Bank of Canada Banque du Canada

Venture Capital in Canada

Jean-Philippe Cayen
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Introduction

One of the mandates of the department of *Monetary and Financial Analysis* is to gather information on business credit from deposit-taking institutions, to track the evolution of this aggregate, and to analyse its incidence on monetary policy. However, deposit-taking institutions are not alone in supplying business credit. For this reason, data gathered by the Bank of Canada also covers stocks, bonds and commercial paper issued by firms. Other sources of outside financing remain unaccounted for in the business-credit aggregates published by the Bank. These include, among others, loans from family and friends (love money), capital advanced by other firms (especially suppliers or clients), and venture capital.

The goal of this note is to provide an overview of venture capital in Canada. The first section defines venture capital, while the second presents a theoretical explanation for the existence of a venture-capital industry. A profile of the venture-capital sector in Canada is sketched in section three, followed by some general remarks on Canada's venture-capital industry in the last section.

Definition

In the broadest sense, venture capital is a form of capital that is not guaranteed by collateral and that is either lent to a new, privately-owned firm, or invested in it by an outside investor. Venture capital may serve to launch a new firm or finance the expansion of one that is already established. Venture capitalists generally target small, high-risk firms with few assets to use as collateral, but possessing the potential for high profitability. Venture capital may come from private investors (angel investors), from firms specialized in venture capital, or from the investment branches of deposit-taking institutions.

Factors Explaining the Existence of the Venture-Capital Industry

Frequently the existence of a venture-capital industry is explained by the presence of high risk in the sectors it targets. This explanation is not very satisfactory, however, as we would expect large financial intermediaries and diversified investment companies to be most able to absorb, or

spread, these risks. Consequently, the existence of specialized, relatively small venture-capital firms should be an anomaly.

Amit et al. (1997) suggest another hypothesis to explain the existence of this industry. They postulate that venture-capital firms exist because two types of asymmetric information are present when an outside investor signs an investment contract with a firm: hidden information and hidden behaviour. Hidden information exists when the entrepreneur has better knowledge of the firm's prospects than the investor. This type of asymmetry may result in the phenomenon of adverse selection, in which projects with less potential dominate the market.[1] Hidden behaviour, which is generally associated with "moral hazard," occurs when the investor cannot monitor the amount of effort supplied by the entrepreneur.

Of course, problems of asymmetric information are present whenever an outside investor lends money to a firm. In many cases investors are able to protect themselves against this type of risk by demanding collateral or by relying on the firm's credit history. However, they are generally disinclined to lend to new firms with little or no history, or with insufficient assets to provide the required collateral. This situation creates an opening for specialized investors who have acquired sufficient expertise to select and monitor such investment projects, reducing with one stroke the risks presented by both types of asymmetric information. The existence of the venture-capital sector is thus explained by advantages deriving from a specialization at the level of the selection and monitoring of investments, as well as by a comprehensive knowledge of the industries in which venture capitalists invest.

Profile of the Venture-Capital Industry in Canada

The primary source of available data on the venture-capital industry in Canada is the firm Macdonald & Associates Limited.[2] This company tracks venture-capital investments disbursed in Canada by Canadian and American firms specialized in the field.[3] The following profile draws largely on information from their database.

The Stock of Venture Capital in Canada

The database constructed by Macdonald & Associates Limited contains no variables for the stock of venture capital present in the Canadian economy at any given point in time. Nonetheless, one of the variables in their database provides a good indication of the evolution of this stock over the years: the total amount of capital managed by Canadian firms operating in the venture-capital industry (see Figure 1).

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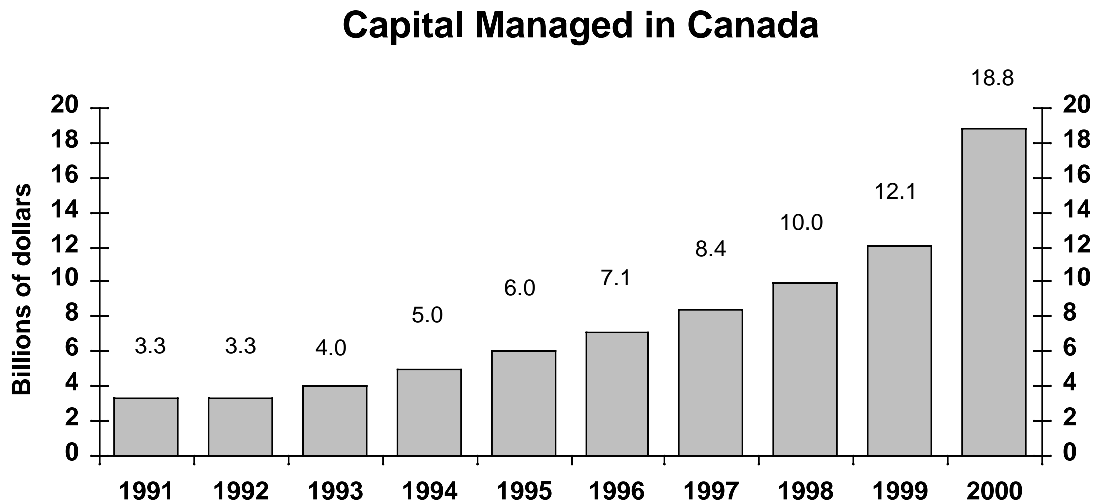
1. The paper by Akerlof (1970) provides a good explanation of the phenomenon of adverse selection and its implications.
2. We drew on several papers published by Macdonald & Associates Limited, or documented by them, providing data covering several years. These include, among others, Macdonald & Associates Limited (1992) and the Canadian Venture Capital Association (1995, 1996). The internet sites of Macdonald & Associates Limited and of the Canadian Venture Capital Association were also consulted for the most recent data.
3. Note that Macdonald & Associates Limited do not include angel investors in their database. Liu's (2000) article provides a good overview of angel investors in Canada.

In principle, this amount overestimates the stock of venture capital in Canada because it includes reserves maintained by firms to satisfy regulatory requirements and to finance current operations. However, the extent of this overestimation may vary from one year to the next, since some venture-capital firms also invest abroad and some international firms invest venture capital in Canada.[1]

Figure 1



As we see in figure 1, the total amount of capital committed by the Canadian venture-capital industry grew rapidly during the last decade. The mean annual rate of growth was about 21% between 1991 and 2000. This growth was substantially greater than that of other forms of business credit. Indeed, if venture capital were included in the business-credit aggregate published by the Bank of Canada, the annual growth rate of this aggregate would be higher by about 0.1% to 0.2% between 1992 and 1999, and by 0.7% in 2000.[2]

Despite this remarkable growth, venture capital only represents a small proportion of total credit made available to firms. In 2000 the total amount of credit disbursed by the Canadian venture-capital industry only represented about 2.3% of the entire stock of business credit[3]. The size of this industry is comparable, however, to that of other providers of business credit. For example, stocks of commercial paper and financial leasing amounted to 28.9 billion and 16 billion dollars respectively in December 2000.

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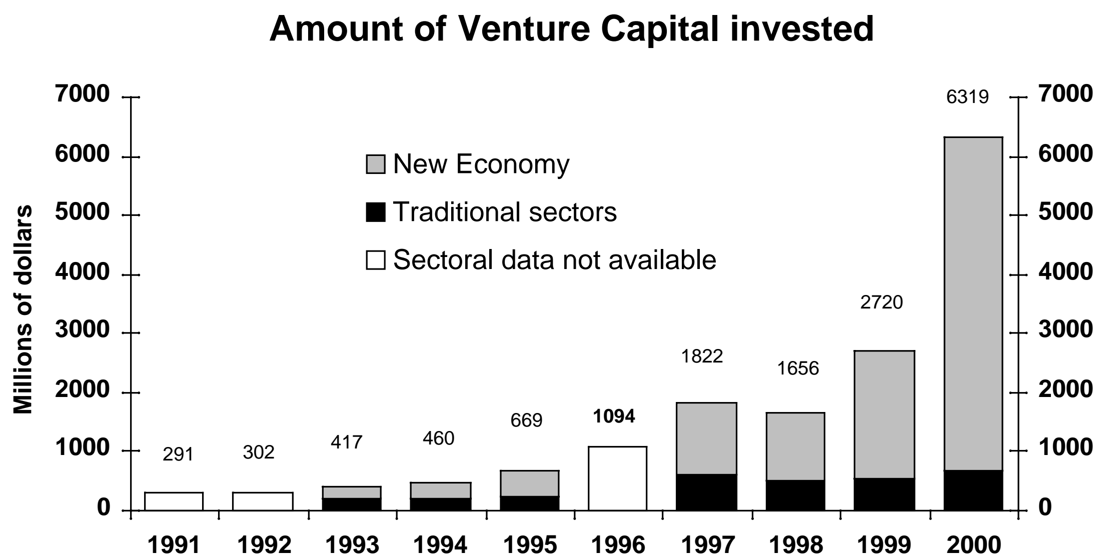
1. Data on net international flows are only available for 1999 and 2000. Overall, it does not seem to be an important factor because the amounts invested abroad by Canadian venture-capital firms were below amounts invested in Canada by foreign firms. For example, foreign firms invested 1.5 billion dollars in Canada in 2000 while Canadian venture-capital firms invested 1.2 billion in foreign companies.
2. In 2000 the growth rate of the business-credit aggregate, which excludes venture capital, was 7.1%. Incorporation of venture capital into this aggregate would have raised it to 7.8%.
3. This share would increase if we were including investments made by angel investors. Liu (2000) reports that the current outstanding stock of angel capital could be more than 12 billion dollars and the annual disbursement could be more than 3 billion dollars.

Characteristics of the Amounts Invested

Figure 2 shows the evolution of the amounts of venture capital invested each year. We clearly see that the strong growth of venture capital is closely linked to that of the new economy. Indeed, firms in the high-tech sector[1] have been the principal beneficiaries of new venture-capital investments. In fact, 89% of venture capital was invested in the high-tech sector in 2000, compared with 46% in 1993. The two sectors that most benefited from these investments were communications and computers.

This concentration in the high-tech sector is of some interest. Drawing on historical data covering the period 1978–1994, MacIntosh (1997) notes that during this time Canadian venture-capital firms invested a smaller share of their capital in high tech than did their American counterparts. One of the factors to which he attributes this difference is the prevalence in Canada of labour-sponsored venture-capital funds who concentrate their investments in sectors not geared to technology. He mentions that another contributing factor is that American firms have acquired a greater degree of specialization in the high-tech sector.[2] Also, it is worth noting, that the database used by MacIntosh (which was built by the firm Venture Economics) for the American venture capital industry included venture capital provided by angel investors. It may be the case that angel investors are more concentrated in the high-tech sector.

Figure 2



* Sectoral data are not available for 1991, 1992 and 1996.

1. The high-tech sector includes biotechnology, industries related to healthcare, communications, computer-related industries (hardware, software, and the internet), energy and environmental technologies, industrial-equipment industries and electronics. Traditional sectors, on the other hand, include manufacturing, sectors related to consumption and a category “miscellaneous.”
2. MacIntosh (1997) notes that this may be attributable to the fact that some high-tech industries developed earlier in the United States.

We can see from figure 3, moreover, that one contributor to the high level of growth of venture capital in 2000 is the significant increase in the average size of these investments. However, these amounts remain relatively small compared with their counterparts in the United States, where the average size was about 15 million dollars in 2000.

Figure 3

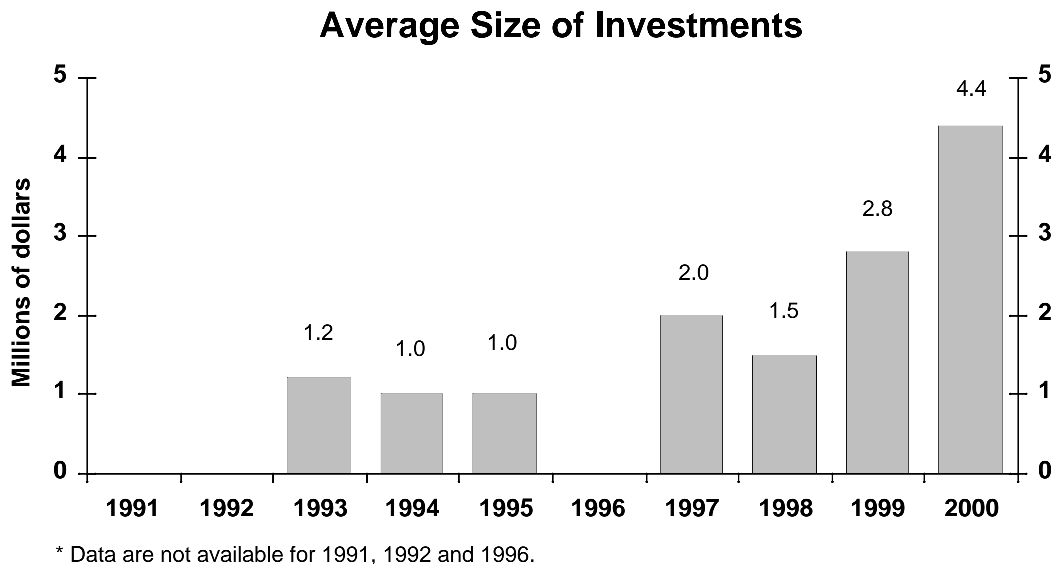


Figure 4 shows the distribution of venture capital as a function of the firm's stage of development.[1] Firms in the expansion stage generally receive a greater share of venture-capital investments—historically it has hovered around 50% (49% in 2000). Firms in the early stage have typically been allocated a smaller share (averaging between 25% and 36% of venture-capital investments throughout the 1993–1999 period). Amit et al. (1997) maintain that this smaller share reflects the desire of venture capitalists to invest in new firms having survived the early stage in order to minimize problems related to asymmetric information (since, when the early stage is completed, the firms have acquired a credit history and are better able to provide minimal collateral). The year 2000 appears to have been an anomaly, however, since 45% of venture capital was committed to firms that were still in the early stage. This strong growth is probably attributable to the pronounced expansion of venture capital in computer-related sectors.

It is worth noting, moreover, that MacIntosh (1997) finds that between 1978 and 1994 U.S. venture capitalists invested a greater share of their capital in firms in the early stage than did Canadian firms. The author concludes that Canadian firms probably had a lower profile of risk tolerance than U.S. firms. But again, this could also be related to the fact that the American data include investments made by angel investors. In fact, Liu (2000) has shown that a majority of angel investors invest their personal funds in early-stage firms.

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1. SeeAppendix 1 for a description of the different stages of development of the firm.

Figure 4

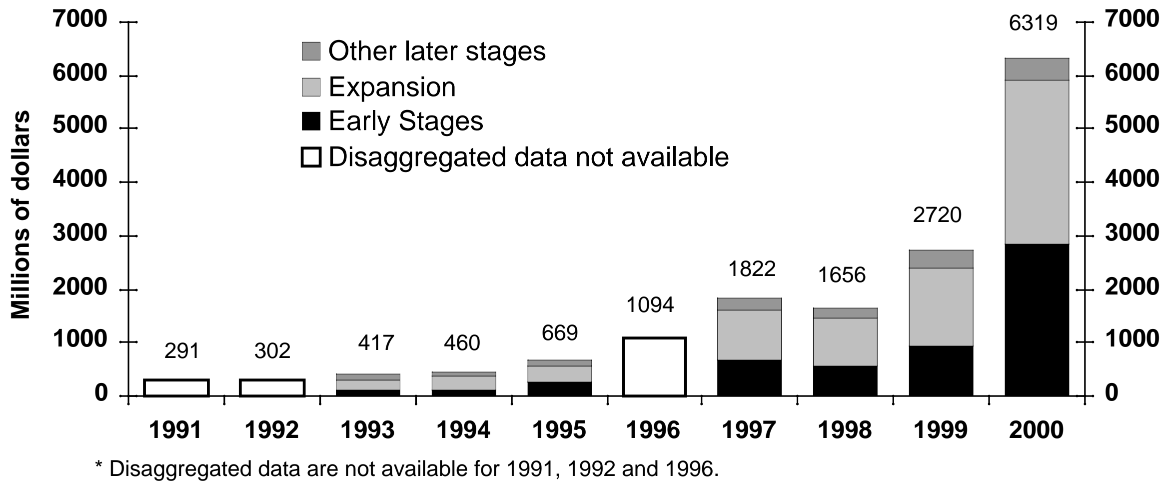


Figure 5 shows the distribution of venture-capital investments by firms' size (the size of the firm is measured by the number of employees). Even though some firms did not report their employee numbers, we easily see that a large share of venture capital is invested in small firms with few workers. It is also important to note that about 90% of the amounts invested are in private firms.

Figure 5

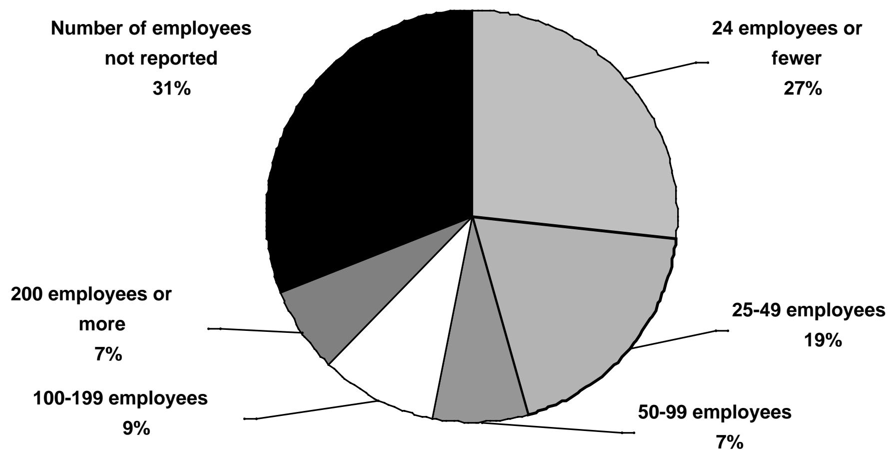
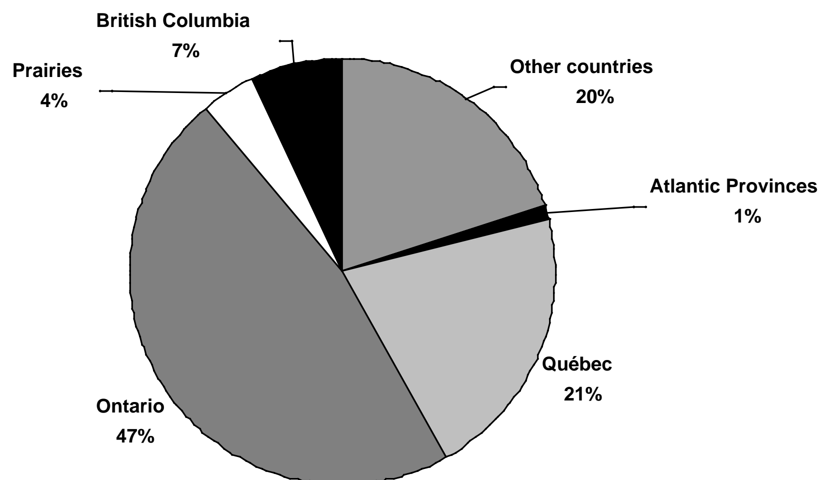


Figure 6 presents the geographical distribution of venture-capital investments in 2000. We see that a large share of venture capital was invested in central Canada, with nearly half going to Ontario and 21% to Quebec. These two provinces also attracted the greatest share of venture capital in the past.

One notable fact revealed by this graph is the large share of venture capital owned by Canadian firms that is invested in foreign companies (20%, or 1.2 billion dollars). Indeed, this proportion has increased substantially in the last decade, since Canadian venture-capital firms invested less than 10% of their capital abroad in the early 1990s.

Figure 6

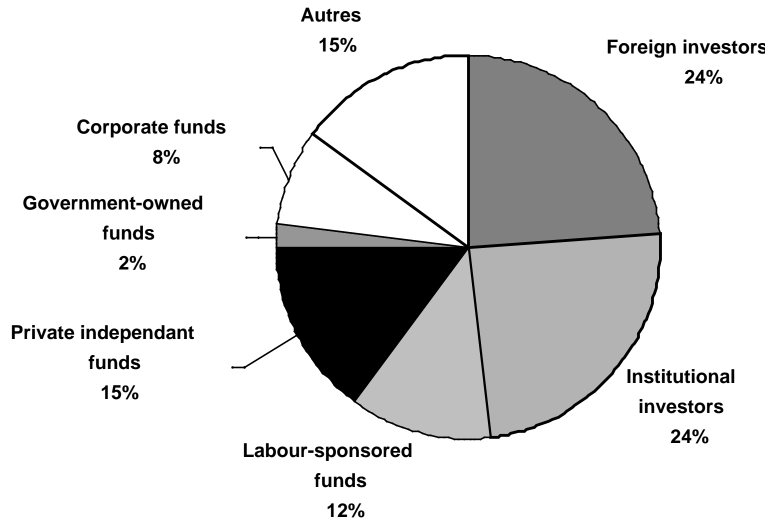


It is also important to note that foreign venture capitalists reciprocated by investing 1.5 billion dollars in Canada in 2000. Figure 7 shows that foreign investors are, in fact, responsible for nearly one quarter of venture-capital investments in Canada in 2000. MacIntosh (1997) points out that American venture-capital firms invest a greater share of their capital in high tech. Their entry into the Canadian market could provide one of the reasons for the strong growth of venture capital allocated to the high-tech sector in recent years.

Figure 7 also shows the relative contribution of the different types of Canadian venture-capital funds.[1] We see that labour-sponsored funds occupy a relatively important position, though their market share has diminished considerably in recent years. At the beginning of the 1990s, hybrid funds (including labour-sponsored funds) accounted for approximately half the Canadian market. The principal reason for the relative decline in labour-sponsored funds is the vigorous entry of institutional investors into the venture-capital market. In 2000, they occupied nearly one quarter of the market.

1. A description of the different types of venture-capital funds is given in Appendix 2.

Figure 7



Returns to Investment and Exit Mechanisms

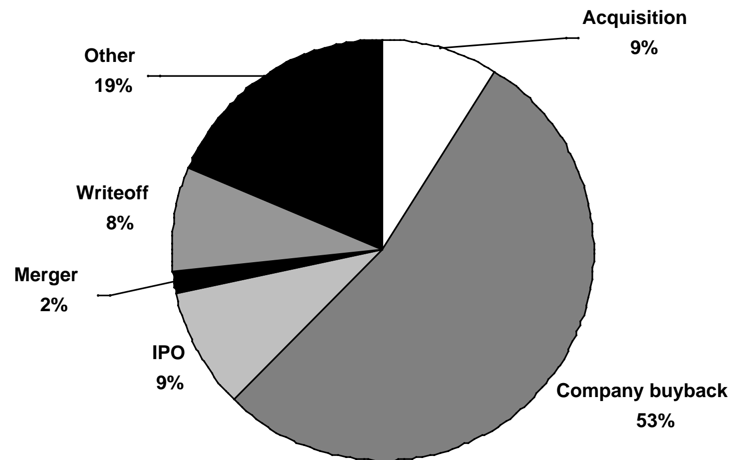
One key aspect of the venture-capital market is the exit mechanism, i.e. the means by which venture capitalists divest themselves of their investments. MacIntosh (1997) notes that if exit is difficult to realize, investors will hesitate to enter the market.

Figure 8 shows the distribution of exit mechanisms for the venture-capital industry.[1] As we can see, in most cases exit takes place when administrators or managers of the investee company buy back the lender's equity. It is also clear that the percentage of exits occurring through initial public offerings (IPOs) is relatively small. However, this ratio varies over time. MacIntosh (1997) postulates that the mode of exit may vary cyclically, depending on returns observed in stock markets.

We further notice that the share of investments written off is not negligible. This percentage also fluctuates over time, however. Amit et al. (1997) observe that between 1992 and 1994 approximately 18% of investments were written off. A study by Venture Economics Canada Limited (1986), on the other hand, indicates that between 1975 and 1985 this rate was about 32%.

1. See Appendix 3 for definitions of different types of exit mechanisms.

Figure 8



There appears to be a great deal of variation in the returns earned on venture-capital investments. Indeed, one of the factors explaining the existence of a venture-capital industry in Canada is the prospect of earning windfall profits. Conversely, there is also a high risk of making little profit or even of incurring losses. As MacIntosh (1997) emphasizes, a large share of the profits from venture-capital investments can be attributed to a handful of strokes of good fortune, i.e. investments earning spectacular returns. Moreover, Amit et al. (1997) find that between 1992 and 1994 about one third of venture-capital investments in Canada yielded very good returns, that another third resulted in losses or writeoffs, and that the profits generated by the remaining third were positive but disappointing. Their data also reveal that exits through IPOs and acquisitions generally yield very good returns. Buyback results are much more variable, though slightly negative overall.

General Comments on the Venture-Capital Market in Canada

This section presents general comments on the state of the Canadian venture-capital market gleaned from informal discussions with market participants.

The small size of the Canadian venture-capital market seems to constitute a major obstacle to the development of new Canadian firms. However, it does not appear that the number of Canadian venture-capital firms is the main problem, but rather their modest size. Indeed, new companies increasingly need a large resource base to start up or expand. These firms are often also the ones with the greatest likelihood of yielding high returns. It appears that, for the most part, Canadian venture-capital firms are too small to be able to make investment commitments requiring large amounts of money.

The Canadian venture-capital market is often compared to its U.S. counterpart. One feature they both share is that they are concentrated in fairly restricted regions: Silicon Valley and the North-East in the United States, and the Ottawa and Toronto metropolitan regions in Canada.

The relative sizes of the Canadian and American venture-capital markets are not, however, comparable to the relative sizes of the two economies. The Canadian market is considerably smaller. One reason evoked to explain this asymmetry is that private Canadian investors, in particular pension funds, are more conservative by nature than private American investors, so they tend to invest in less risky assets than those targeted by venture capitalists. Another reason is that the American venture-capital market is older, thus more mature.

Some deficiencies specific to the Canadian market may also explain why it lags behind the American market. First, in Canada there is a marked scarcity of specialists in the high-tech sector capable of either advising venture capitalists in their investment strategies or helping them adequately monitor the firms in which they have invested. Moreover, the networks of contacts of Canadian venture capitalists are less well developed, especially those that could provide firms in their portfolio access to the American market.

Conclusion

The venture-capital market certainly plays a key role in the development of new firms, especially those working in the new economy. Moreover, data clearly reveals that this industry is in full expansion. When we compare the data gathered by Macdonald and Associates Limited with the data on business credit published by the Bank of Canada, we see that venture capital comprises a non-negligible share of the total credit supplied to firms. Indeed, the size of the venture-capital industry in Canada is comparable to that of other sources of business credit included in the aggregates published by the Bank.

Appendix 1

Stages of Development of the Firm

(Definitions used by Macdonald and Associates)

- **Early Stage**
    - **Seed:** Financing to a company that has not yet established commercial operations and may still be in the research and product-development stage.
    - **Startup:** Financing to companies for use in product development and initial marketing.
    - **Other early stage:** Financing to companies that have started initial marketing but have not yet fully started commercial production.
- **Later Stages**
    - **Expansion:** Financing is provided to company to expand initial marketing and commercial production of its products.
    - **Acquisition/Buyout:** Financing for a company or operation management team or outside investors to acquire a product line, a division or a company.
    - **Turnaround:** Financing to improve the performance of a company at a time of operational or financial difficulty.
    - **Other Stages**

Appendix 2

Types of Venture-Capital Funds

(Definitions used by Macdonald and Associates)

- **Private funds**
    - **Private Independent Funds:** Companies directed by managers specialized in venture capital, drawing financial resources from various sources, such as pension funds, insurance companies, and sometimes corporate investors. They operate by pooling funds from various sources and reinvesting them.
    - **Institutional Investors:** Some large institutional investors (like the Caisse de Dépôt et de placement du Québec and the Ontario Teachers Pension Plan) directly invest in small companies without necessarily using private independent funds.
    - **Corporate funds:** Corporate funds are operational divisions or branches of financial institutions or large corporations. Most Canadian banks have their own such branch. Incidentally, banks' branches (or operational divisions) constitute the largest part of this category.
- **Government-Owned Funds**
    - These are venture-capital firms owned and administered by the federal or provincial governments.
- **Hybrid Funds**
    - These are funds created in response to government incentives or to receive investments coming from both government and private investors. The main hybrid funds are labour-sponsored funds. According to Macdonald and Associates Limited (1998), this type of fund exists only in Canada. They can be seen as a type of mutual fund accessible to individuals specialized in venture-capital investments. Investors earn a 20% tax credit on these investments. Conversely, they must meet certain criteria established by the government.[1]

1. Vaillancourt (1997) presents a good overview of the regulation of labour-sponsored venture-capital funds in Canada

Appendix 3

Exit Mechanisms for Venture-Capital Firms

(Definitions used by Macdonald and Associates)

- **Initial Public Offering:** Venture investor disposes of his share of the company through a public offering.
- **Company Buyback:** The entrepreneur, the firm's executives, or the firm itself buys back the shares held by the venture capitalist.
- **Acquisition:** All shares of an investee company are sold to a third party.
- **Merger:** The venture capitalist sells his shares to the merged company.
- **Secondary sale:** The venture-capital investor sells his shares of the investee company to a third party. This differs from acquisition in that only the shares owned by the venture capitalist are sold.
- **Writeoff:** A writeoff occurs when the venture capitalist abandons his investment, frequently owing to the bankruptcy of the investee company.

References

Amit, R., J. **Brander** and C. **Zott** (1997), «Le financement de l'entrepreunariat au Canada par le capital de risque», *Le financement de la croissance au Canada*, published by Paul J.N. Halpern, University of Calgary Press, pp. 261-307.Û

Akerlof, G. (1970) «The Market for Lemons: Quality Uncertainty and the Market Mechanism», *Quarterly Journal of Economics*, vol. 84, pp.488-500.

Canadian Venture Capital Association (1995), Venture Capital in Canada: Annual Statistical Review and Directory, Toronto.

Canadian Venture Capital Association (1996), Venture Capital in Canada: Annual Statistical Review and Directory, Toronto.

Liu, Y. (2000), «An Overview of Angel Investors in Canada», Bank of Canada, Department of Monetary and Financial Analysis, FN-00-040, Ottawa.

MacIntosh, J. G. (1997), «Les sorties du marché du capital de risque au Canada et aux États-Unis», *Le financement de la croissance au Canada*, published by Paul J.N. Halpern, University of Calgary Press, p.309-398.

Macdonald & Associates Limited (1992), «Venture Capital in Canada - A Guide and Sources», Association of Canadian Venture Capital Companies, Toronto.

Macdonald & Associates Limited (1998), «The Canadian Venture Capital Industry - Sources of Capital and Implications for Industry Structure», Research Paper Prepared for the Task Force on the Future of the Canadian Financial Services Sector, Department of Finance, Ottawa.

Vaillancourt, F. (1997), «Les fonds de capital de risque de travailleurs au Canada - Aspects institutionnels, dépenses fiscales et création d'emploi», *Le financement de la croissance au Canada*, publié par Paul J.N. Halpern, University of Calgary Press, p.635-658.

Venture Economics Canada (1986) Exiting from Venture Capital Investments: The Canadian Experience, Venture Economics Canada Limited, Toronto.

Sites Internet

Canadian Venture Capital Association: http://www.cvca.ca/

Macdonald & Associates Limited: http://www.canadavc.com/