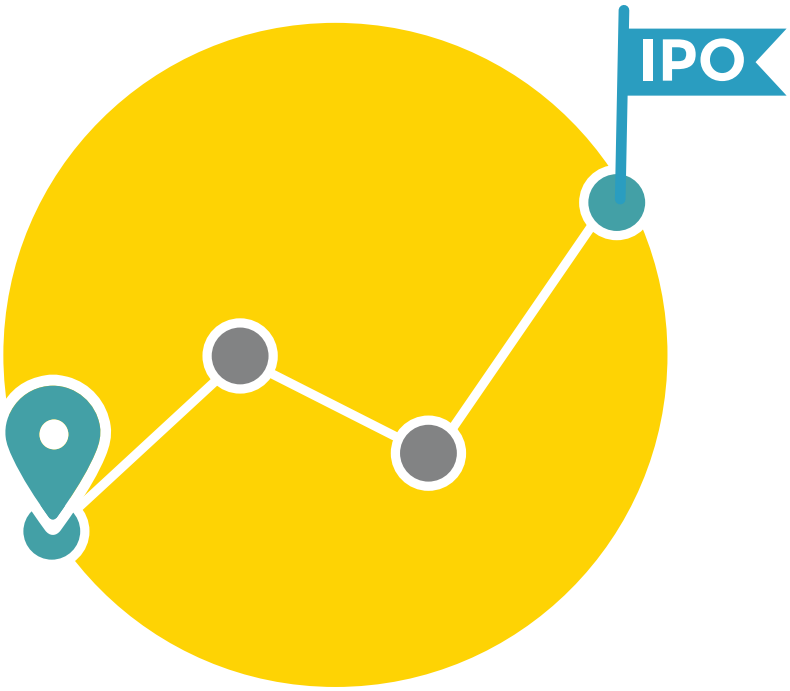
An Impact Brief
March 2019

The Path to IPO

Insights from 58 software IPOs since 2013



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Summary

"Canadian firms should consider raising money as early as possible and should also develop the habit of raising funds more frequently."

Over the last four years, there have been substantial changes in initial public offerings (IPOs) in the software world. Firms tend to wait longer to go public, while raising larger late-stage private rounds and eventually experiencing high public market valuations. We wanted to take a closer look at this trend with the objective to gain some insights into current practices. To that end, we looked at the results of 58 software companies that have gone public in the US since 2013.

The data suggests that the average gestation period for firms pursuing an IPO has increased from just over eight years to about 12 years, resulting in a 50% increase in the time firms stay private before going public. The average revenue of the firms at the time of the IPO has increased from under $100 million to over $300 million. As a result of this change, there has been a dramatic increase in the capitalization of these firms, both before and after going public.

Firms have discovered that incurring high losses through expenditures, especially on activities related to sales and marketing, is driving growth. The emphasis on growth has also driven higher stock valuations and made these capital investments worthwhile for venture capitalists (VCs). It remains to be seen whether these high valuation multiples will survive any shocks to the stock market as this dynamic has fuelled increased investment by VCs into private firms. But what this new dynamic means for Canadian companies more generally is that firms should consider raising money as early as possible and should also develop the habit of raising funds more frequently. Firms should also not be discouraged by losses and should even expect to lose considerable amounts in order to drive growth.

This report also attempts to show the economics of scaling software companies. Fundamentally:

The amount of capital you raise dictates
↓
How much you can incur in losses which
↓
Fuels spending on marketing and sales in order to
↓
Increase your revenue growth rate which will
↓
Generate a high revenue multiple in order to
↓
Earn a healthy return to the investors that provided the capital.

While we found 58 US software firms that went public in this period, only two were Canadian: Shopify and Real Matters. Shopify has been a darling in the market with hyper growth and high valuations. Unfortunately, Real Matters has stumbled since its IPO, but onlookers anticipate a turnaround. Several weeks prior to the release of this report, Lightspeed POS went public with $57 million of revenue and a 34% growth rate.

Software IPOs

Technology companies have only two ways to exit, through a sale or an IPO. A sale of a company can happen for many reasons from success all the way to failure. But an IPO requires a firm to be successful before public markets will support it. We wanted to see what levels of success are required to go public and how to achieve those levels of success so we undertook this study.

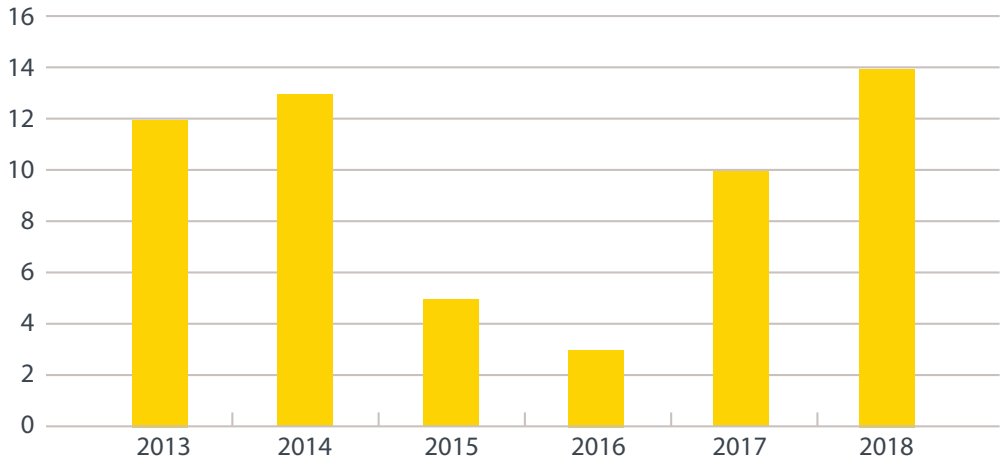
This study looked at 58 companies that went public from 2013 to 2018 in the software sector in the US. We intend to look at results from other sectors in a future report. These businesses are listed in Exhibit 1 along with the year they were founded and the year they went public.

Exhibit 1
Software Companies Examined in This Study

Company	Year Founded	Year of IPO	Company	Year Founded	Year of IPO
2U	2008	2014	Okta	2009	2017
Alteryx	1997	2017	Pivotal Software	2013	2018
Anaplan	2006	2018	Pluralsight	2004	2018
AppFolio	2006	2015	Rally Software	2001	2013
Appian	1999	2017	Rapid7	2000	2015
Avalara	2004	2018	Rocket Fuel	2008	2013
Benefitfocus	2000	2013	Rubicon Project	2007	2014
Box	2005	2015	SecureWorks	1999	2016
Carbon Black	2002	2018	SendGrid	2009	2017
Care.com	2006	2013	SmartSheet	2005	2018
Castlight Health	2008	2014	SolarWinds	1999	2018
Cloudera	2008	2017	SST	1996	2017
Coupa Software	2006	2016	SurveyMonkey	1999	2018
Cvent	1999	2013	Telaria	2005	2013
DocuSign	2003	2018	The Trade Desk	2009	2016
Domo	2010	2018	TrueCar	2005	2014
Dropbox	2007	2018	TubeMogul	2007	2014
E2open	2000	2012	Twitter	2006	2013
Elevate Credit	2014	2017	Varonis Systems	2005	2014
Everyday Health	2002	2014	Veritone	2014	2017
Five9	2001	2014	Workiva	2008	2014
Gogo	1991	2013	Xactly	2005	2015
GreenSky	2006	2018	Xoom	2001	2013
HubSpot	2005	2014	Yext	2006	2017
Instructure	2008	2015	Yodlee	1999	2014
Marin Software	2006	2013	YuMe	2004	2013
Marketo	2006	2013	Zendesk	2007	2014
MuleSoft	2006	2017	Zscaler	2008	2018
New Relic	2008	2014	Zuora	2006	2018

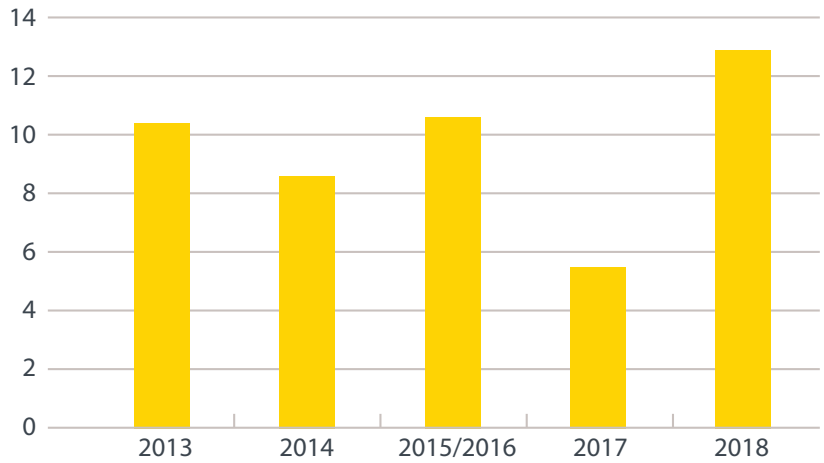
Exhibit 2 shows the distribution of initial public offerings (IPOs) by year. The results suggest a dip in numbers of IPOs about three to four years ago with very few companies going public in 2015 and 2016. This period represents the beginning of the massive influx of private capital into late-stage companies particularly in the US, spearheaded by firms such as Sequoia and Andreessen Horowitz. This capital infusion delayed IPOs for a number of companies that previously would have gone public around this time.

Exhibit 2
Number of IPOs



The lasting impact of this capital infusion was the fact that companies now still choose to go public later in their evolution than they used to. Exhibit 3 shows how the number of years to IPO has increased. Each data point represents the average age of companies that had declared an IPO in that particular year. While companies used to go public when they were an estimated eight to 10 years old, the availability of capital has led to delays. The recent trend is an average 11 to 13 years from inception to IPO.

Exhibit 3
Number of Years to IPO



What Does it Take to go Public?

Any business considering an IPO must make this decision based on a complex set of factors, including revenues to date, past and projected growth rates, and the potential advantages and disadvantages of pursuing that route.

Revenues and Growth Rates

Our analysis of the 58 software companies revealed a number of trends. Over the last six years, the average revenue needed to go public has increased on average from about $95 million to over $330 million (see red markers in Exhibit 4). However, the range of revenues among companies going public has increased dramatically (refer to blue bars in Exhibit 4). While there are three examples in the study of firms going public with less than $40 million, revenue of close to or above $50 million was typically needed in 2013 and 2014. This level increased to about $80 million in 2017, and surpassed $100 million in 2018. Thus, over the last six years, the minimum revenue required to go public has increased from under $50 million to over $100 million.

Topping the list of companies with successful IPOs was Dropbox, which went public in 2018 with revenue of over $1.1 billion in the prior year. The next biggest business was SolarWinds with revenue of $728 million in 2017 followed by a handful of firms with over $500 million in revenue.

Exhibit 4
Average Revenue Prior to IPO
(Millions $US)

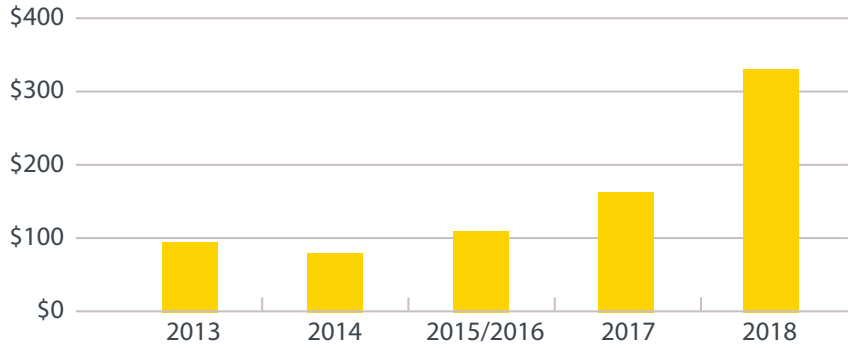
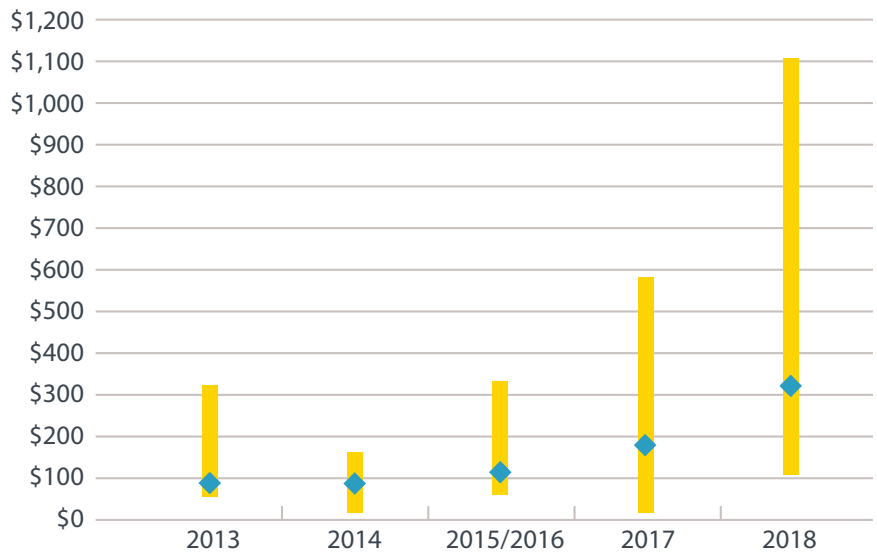
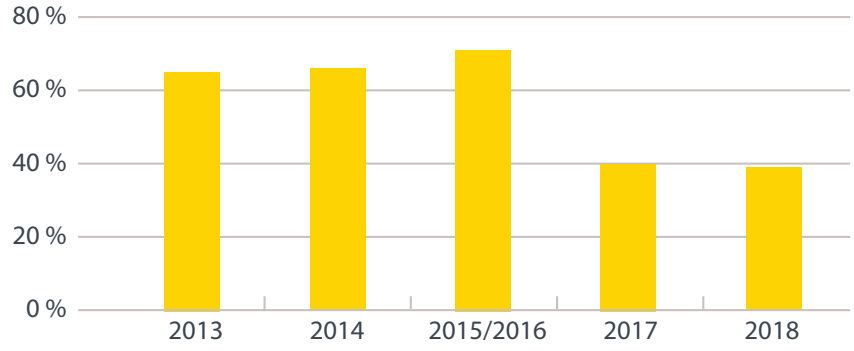


Exhibit 5
Revenue Range Prior to IPO
(Millions $US)



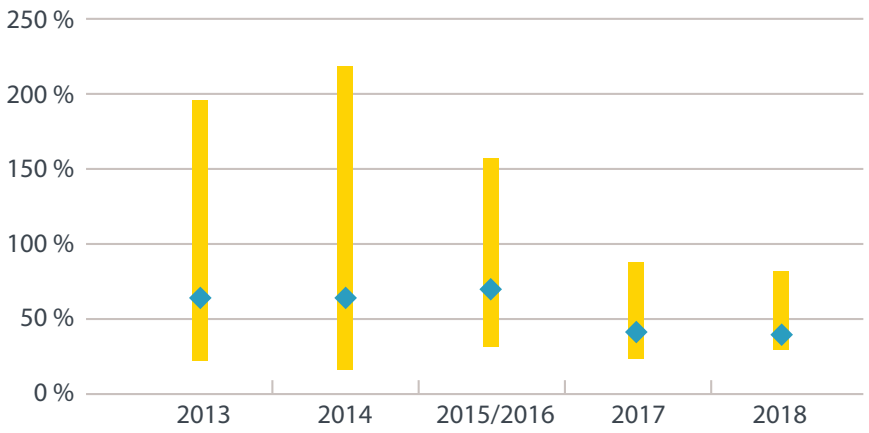
At the same time, as the amount of revenue needed to go public increased, the expected growth rates have actually decreased. Exhibit 6 shows the average growth rates of businesses that had declared an IPO in the specific year. (Average growth per company is calculated based on rates from the year prior to the IPO.) The trend is not surprising given how difficult it is to maintain growth rates as a company grows.

Exhibit 6
Average Growth Rates



In addition, the range of growth rates for companies going public has decreased (refer to blue lines in Exhibit 7) . The low end of expected growth rates for IPOs has increased somewhat from 15% to above 20%, the top end of the range of expected growth rates has declined from approximately 200% to about 75%.

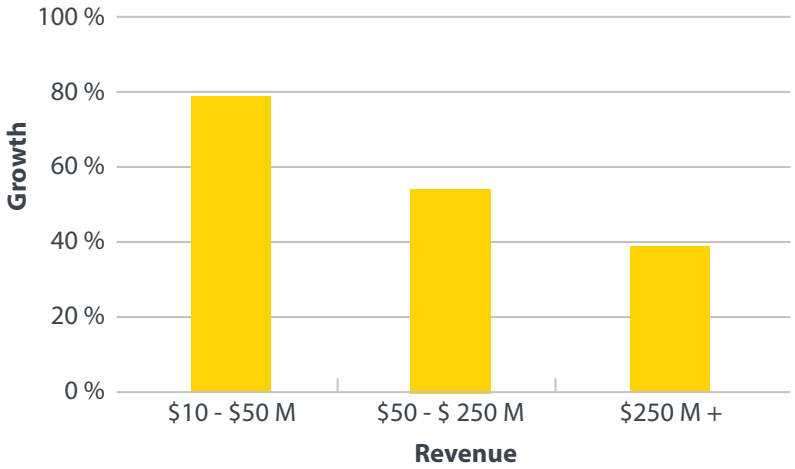
Exhibit 7
Pre-IPO Growth



Perhaps unsurprisingly, one would not expect radical growth for a company like Dropbox with over $1 billion in revenue. In fact, they grew by 31% in 2017—still a rather healthy rate regardless of size. There were six companies in the study that grew more than 100% in the year before they went public. Most of these companies went public in 2014 and 2015 when revenue hurdles were lower. Among them, the most well known was Box (the B2B competitor to Dropbox), which grew 108% in 2014.

The relationship between average growth rate and revenue is also further confirmed in Exhibit 8, showing a declining rate of growth as companies grow, from an average 39% to 79% for the smallest firms.

Exhibit 8
Revenue Growth Rates



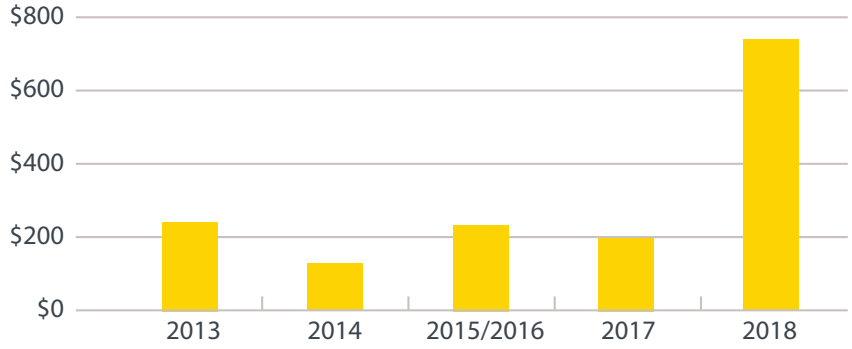
Post IPO Growth

We were able to look at 20 firms with recent IPOs (2016 – 2018) to determine what happened to them post IPO. Six of them had an increase in revenue growth rate while 14 of them experienced a decline. On average, their revenue growth rates declined by 7% from 53% to 46% showing again how much harder it is to keep growth rates strong at higher levels of revenue.

Fundraising

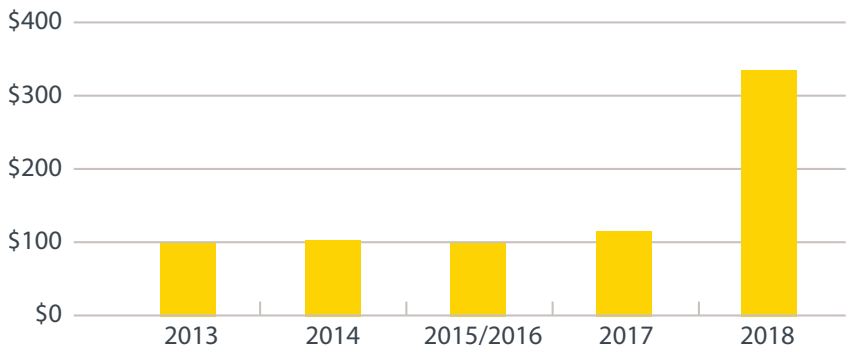
The amount that these companies have raised before the IPO has also risen dramatically. Exhibit 9 shows that the average amount raised by businesses going public in 2013 and 2018 increased from about $200 million to over $700 million, respectively. We consistently encountered SolarWinds in the research, but it could be considered a relative "outlier". SolarWinds, which develops software for businesses to help manage their networks, systems, and information technology infrastructure, had received capital of over $3 billion before they went public. Other firms that had received private capital in excess of $1 billion pre-IPO stage included Pivotal Software and Dropbox, followed by Twitter with $937 million of capital.

Exhibit 9
Amount Raised Before IPO
(Millions $US)



The average amount that these software companies are capable of raising during their IPOs has increased from dramatically, from $100 million in 2013 to over $340 million in 2018 (Exhibit 10). In fact, the "biggest IPO award" of the batch goes to Twitter that raised a whopping $1.8 billion to fuel growth.

Exhibit 10
Amount Raised in IPO
(Millions $ US)



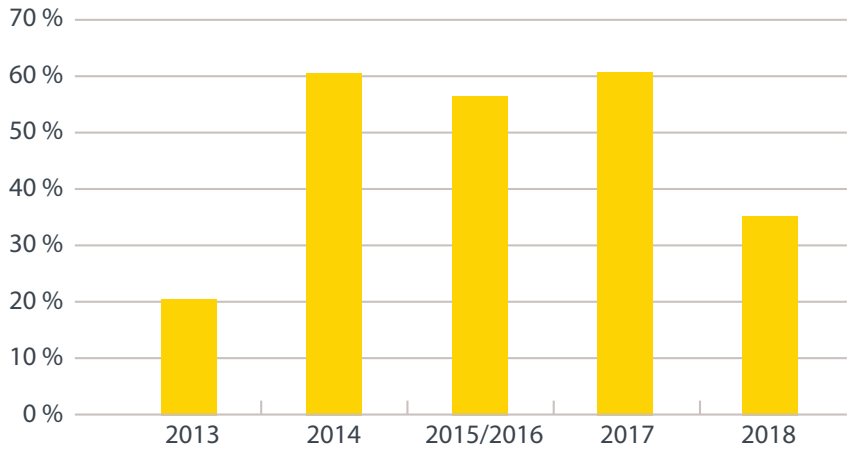
Driving Results

Our past studies examined factors that drive growth such as hiring practices, capitalization, and spending on marketing and sales (M&S). We also wanted to extend that line of inquiry and probe for factors that may be contributing to the growth rates of the companies in the current study. Assessing companies with successful IPOs is particularly valuable as it gives us a window into their activities when they were private. (This type of analysis would be difficult to carry out for companies that remain private as most of the financial data is not readily available.)

Rate of Losses

The first factor we looked at, as underlying growth is the rate of losses as a percent of revenue before an IPO. The theory behind this is that the more money a company loses, the higher their growth rate should be as they have more funding to spend on M&S to drive revenue. Exhibit 11 shows the loss rate of companies as a percent of revenue in the year before the IPO.

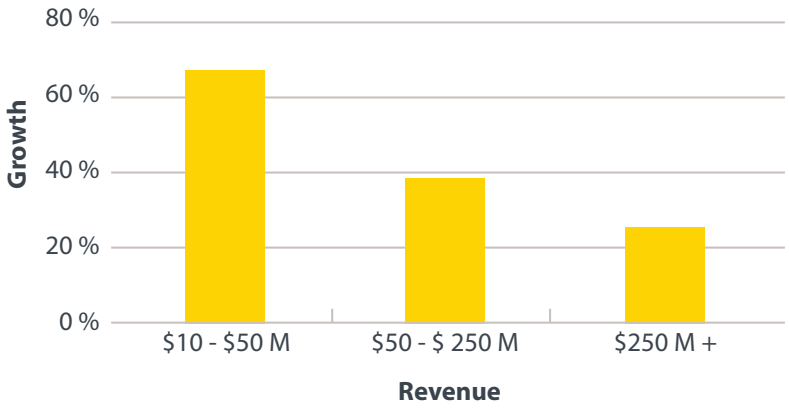
Exhibit 11
Losses as a Percentage of Revenue



Of the 58 companies in the study, only four were profitable in the year before they went public, and only one was profitable the year before that (i.e. two years before the IPO). Over the time frame of the entire study, the average losses in the year before going public were 45% of revenue. Five firms actually had losses that were greater than the revenue recorded.

One can also look at rates of losses as a percent of revenue relative to company size as measured by revenue.

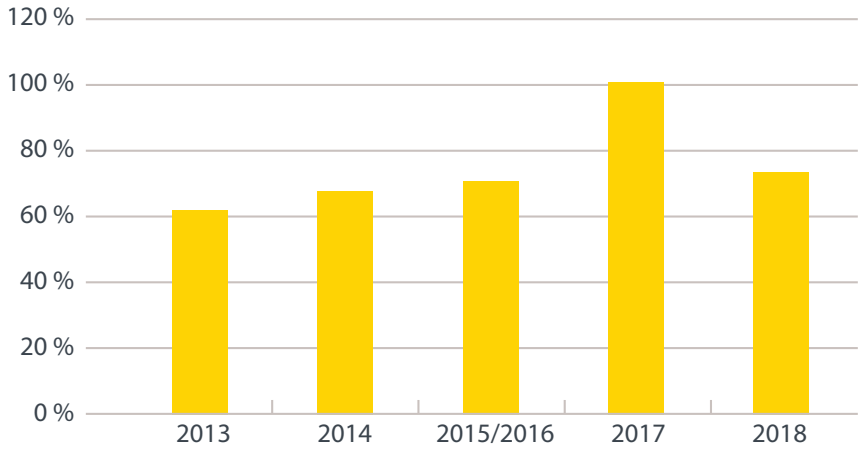
Exhibit 12
Loss Rates



The biggest "loser" of this group of companies was Castlight Health, which lost $62 million on $13 million of revenue in 2014. Castlight Health is a San Francisco-based healthcare navigation company offering corporate wellness tools as well as tools to enable patients to see the prices of surgeries and other medical services at different providers.

Only two firms in this study had positive retained earnings, while the rest had used a significant proportion of their capital with losses to fuel growth. The average firm had incurred losses equal to 76% of their capital raised before going public. In fact, 12 firms had lost more than 100% of their capital base, managing to fuel losses with negative working capital. (Veritone, which claims to have built the world's first operating system for artificial intelligence, had actually managed to accumulate losses of over $45 million with over $23 million of capital. This was a particularly unusual case. The company ran a working capital deficit funded by a convertible note and warrant liability of over $20 million.)

Exhibit 13
Accumulated Losses as a Percentage of Capital



And where was this money spent? The largest proportion of the losses went to fuel marketing and sales (M&S) expenditures. Across the companies in the study, M&S as a percent of revenue was substantial (refer to Exhibit 15). The average spend was 54% of revenue. As loss levels dropped, the average level of M&S as a percent of revenue declined from about 65% to about 53%. There is a correlation of 0.43 between M&S as a percent or revenue and growth rates, likely indicating the importance of M&S spending in driving revenue.

Exhibit 14
M&S as a Percentage of Revenue

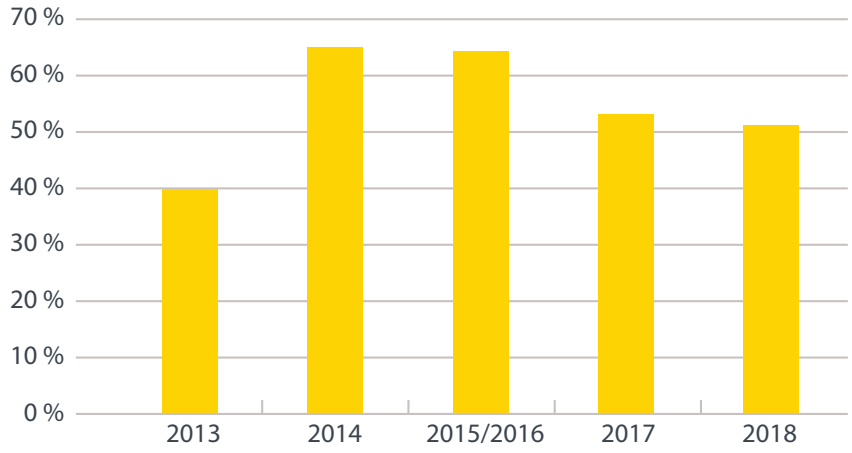
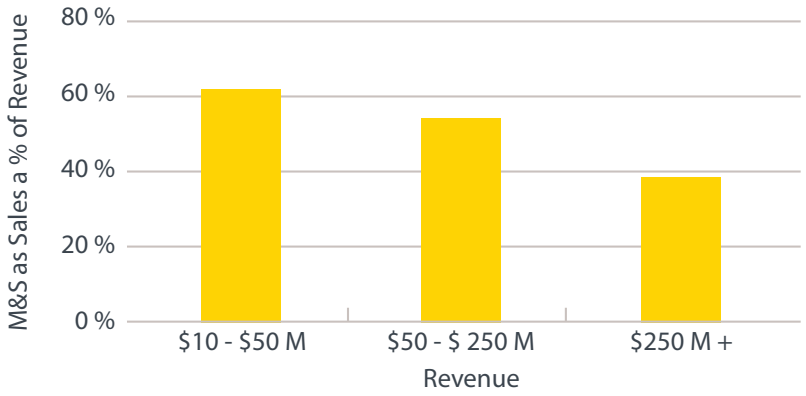


Exhibit 15
Marketing and Sales as a % of Revenue



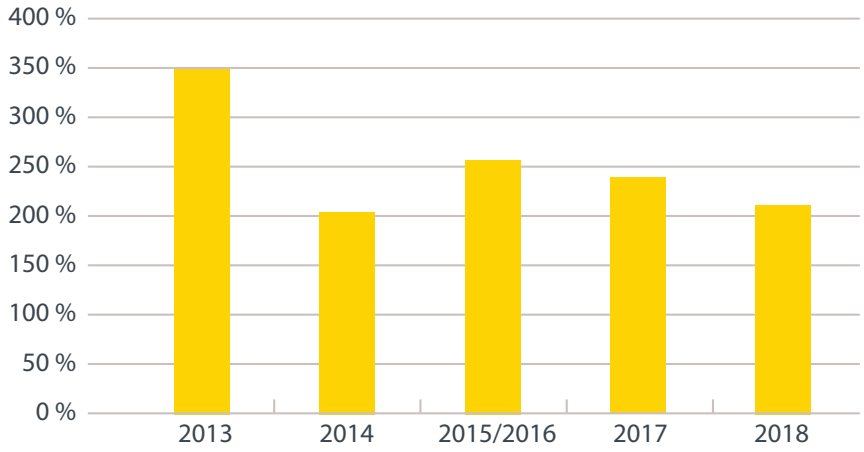
Castlight Health was the largest M&S spender with expenses in that category equal to 260% of revenue. Given their high losses and excessive spending on M&S, what has happened to the business since they went public in 2014 (just after claiming $12 million in revenue in 2013)?

They have, in fact, had a remarkable trajectory since their IPO, increasing their revenue ten-fold to $131 million in 4 years. But they are still incurring substantial losses (over $55 million in 2017) and M&S expenses ($62 million, or equivalent to 48% of revenue).

Besides M&S, another important metric is research and development (R&D) spending. The companies investigated in this study spend significantly more on M&S activities than they do on R&D. On average, the ratio between M&S and R&D spending is about 2.6 to 1 (Exhibit 16). Even in 2018, when firms were recording fewer losses with lower growth, the ratio of M&S to R&D was 2.11 to 1. While the correlation between this ratio and growth is not as strong as others, it is still 0.21.

Exhibit 16

M&S as a Percentage of R&D Per-IPO ratio by year of IPO

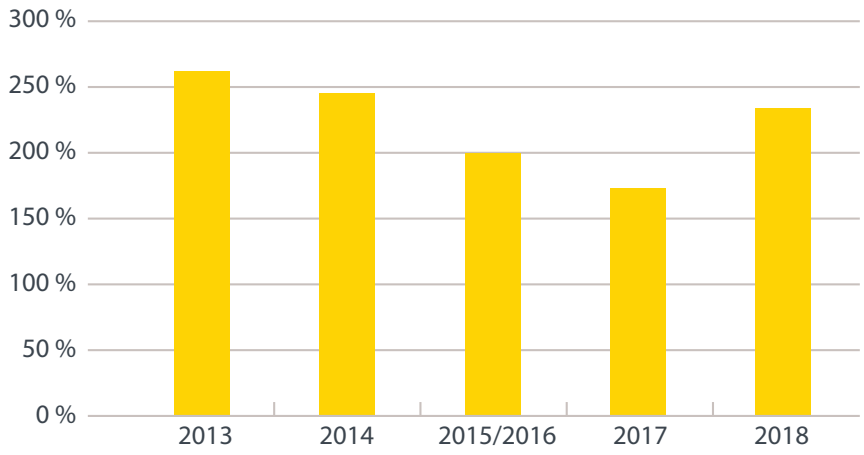


Capitalization

Perhaps the most significant factor in driving growth is pre-IPO capitalization. For all companies over all years pre-IPO for which data is available, there is a correlation of 0.67 of capital to revenue. Fundamentally, it is almost impossible to become a world-class company without significant amounts of capital. Exhibit 17 showcases just how much capital various companies had available as a percentage of revenue just before they went public (shown by year of IPO). Among the companies we studied, the average amount of capital as a percent of revenue in the year before their IPO is 230%. This means that for companies that go public, they raise, on average, $2.30 of capital for every dollar of revenue while they are still privately held.

Exhibit 17

Capital as a Percentage of Revenue Available to Companies by Year of IPO



Companies like Gogo, the leading in-flight internet and entertainment provider, raised $777 million as a private company to reach $71 million of revenue pre-IPO. And for every well-known company like Dropbox (considered a relatively financially efficient private company with 106% ratio of capital to revenue), there is a company like Twitter that raised $937 million to fuel revenue of $316 million (a ratio of 296%). The low ratio for Dropbox in the year before their public offering is due to the fact that they did not raise capital in their last private year.

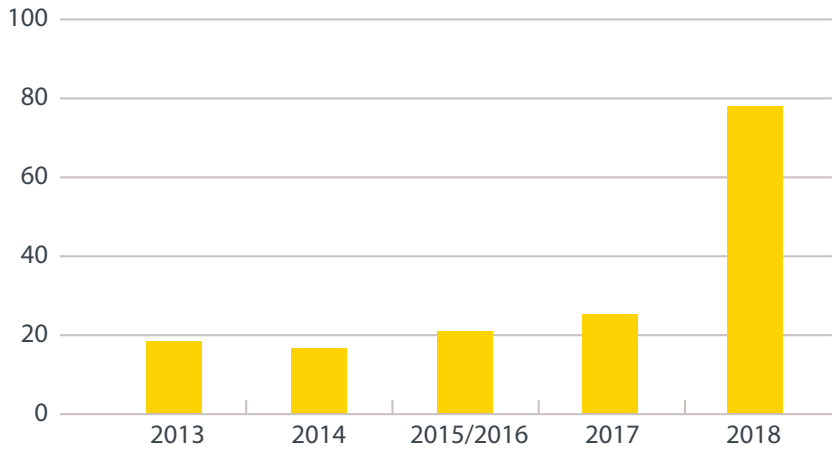
Financial Velocity

The concept of financial velocity was introduced by the Impact Centre. Simply stated, financial velocity represents the rate at which a company acquires and consumes capital. It is calculated by dividing the total amount of capital obtained by a firm by the number of years it has been in existence and is measured in millions of dollars per year.

As we have described at the beginning of this section, there is a very strong relationship between the amount of capital available to and revenue earned by a firm in a particular industry. It takes capital to drive revenue, and the more capital you have, the more revenue you may earn. We say "may" here because there are many cases where a firm will acquire capital and be unable to drive revenue. As any review of financing patterns for successful companies will show, capital must be raised in larger and larger tranches every one to two years to fuel growth. If a firm that acquires capital fails to grow, then it will simply not get more capital. If years go by without additional capital, their financial velocity will decline. Thus, this is a metric that self-corrects over time.

Collecting data on companies as they go public allows us to check their financial velocity when they were private (because we now have access to revenue numbers for the two or three years before their public offering as disclosure of these numbers is required as part of an IPO). When we analyzed these numbers for the firms in our study, we noticed a dramatic increase in financial velocities for businesses with an IPO in 2018 (Exhibit 18).

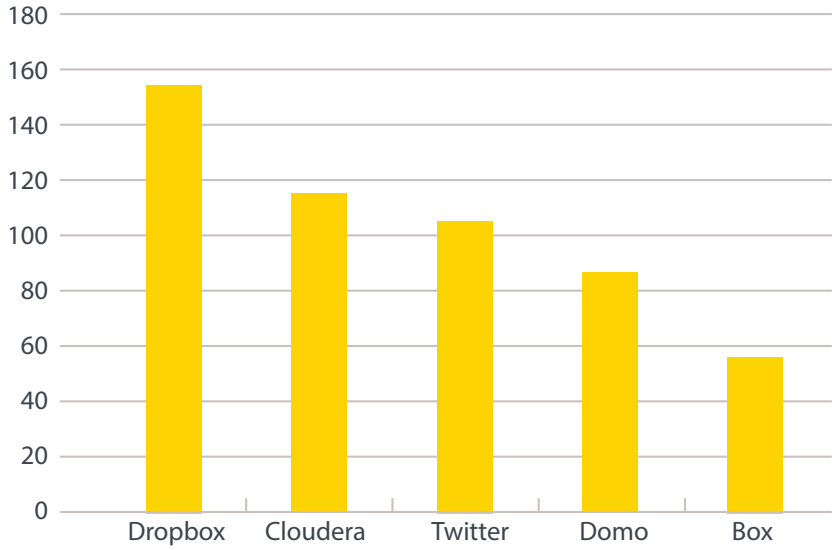
Exhibit 18
Financial Velocity
($M raised per year of existence)



This shows a fundamental change in the practice of financing companies. While raising $160 million to $200 million over eight to 10 years and driving revenue of $75 million to go public was once sufficient, firms now raise $730 million (on average) to drive $330 million of revenue in under 13 years. Firms have become less capitally efficient in recent years meaning their ratio of capital to revenue has increased. Financial velocity of firms going public used to be typically $20 million per year, but this has now increased to almost $80 million per year.

With revenue numbers for private firms, we were able to test the efficacy of our financial velocity metric. To do this, we computed "revenue velocity" defined as the average amount of revenue earned by firms since their inception (i.e. current revenue divided by years in existence.) The analysis resulted in a correlation of 0.76 between financial velocity and revenue velocity, suggesting that financial velocity is a good proxy for the relative growth and size of private companies in the tech sector. The five firms in the study with the highest financial velocity are listed in Exhibit 19.

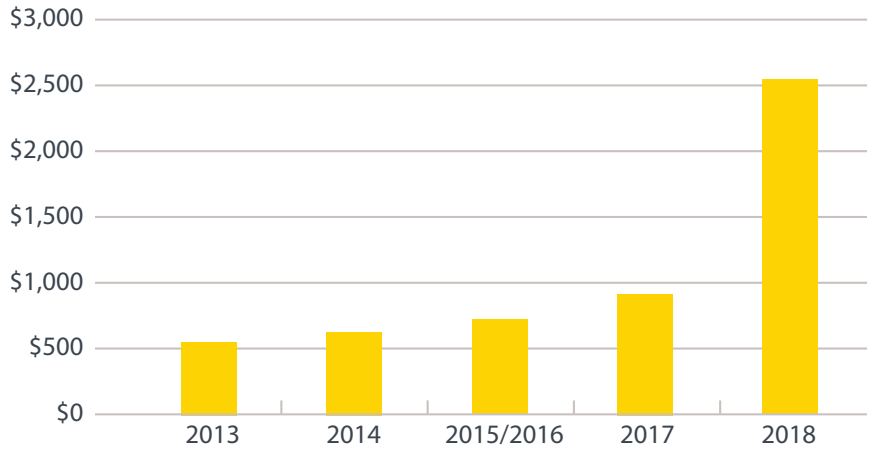
Exhibit 19
Financial Velocity at time of IPO



Valuation

As explained earlier, firms going public are older and significantly larger than they used to be. They also require more private capital. It is not surprising then that the average valuation of firms going public has increased dramatically. Exhibit 20 tracks how valuations have changed at the time of the public offering. While in past years only few firms (10 out of 43), had achieved Unicorn status before going public only one out of fourteen firms with an IPO in 2018 was not a Unicorn. It is surmised from these statistics that private investors could reap more of the rewards for themselves instead of saving them for the public by using private capital to fund later-stage growth instead of taking a firm public.

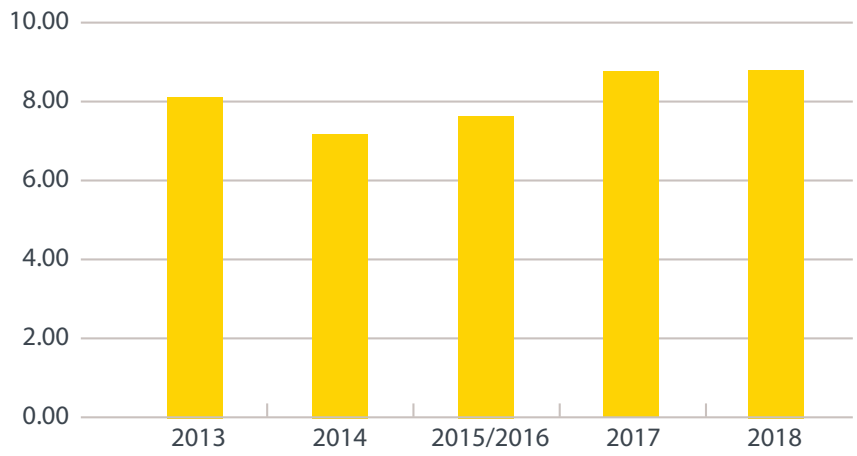
Exhibit 20
Average Valuation at IPO
(Millions $US)



The firm in this study with the highest value post-IPO was Twitter, valued at $14 billion. Next up was Dropbox at $8 billion. In total, 23 of the firms on our list went public with valuations above $1 billion.

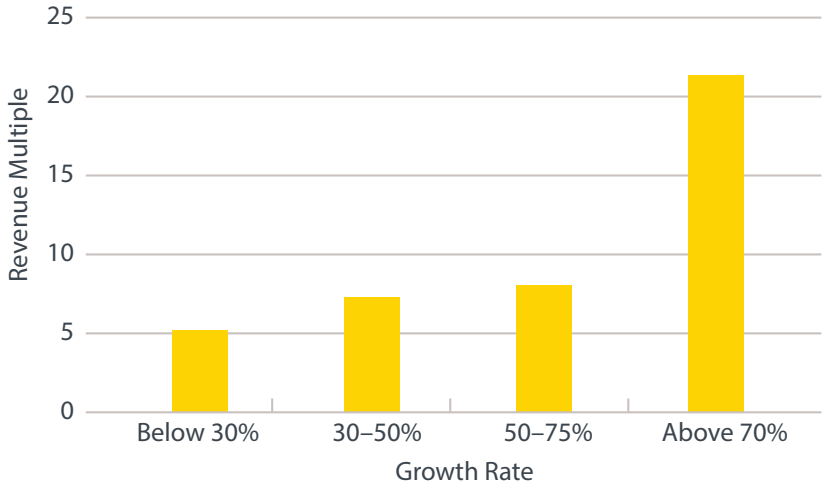
It is interesting to note that revenue multiples (valuation divided by revenue) did not change appreciably from 2013 to 2018 (estimated to be an eight-times multiple). This is particularly surprising given that the average growth rates fell over the same time frame from 65% to 39% (as seen in Exhibit 6). This may be a sign of a bubble in software firms when revenue multiples remain constant despite a fall in growth rates. However, since firms have also been getting bigger over that time period, this may simply be a reflection of the market valuing the fact that firms are IPOing with more market power, and are therefore safer, which compensates for the lower growth. Exhibit 17 shows only slight changes in revenue multiples at the time of the IPO in the last five to six years.

Exhibit 21
Revenue Multiple



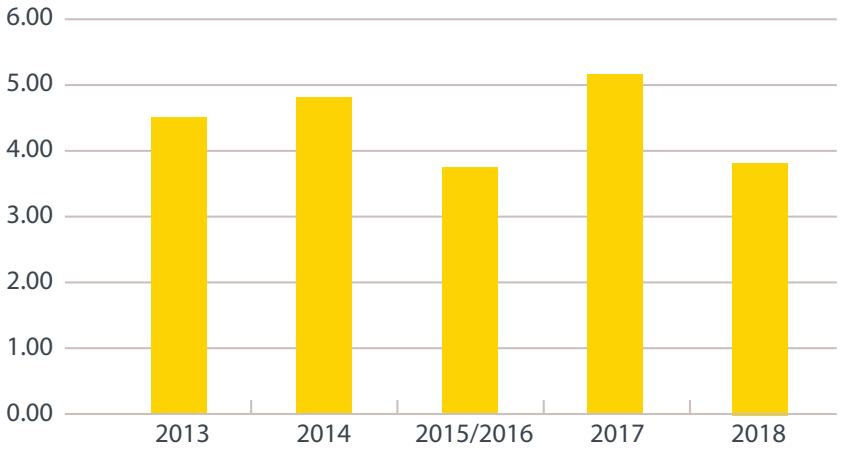
Revenue multiples depend on the growth rate of a firm and this relationship can be seen when you look at different categories of growth rates.

Exhibit 22
Growth Rates and Revenue Multiples



At the same time as revenue multiples were remaining flat from year to year though capital multiples (i.e. pre-IPO valuations of firms divided by the pre-IPO amount of capital invested) actually fell in this period (refer to Exhibit 23). In 2013 and 2014, the average firm was sold at a multiple of 4.7 times the capital invested. By 2018, this had declined to 3.7 times.

Exhibit 23
Capital Multiple



Using data for 15 companies that went public in 2017 and 2018, we were able to calculate the capital multiple that they would have achieved if these firms had gone public a year earlier. Valuation is affected by two items, total revenue and the valuation multiple. The valuation multiple, as we have shown increases as the growth rate of a firm increases. As a firm grows in size, as we have also seen, its growth rate declines as it gets harder to grow quickly the bigger you get. The earlier you go public, the lower your revenue will be but in all probability, your growth rate will be higher. Hence every firm has a determination to make in going public. Should it wait a year or do it now? The objective in that decision is to go public at an optimal, preferably higher valuation. So if it waits a year, it's revenue multiple will be lower but it will be applied to a higher base of revenue. Will the higher revenue make up for the lower revenue multiple form lower growth rate? That is a major issue in IPO timing.

Exhibit 24 shows the effect that this has on these firms. To do this analysis, we looked for 15 companies at the pricing of a hypothetical IPO one year earlier than it had actually taken place. We adjusted the revenue multiple upwards in line with those numbers experienced at similar growth rates for firms in this study. We computed from that a valuation for the firm and divided by the amount of capital raised prior to the IPO to determine a capital multiple.

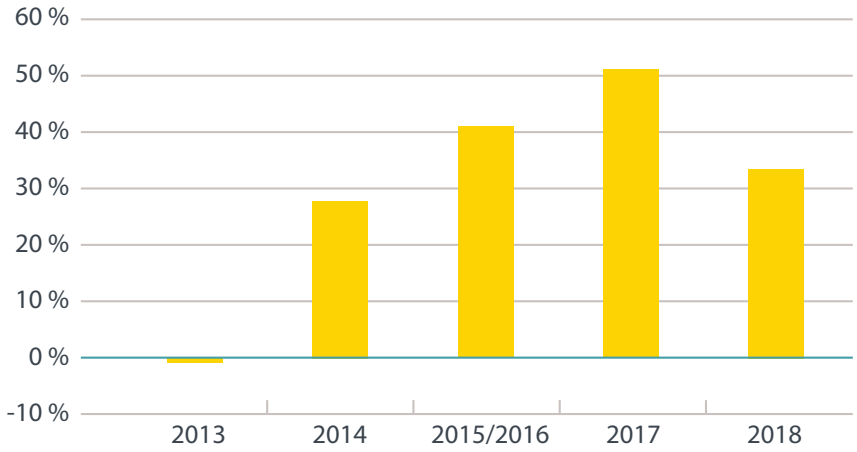
Exhibit 24
The Value of a Delayed IPO

	IPO	Hypothetical IPO (One Year Earlier)
Average Revenue ($Millions US)	257.0	187.8
Revenue Multiple	9.25	10.08
Average Capital ($Millions US)	425.2	388.1
Capital Multiple	5.89	5.00

While hypothetical, the results are interesting as they show that due to the economics of the stock market and the economics of scaling, the increased revenue from waiting a year to go public is worth more than the decline in the revenue multiple from decreased growth rates. As long as this situation holds true, firms will delay going public to earn a greater return for the private market. In doing that, firms also take a risk because they must be able to hold values high enough to enable venture capitalists to exit their public position before a potential decline in prices over the longer term, especially if growth rates continue to decline.

The last aspect of valuation is what happened to these firms after they went public. In total, 12 of the 58 firms in this study were sold after their IPOs, and eight of them at a higher price than received in the IPOs. We computed the post-IPO rates of return in terms of the compound annual growth rate (CAGR) in valuation for firms since their date of going public. Those results are shown in Exhibit 25.

Exhibit 25
Post-IPO Valuation CAGR



Pitchbook's Q3 2018 report on VC Valuations shows that valuation changes in the first 90 days post IPO performance is closely tied to broader price movement in the market. And in fact in recent markets, we may have a situation where much of the post IPO gain is due to increases in the market generally. As a result, it may be difficult to reach any conclusions as to strategy for holding stocks from this limited data.

The Path to an IPO

Using CB Insights and Crunchbase data, we can also re-trace the funding path that each firm took to an IPO. To make sure the data reflects modern practice, we have restricted this analysis to the 42 firms that were founded after the year 2000. Our findings suggest the following:

- The average firm raised its first funding 1.5 years after founding (Exhibit 26). Most companies were quite aggressive in obtaining their first round of capital. In fact, 27 out of the 42 firms founded since 2000 obtained funding in the first or second year of their existence.
- The average firm obtained funding every 1.5 years.
- Interestingly, the average amount of funding raised does not depend on the year the companies were founded or the year they went public (Exhibit 27). While the average VC deal has been increasing in size over the last four years (as shown in Exhibit 9), this increase is primarily due to the increased presence of late-stage deals as companies stay private longer rather than larger deals at each stage.

Exhibit 26
Years to First Funding

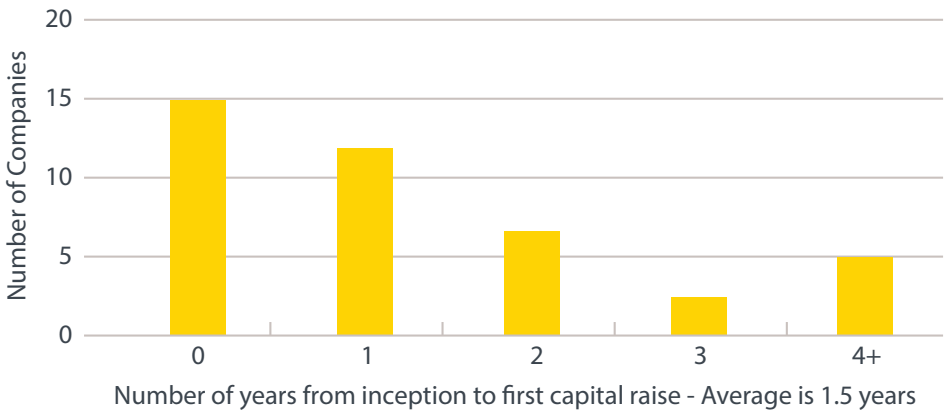
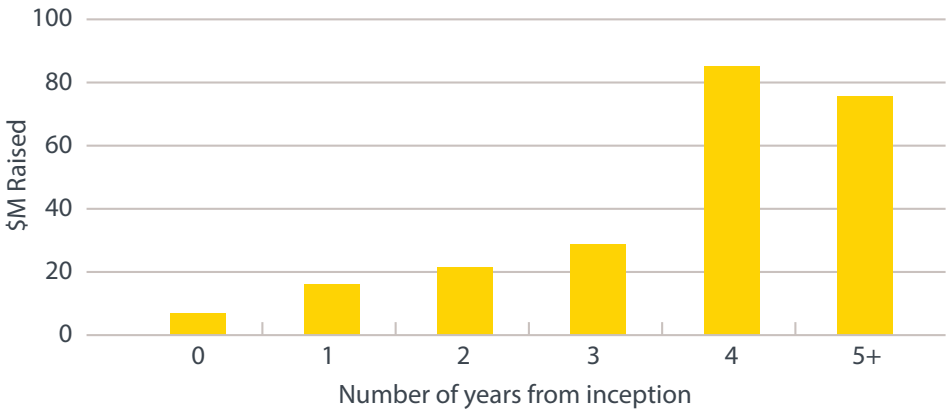


Exhibit 27
Average Amount Raised per Year



Canadian IPOs

During the time period of our analysis (2013-18), two notable Canadian firms also went public: Shopify and Real Matters. Founded in 2006, Shopify went public in 2015 in their ninth year of business, which is on par with firms at that time. Established in 2004, Real Matters went public in 2017 with revenue of $248 million and a growth rate of 46%. And in the March 2019, Lightspeed POS launched their IPO on the Toronto Stock Exchange. The following chart summarizes the results of these firms up to the date of their IPO.

Exhibit 28
Canadian IPOs

	Shopify	Real Matters	Lightspeed
IPO	2015	2017	2019
Years to IPO	9	13	14
Revenue Pre IPO ($Millions US)	105.1	248.5	57.1
Growth Rate	109%	46%	34%
Pre IPO Raise ($Millions US)	96.8	164.6	268.1
Loss % Revenue	21%	2%	169%
M&S % Revenue	44%	-	58%
Capital % Revenue	92%	66%	470%

Shopify's profile is significantly different from the average IPO at that time. To get to that point, they had raised $96 million of capital and were reporting $105 million of revenue, suggesting a high degree of capital efficiency. Their 109% post IPO growth rate was the darling of the stock market, and their shares rose from an issue price of $17 to a current price of $130. Shopify's investors earned a capital multiple (value going public divided by capital invested) of over 12 times. Perhaps, if their results were more in line with the lower US capital efficiency and higher revenue multiples based on their growth rate, they may have earned a higher return for private investors. Instead, their conservatism in capitalization combined with their earlier IPO may have rewarded public investors to a degree not seen by other firms that went public.

Real Matters also does not conform to the averages seen. They too were considered capitally efficient with only $164 million of capital resulting in a capital-to-revenue ratio of 0.66, a number that is extremely low compared to other firms at the time. Since going public at about $12 per share, their growth rate dropped to 22% in 2017. This may have been due to their need for capital efficiency and relatively low losses compared with other firms going public at that time. Their revenue also declined in 2018, dropping their share price to $4.60.

Although Shopify and Real Matters were efficient in their capital, this may have limited their potential as greater capital may have fuelled higher rates of growth. Lightspeed POS is another Canadian company that went public in 2019. They have raised $309 million in private markets and have lost $363 million in total. Despite these losses, they only managed to create $57 million of revenue in their last fiscal year and a growth rate of 34%. This puts them in the 15th percentile in revenue, 29th percentile in growth, but with a higher capital-to-revenue ratio than any other firm that went public in the last three years.

Potential Implications

For firms that have taken venture capital money and who hope to go public, there are a number of lessons and current practices that can be learned from the set of software firms analyzed in our study:

1. Firms should consider raising money as early as possible (even in their first or second year of existence) and should also get in the habit of fundraising more frequently (every 18 months).
2. Although the amount raised can start below $10 million, companies should strive to quickly increase that amount, even to the rate where a firm has a financial velocity of above 20. (An example of this would be a firm that raises a minimum of $100 million over the first five years of its existence.)
3. Firms should not be discouraged by losses and should even expect to lose considerable amounts of money in order to drive growth. As the data shows here, firms with $10-$50 million of revenue suffered average losses of 69% of revenue, but this rate declined to 26% when firms grew to above $250 million in revenue.
4. Businesses should consider spending more on M&S. Among the firms studied here, the biggest expense line was for M&S which took 64% or revenue for firms with $10-$50 million of revenue, but declined to 38% when firms reached $250 million in revenue
5. Firms should plan on taking about 12 years to go public.
6. Delaying going public may be beneficial if the increase in revenue from the delay offsets a decline in growth rate in terms of valuation dynamics.

Methodology

This study looked at the results for all software companies that went public in the United States from 2013 to 2018. Data were obtained from CB Insights, Crunchbase, and Yahoo Finance. All data were collected in November and December 2018. All amounts are in US dollars.

This study was not intended to be academically rigorous, nor was it intended to be all-encompassing about the topic. 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.

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We generate impact through industry projects and partnerships, entrepreneurial companies, training and research.

We bridge the gap between the university and industry to accelerate the development of new or improved products and services based on physical technologies. We work with graduate students and researchers to help them commercialize their discoveries. We provide undergraduate education and training for students at all levels to ease their transition into future careers.

The Impact Centre conducts 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 its market and how their collective innovations add up to create a larger socioeconomic impact.

Our objective is to understand how we can improve our ability to create world-class technology companies, how governments, companies, and academia can identify and adopt best practices in technology commercialization.

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