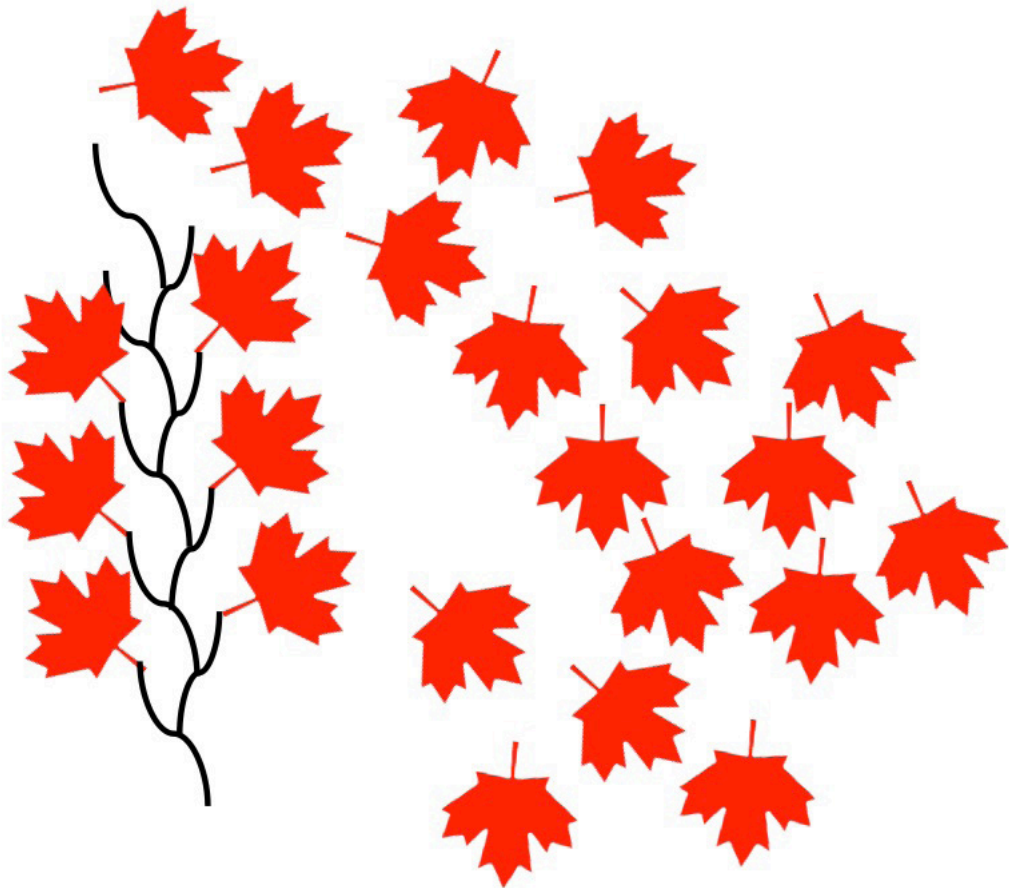


A Failure to Scale

Are We Creating Financially Unattractive Companies?



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Are We Creating Financially Unattractive Companies?

“How can Canada better support the scale-up of innovative companies into the next generation of billion-dollar global players?” (Government of Canada during consultations for the Innovation Agenda, 2016)

Policy experts and innovation practitioners have criticized Canada’s innovation system for its inability to grow and scale companies. This has been a baffling issue because Canada’s technology sector has been successful at starting companies and generating innovations with high potential.

But identifying the root causes of the scaling problem has been a challenging endeavour. Certainly, the shortage of venture capital (VC) is cited frequently as a contributing factor. The reasoning is that since Canada does not have the capital available to fuel late-stage growth, our high-tech companies are sold well before they have a chance to become globally competitive players.

In this study we wanted to approach the problem from a slightly different angle: Is the way in which Canadian companies raise funds also adding to the scaling problem?

To this end, we looked at 49 private US companies that had received \$100 million–\$295 million in VC funds since inception. We compared them to 49 of Canada’s largest funded tech companies that had attracted \$30 million–\$250 million in VC funds per firm. All values are stated in US dollars.

The data reveal three critical issues:

1. Canadian companies wait longer before they start raising funds.
2. They raise funds less often.
3. They raise less money over time.

These fundraising patterns demonstrate remarkable differences between high-tech firms in North America. What US companies raise in four years, Canadian companies take ten years to raise. US companies (in this study) have six times the capital on hand to spend in their first five years of existence on critical functions, such as marketing and sales, which contribute to growth and long-term sustainability. The result is that, starved for funds, Canadian companies grow at a 47% compound annual growth rate (CAGR) while US firms grow significantly faster at a CAGR of 63%.

These funding trends also create companies that do not look attractive from an investment perspective, lending validity to questions such as “Why would a US VC who is willing to locate offices in Europe, China, or India relocate to Canada to invest in slower-growth companies?” or “Why wouldn’t a Canadian VC sell a company that cannot get sufficient capital to compete globally?”

In fact, a simple calculation shows that while Canadian VCs earn a 27% internal rate of return (IRR) on a single 5x exit multiple, US-based VCs earn a 115% IRR. For reference, an exit multiple is defined as the terminal multiple at which a project is exited once a desired return on investment is obtained. In computing the return, at a 10x multiple on a 20% success rate of total investments in a VC fund, the IRR of the fund in the US would be 36% relative to 8% for Canada.

These fundraising and investment patterns have given Canada the unflattering label “farm team,” a term that clearly suggests we sell our companies to other countries before they reach global status and scale.

But even though innovation centres, accelerators and provincial and federal governments have shifted their focus from starting to growing companies and to programs to support the scaling of startups and small- and medium-sized enterprises (SMEs), it may be too late. By the time Canadian companies need late-stage capital, their historically slower growth rates have already made them less appealing to investors used to dealing with quickly growing businesses.

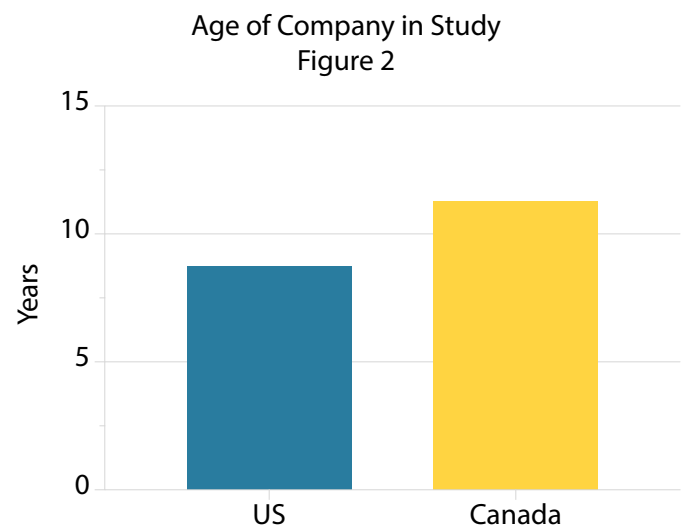
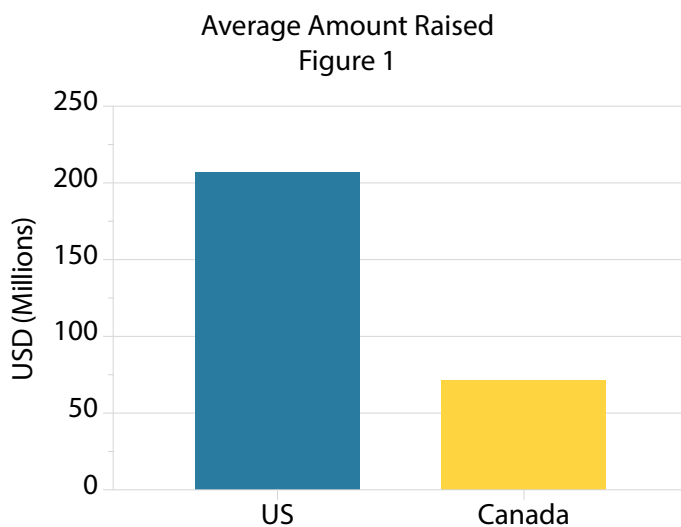
The lesson for business advisors, policy experts, and government agencies involved in scaling Canadian firms is that we must encourage smaller companies to start raising money earlier, more often, and in larger amounts. This way firms can spend more money on critical functions such as marketing and sales (M&S) and research and development (R&D) as well as position themselves as attractive investment opportunities to fuel further growth.

The Study

As part of our effort to understand the scaling issue, we published an Impact Brief (*Canada's Venture Capital Puzzle*, September 2016) which showed that Canada as a whole does not have enough VC funding to support late-stage growth. Our current study looks at the problem from a slightly different angle and explores fundraising and investment patterns at earlier stages of a company's development. It aims to understand whether the way companies seek capital is contributing to the scaling challenge.

To study this phenomenon, we first looked at 49 top VC-funded companies in Canada. These included firms that had raised between \$30 million and \$250 million in VC and private equity. The average amount raised was \$72 million and the average business age was 11 years. More established or non-technology companies were excluded from the study.

We compared these companies to a select group of 49 US businesses that are considered well on their way to becoming key industry players at a global scale. They are all US-based startup companies with valuations at or over \$1 billion, also known as "unicorns." There are 97 companies in the US that match this description, but the companies selected for our study are the smaller US unicorns (ranked 49 to 97 on the list in terms of valuation). These companies have secured between \$45 million and \$295 million from private sources. The average amount raised was \$207 million and the average age of firms was nine years (Figure 1 and 2).



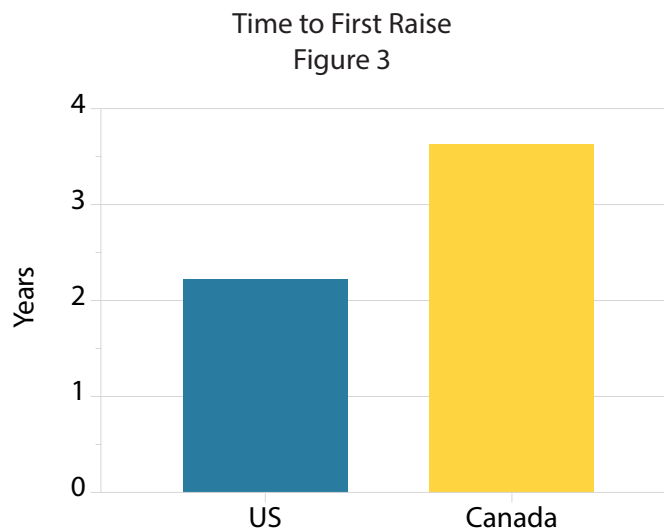
As with any US-Canada industry comparison, we have to be careful not to compare apples to oranges. Factors such as cross-industry differences, the relatively large size of US companies, and the small number of Canadian companies that exist as a basis for study tend to skew results. We agreed that instead of looking at this as an absolute comparison, we would use successful US companies as benchmarks and examples of lessons to be learned for the Canadian innovation system and companies.

Slow off the Mark

The first problem in Canada's fundraising strategy is that Canadian firms wait too long to seek funds. While the average American firm in our study started to raise money 2.2 years after creation, the average Canadian company waited 3.63 years before seeking investments (Figure 3).

This problem is exacerbated because in Canada, the tendency is for investors to wait until they see market traction before they invest. But practitioners (including the author) suggest that in the US, VCs invest money to help companies get market traction.

In the US, money buys traction.
In Canada, traction gets you money



How does this time lag affect scale-up?

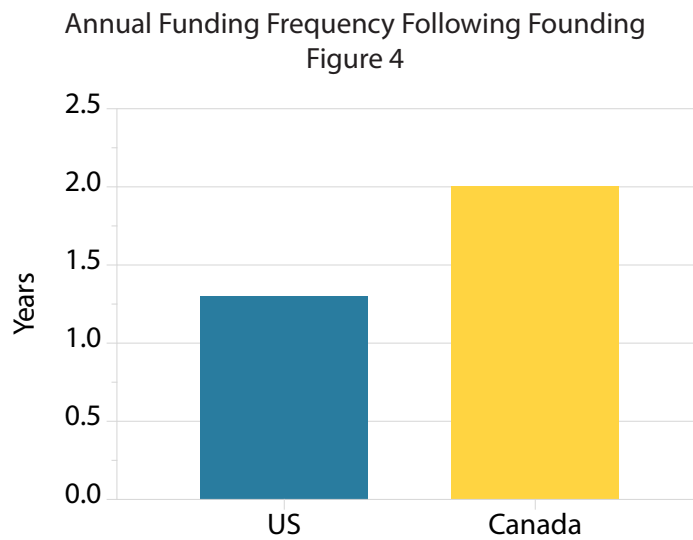
Any company that secures money early will have the means to fund its growth, build its team and infrastructure, and get its products and services to the market more quickly. It means an ability to invest in critical functions such as marketing and sales (M&S) that directly affect business competitiveness. In fact, our last Impact Brief (*A Nation of Soft Sellers*, January 2017) explored the importance of M&S in innovation. It suggested that in order to become more competitive Canadian companies must allocate more funds to marketing and selling their ideas, even in the formative years, because M&S is crucial to getting any product or service accepted in the marketplace.

The numbers show that American firms have the funds at an earlier stage in their development not only to carry out R&D but also to market and sell their products and services. US companies are also more aware of the importance of M&S. The typical high-growth company in the US spends as much on M&S as it does on R&D right from the start.

Frequency of Funding

Not only do Canadian firms start fundraising later than American, they also wait longer to raise subsequent investments. While US firms raise funds on average every 1.3 years, Canadian firms raise funds in about every second year (Figure 4).

This means that Canadian firms must make their funds last longer and spread out between essential business functions. While they can be credited for having greater capital efficiency, it may mean that less funding is available for M&S. This frequency issue is compounded further by the fact that Canadian firms raise less money per round than their American peers.



Amount Raised

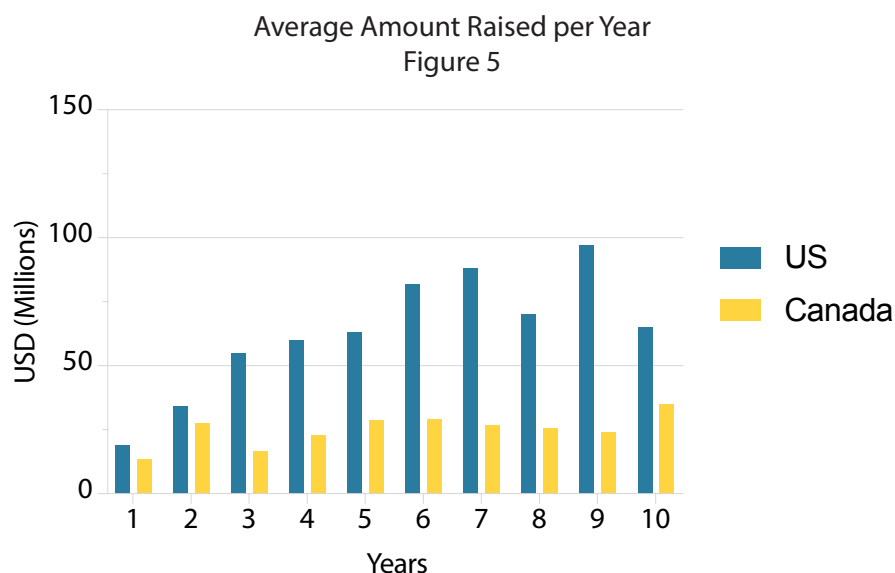
Not only do Canadian firms start to raise funds later and less frequently (in absolute dollars), they also raise less money.

Since previous studies (e.g., our report on *Canada's Venture Capital Puzzle*, September 2016) have shown that the average investment per company and the size of rounds in Canada are dwarfed in comparison to the US, we wanted to take a look at the numbers behind this phenomenon.

One could argue that past studies may have reached the wrong conclusion with respect to average investments and round sizes especially if Canadian firms tend to raise small dollar amounts more often—but the frequency issue discussed in the previous section suggests that our businesses actually raise funds less frequently.

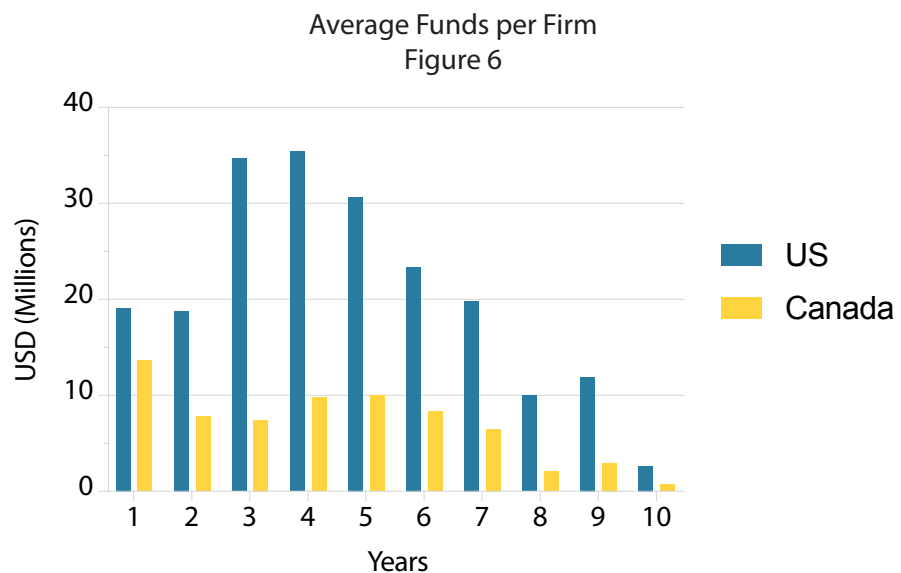
In this study, we looked at the pattern in fundraising and wanted to eliminate any bias brought about by delays in the first and subsequent investments. Figure 5 shows the average amount raised per year for all firms that had actually raised funds—from the first year a firm secures an investment over a span of a decade.

There is a striking difference between Canadian and US firms from the moment the firms commence their fundraising efforts. A typical Canadian firm raises approximately 70% to 80% of the money secured by US firms in the first two years. The gaps in year three and beyond are significantly larger. **The highest fundraisers in Canada raise an estimated 35% of the amount obtained by their US counterparts.**



Now we can argue that if we looked at two competitive firms, one in Canada and one in the US, then it might be less expensive to conduct R&D and product development in Canada. But the differences in currencies and R&D costs are not significant enough to account for the significantly lower amounts raised by Canadian businesses. Companies must have access to R&D money no matter what they do or where they are because without it they would have no product or service to sell. In the case of Canadian companies, leftover funds typically go to cover other functions such as administration or M&S expenses. In the US, leftover funds are significantly larger than the amounts used in R&D. That is why their M&S expenditures are much higher than those available to Canadian firms.

The problem is compounded further by the fact that Canadian firms do not raise funds as often. Figure 6 shows the average amounts raised by year for all companies in the current study (not just the average of those that had raised money). The numbers show a remarkable difference in year 2 and beyond, with Canadian companies falling significantly behind their US counterparts.



The Cumulative Effect

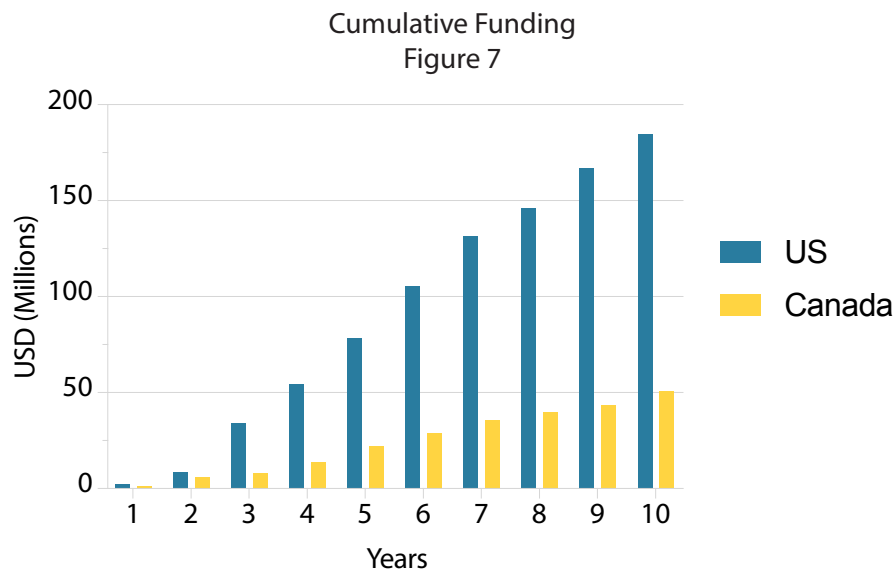
We have discovered three problems in the way Canadian businesses approach VC and fundraising.

1. They wait longer before raising VC funds.
2. They raise funds less often.
3. They raise, on average, much less.

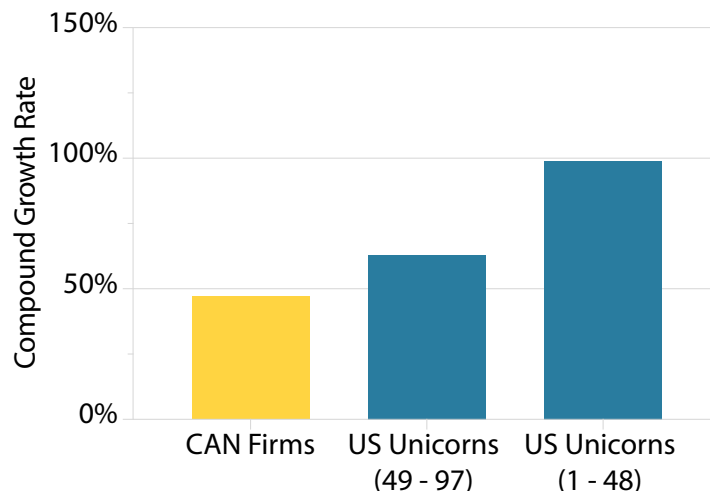
How does this add up over time?

Figure 7 shows the cumulative funding received by US and Canadian firms in the study from the year of founding up to a decade. The average US firm raised a total of \$184 million within ten years, while an average Canadian company raised only \$50 million. Although the CAGR of Canadian firms stood at a healthy 47%, the American firms in the study had a CAGR of 63%. Note that the US firms in this study were ranked in the bottom half, ranks 49 to 97 in terms of valuation, on a list of 97 US-based unicorns. The top half, which includes giants like Uber, Airbnb, and SpaceX, grew at an astounding CAGR of 99%.

Given that we are comparing US-based unicorns to top privately funded Canadian firms, it is clear that tough work lies ahead of us if Canada wishes to scale any company to this level.



Compound Annual Growth Rates
Figure 8



These statistics also bring to light the fact that it takes ten years for Canadian firms in our study to reach the same level that US unicorns reach in four years. Even though we are creating high-growth companies, their growth rates may not be enough to attract late-stage capital from prominent VC firms, and many of these are based in the US.

What if we looked at this issue from the perspective of a US-based venture capitalist?

Let us assume you are a large Silicon Valley-based venture capitalist with billions of dollars under management and you see CAGRs of 63% from just the bottom half of US unicorns within the CB Insights database. What will your reaction be if you are presented with an opportunity to invest in one of the best Canadian companies with CAGRs of 47%? Based on these numbers alone, you would probably conclude that Canadian companies would not be such an attractive investment opportunity.

Large US VCs generate profits by making very large investments in a portfolio of companies. They place extremely large bets and expect liquidity for these investments in a relatively short period of time. If they invested in 47% CAGR businesses, these companies (regardless of the quality or potential of the technology) simply would not bring the returns needed to make money for the investors of the VC fund. High-growth US firms fuel their massive growth with large amounts of capital, and Canadian firms struggle to compete at that scale.

US VCs are investing actively in foreign countries. Sequoia alone has offices in Beijing, Hong Kong, Shanghai, Bengaluru, Mumbai, New Delhi, Singapore, and Tel Aviv. Despite this global reach, Sequoia has not established any offices in Canadian cities. The reason they and other VCs do not locate offices in Canada or invest frequently here is that there may not be enough exciting investment opportunities in Canada.

We can also look at this issue from the perspective of a Canadian VC fund that may have invested in a Canadian business at the earliest stage of its growth. The company may eventually develop the potential and the capacity to receive large late-stage investments. This occurs typically at the ten-year mark for a Canadian firm, but this is already too late for the VC fund, which needs to generate profits on the investments as quickly as possible.

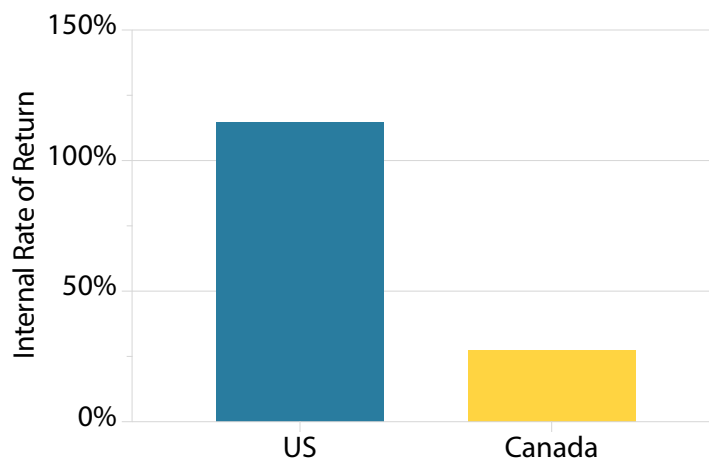
The Canadian VC fund formula is the same as any other fund in the world, but does not lend itself well to Canada because our companies grow more slowly. The average Canadian VC fund also does not have enough capital to make investments that approach the scale of those made in the US.

Given this situation, what does a Canadian VC do after years of waiting on a return on investment with a firm that is still not attractive enough to secure US late-stage venture funds? Perhaps the VC is tempted to sell the business to a foreign multinational company. In fact, the Canadian system has been strongly criticized for taking businesses to a certain scale only to let them be acquired. Canada is ranked fourth on a CB Insights list of countries in the largest number of mergers and acquisitions (CB Insights 2015 Global Tech Exits Report).

The numbers generated in our current study can also be used to calculate the IRR earned by an American and a Canadian VC.

Assume that in both cases, you have \$50 million to invest in a company. In the US you could invest that capital over four years, but it may take 10 years to allocate the funds in Canada. Let us also imagine that in the year after making your last investment, you could sell the company for five times the invested capital. The result is that you would earn an IRR of 115% in the US after six years and 27% in Canada after 11 years. Which investment scenario do you prefer?

Venture Capital Internal Rate of Return
Figure 9



The calculation of IRR is an important metric for VC firms as this is what makes them successful. If you have a portfolio of ten companies with only two considered successful, then in Canada your entire fund would earn an IRR of 5%. With such a success rate and IRR, a Canadian VC firm may find it challenging to raise further funding. Even a 10x return on investment would only yield an IRR of 8%, which is often not sufficient to create interest in further investment.

In the US, however, even if you only earned a 5x multiple on your investment, you would earn a return of 23%—a level that is a good incentive to reinvest in the fund. In the case of a 10x multiple, which would be more reasonable for firms considered in the current study, the IRR of the fund would be 36%.

The Potential Impact on Expenditures

Our last study on the spending behaviour of public software companies identified that the average US company spends 34% of its revenue on M&S while the average Canadian business only spends 20% (*A Nation of Soft Sellers*, January 2017). This is an issue because the M&S function is thought to be crucial to getting products and services accepted and sold in the marketplace. Thus, how aggressively a firm spends to market and sell its goods and services directly affects its competitiveness. Table 1 shows operating spending ratios from our last study. But the disparities in spending on such critical functions may be even worse in private VC-backed Canadian companies.

Percent of revenue spent on various business functions (178 public software companies in the US and Canada)

Table 1

	Marketing and Sales	General and Administration	Research and Development
US	50%	26%	24%
Canada	36%	25%	38%

Let us look at the first five years of a company's development in the US. The average business in the current study raised \$78 million in its first five years. Let us then assume the firm allocates its spending between M&S, general and administration (G&A), and R&D according to the same ratios followed by public companies in Table 1. Of the total \$78 million at its disposal, the US firm will use \$19 million on R&D with \$39 million available for M&S.

In Canada, the average five-year-old firm in our study has raised \$22 million. We can assume that because of the lower value of the Canadian dollar and the existence of the SR&ED (Scientific Research & Experimental Development) program, R&D is less expensive in Canada—perhaps even as much as 40% (24% due to the dollar difference and a further 20% reduction from SR&ED credits).

If a Canadian firm wants to challenge American businesses for market share, it will need to produce a competitive product or service at 60% of the cost in the US (taking into account currencies and SR&ED credits). If it continues to compete directly with a US firm after five years, it will need to spend 60% of \$19 million on R&D (or \$11.4 million on R&D) at that point. But if it has only raised \$22 million and splits its use of funds between G&A and M&S following the same ratios as the public companies, then it will have \$6.25 million available for M&S (compared to \$39 million available in US companies for the same function).

This is not a perfect model, but depending on the assumptions used, one could claim that in their first five years of existence, **US firms have six times as much money available for M&S relative to Canadian companies.** And for Canadian firms to be successful in the US

market, it is actually more expensive because they must deal with issues that come with exporting.

These numbers may also explain the phenomenon observed anecdotally by practitioners that Canadian companies wait until a product is ready before marketing and selling them. Inevitably, this type of behaviour leads to slower growth and a risk of product failure, particularly when companies wait to engage customers until after product development is complete. All of these factors converge to create smaller and slowly growing companies.

Potential Impacts for Business and Policy Makers

Various groups in Canada such as Communitech and MaRS have begun to pay attention to the problem of scaling. The Lazaridis Institute at Wilfred Laurier University is actively researching this issue and developing programs to help companies at later stages of development. The federal government has also solicited input on this issue during the consultation stage of the proposed Innovation Agenda.

If you take a typical Canadian company that has managed to reach a certain size and try to help it become a globally competitive player, then what tools will you have at your disposal?

Canada simply does not have a sufficiently large pool of capital to fund such companies, at least not through private VC firms. The funds offered through government or arm's-length organizations still remain small, although there are exceptions like the Sustainable Development Technology Canada [SDTC] that fills a funding gap in the clean technology space. In many other cases, by the time these companies reach a point in their development and are ready to scale, it is too late. Non-Canadian investors already see them as relatively slow growing and unattractive investments.

We can take a three-level strategy to solving the problem of scale, and this must drive the fundraising and investment patterns right from the beginning of a company's existence:

1. To create world-class companies capable of scaling, we need to help them access capital much sooner than what is currently done.
2. We then need to ensure that they seek and raise capital more frequently.
3. And if we are successful at speeding up their growth, we may be able to attract enough late-stage capital to turn them into world-class companies.

Instead of focusing solely on late-stage companies to solve the problems, we need to continue our work with early-stage companies and help them attain a velocity that makes them attractive to potential investors and funders. Canadian companies and researchers have the potential to develop world-leading technologies, products, and services, but the challenge ahead is to support them in attracting the capital necessary to propel them to the next stage of growth.

Methodology

This study looked at the fundraising patterns of 49 private US companies (\$45 million to \$295 million in funds raised) that have been identified as unicorns (CB Insights) and compared this to 49 private Canadian firms that had raised between \$30 million and \$250 million. All data was obtained in December 2016 from CB Insights. The list of companies used in this study will be published in our next report, which will attempt to identify those Canadian companies that warrant further attention and investment.

This study was not intended to be academically rigorous; nor was it intended to be all encompassing about the topic of business growth and venture capital. It was designed only to add to the conversation on innovation and highlight areas worthy of future research by looking at data available from publicly available sources. We plan to complete further research on this subject in the future.

About the Impact Centre

Science to Society

We believe that science is the foundation for a better quality of life. Our vision is to be a place where you can connect with exceptional research, talent, training, innovative companies, and government to create products and services that benefit society.

Advancing Industry Innovation

We leverage the expertise and resources of universities to create real products and solutions for our clients. Our core competencies are in the natural sciences and engineering.

We catalyze university research to create long-term impact for our industry clients. We accelerate research to market!

Enabling Student Startups

The Impact Centre nurtures the creation and growth of student-led startups that are developing innovative products and services rooted in the natural sciences and engineering.

We provide training to help graduate students, recent graduates, and researchers transform their discoveries into real products and services that benefit society.

Training Innovators and Entrepreneurs

The Impact Centre offers research and industry-relevant training for professionals and students at all levels. We deliver speeches, workshops, undergraduate courses, and coordinate internship placements.

Our initiatives help professionals, undergraduate students, graduate students and postdoctoral fellows develop career skills to enable them to be successful innovators and leaders.

Studying Innovation

The Impact Centre explores questions at the intersection of science, business, policy, and society. We conduct research on all aspects of innovation, from ideation and commercialization to government policy and broader themes such as the connection between science and international development.

We study how companies of all sizes navigate the complex path between a discovery and the market and how their collective innovations add up to create a larger socioeconomic impact.

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