital, and a vibrant VC infrastructure are critical to creating a healthy venture capital ecosystem.

According to the review, the gaps in the Canadian venture capital industry were as follows:

¹⁹ The Review was conducted by McKinsey & Company on the request of the Business Development Bank of Canada's venture group (BDC VC) in 2010. The objective of the review was to understand the state of the venture capital industry in Canada, to assess BDC VC's impact, and to develop a strategy for BDC VC to increase its effectiveness as an industry catalyst.

²⁰ Teralys Capital initiated in 2004 Quebec Canada is a technology-focused fund of funds financing private venture capital funds that invest in information technology, life sciences, and clean-tech companies. The fund has over \$700 million in capital commitments from Caisse de dépôt et placement du Québec, the Solidarity Fund QFL, and Investissement Québec. Teralys Capital is also managing two existing portfolios of venture capital funds with additional assets under management of over \$600 million. It is currently the largest fund of funds in Canada.

There is a shortage of serial entrepreneurs and skilled managers with global networks, and a sub-scale of GPs and lack of strong capabilities and experience compared to American GPs. Significant investments made by government and retail funds, with objectives and constraints (e.g., region focus, pacing requirements) may hurt returns. Overinvestment was made at early stages without adequate follow-on capital, leading to dilution. Undercapitalized and sometimes dysfunctional syndicates also make follow-on investment difficult. GPs lack experience and networks to develop companies to potential, and foreign GPs capture a disproportionate share of exit value.

Exits have been mediocre as public markets place a discount on Canadian VC-backed companies, and relatively low listing requirements on the TSX (Toronto Stock Exchange) Venture Exchange can be counter-productive. Total funding to VC eligible companies was proportionately higher in Canada than the U.S. at the turn of the decade but has significantly decreased in recent years. There currently is a capital supply crunch as institutional LPs and retail funds have significantly reduced investments. Government-sponsored funds made up half of all available LP capital, with allocation sometimes driven by public policy and misaligned incentives. Bottom-quartile funds receive the largest share of capital, which implies the fund's natural selection process is broken.

There are also weaknesses in the venture capital industry such as lower levels of non-dilutive capital from government and other sources prior to first VC investment, lack of a commercialization focus in R&D investment, relatively low effectiveness of technology transfer offices (TTOs) in commercializing technology, lack of connectivity to global markets, and reduced opportunities for syndication, business development, and exits.

As discussed above, Canada has intervened significantly in the venture capital industry through the BDC and LSVCCs in terms of VC amount funded by public actors in an effort to address such overriding issues as funding gaps and undersupply of entrepreneurial finances. These programs, if properly managed, mitigate financial constraints at seed and early stages, but misaligned government intervention, according to many studies, is more likely to adversely affect the VC industry, which results in potential crowding out and lack of high quality projects (*Mason & Harrison, 2001*). Anderson and Tian (2003), Brander et al. (2008), and Lerner (2009) point out that enterprises supported by private venture capital (PVC) have an overall superior performance in the areas of value creation, competition, and innovation, compared to enterprises invested by government-sponsored venture capital (GVC). Overall, GVC-supported firms exhibit weaker

performance in the frequency of successful exits, exit values, and survivorship than PVC-financed firms.

What seems to be controversial here converges on whether government subsidies to venture capital increase the size of the market or whether they merely crowd out²¹ private investment (*Cumming & MacIntosh, 2006; Leleux & Surlemont, 2003*). The study shows that GVCs substitute for or crowd out PVCs, even if there are various data limitations, which suggests GVC programs are not complementing but rather competing with PVCs. In addition, the research reveals that the lower performance of GVCs is largely due to a “treatment effect” rather than “selection effect”²², which is closely related to the assumption that PVCs are more likely to choose enterprises with high growth potential to perform well. The important implication is that the treatment effect, which is closely related to learning process through coaching, business skills, and managerial expertise, is not so vibrant in managing GVCs, leading to weaker mentoring or value-added performance, as compared to those of PVCs.

As examined, the funding structure overall is very fragmented across the country, with a dual system engaged by federal and provincial governments. Besides, despite the nature of venture capital driven by the inherent market mechanism, too much public venture capital is allocated for invigorating the VC industry, which as a result forces the government to excessively intervene in the venture capital industry. The grand challenge is that total VC investment in Canada continues to decline over the past decade despite the existence of significant public venture capital funds. This implies that it is worth considering some important structural transformation in the public funding mechanism, which aims to not only attract private investment but also improve the framework conditions for the VC industry in the long-term./.

(continue)

²¹ Many papers discuss the possibility of crowding out as a consequence of governments’ involvement such as venture capital funds and grants. There are empirical reports that public venture capital companies underperform those funded by private venture capital companies. See *Brander et al. (2008) and Engel & Heger (2005)*.

²² Treatment effect here refers to value-added performance as a result of professional advice, mentoring services, and managerial expertise to the entrepreneurial businesses following selection rather than the choice of a promising project. In contrast, selection effect refers to the performance that is generated from the selection of a project with high growth potential from open calls rather than managerial perspective.

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