

A NEW THEORY EXPLAINING WHY INNOVATION
IS PRICED BEYOND BELIEF

— THE —
ECONOMICS
— OF —
INNOVATION

THE THEORY OF THE
SUSPENSION OF DISBELIEF



MARC PHILLIPS

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Introduction

I wrote this book in 2016 while living and working in Palo Alto, California.

I completed a Bachelor of Commerce from the University of Melbourne in 1993 and studied 3 years of macro and micro economics. I spent years at University drawing Supply & Demand graphs that led to the conceptualization of the central theory in this book.

As a venture capitalist and software entrepreneur, I had been immersed in the Silicon Valley ecosystem for over a decade. It's defined by rapid innovation, abundant venture capital, and increasingly bold company valuations. The constant SaaS IPOs and social media frenzy were pushing public valuations higher which in turn drove up private tech company valuations. It was an environment full of energy and ambition, but also one that raised fundamental questions.

As I spent time with entrepreneurs and venture capitalists, reviewing pitch decks and discussing funding rounds, I began to notice a consistent pattern. Increasingly, companies with little or no revenue were being valued at levels that seemed disconnected from traditional economic principles. When I asked founders to explain these valuations, the answers were often unclear and or absent altogether.

More strikingly was that investors rarely challenged them.

There was a recurring moment in these conversations. It began with a pause that led to a silence when rational explanation gave way to acceptance. Both founders and investors appeared comfortable proceeding without a clear valuation justification. It was in these moments that I began to form the central idea of this book.

It was like a 'Doppler Effect' for start up valuations where entrepreneurs and venture capitalists could not hear the frequencies.

I came to believe that both sides were participating in what I describe as a “suspension of disbelief.” Not simply optimism, but a shared willingness to set aside conventional valuation logic. Entrepreneurs and investors, whether consciously or not, were aligning around expectations that were not grounded in present fundamentals.

Marc Phillips

Ch1. Economics of Innovation: Theory on the Suspension of Disbelief by Marc Phillips

The valuations at which start up technology companies have been funded by Silicon Valley venture capitalists in recent years have defied rationale investment practices. In addition to well known start ups like Uber, AirBnB and Palantir, thousands of unknown start up have received venture capital investments at valuation multiples hundreds of times their revenues. The economics of technology innovation is baffling many observers outside Silicon Valley. With tens of billions of dollars flowing into technology start ups each year, a new theory on *the suspension of disbelief* may help explain the dynamics in the evolving economics of innovation.

Beyond an increase in the supply of available venture capital funds which invariably increases the price of start up company valuations, it has become increasingly clear to me that there are other invisible factors at work. While supporters of John Meynard Keynes' economics may partly attribute the previous decade long tech bubble (2006 to 2016) to *animal spirits* to help define the surging investor confidence in the technology sector in general, I believe it is due to the entrepreneurs and venture capitalists creating what I refer to as a '*sustained suspension of disbelief*' which underpins these excessively high start up company valuations.

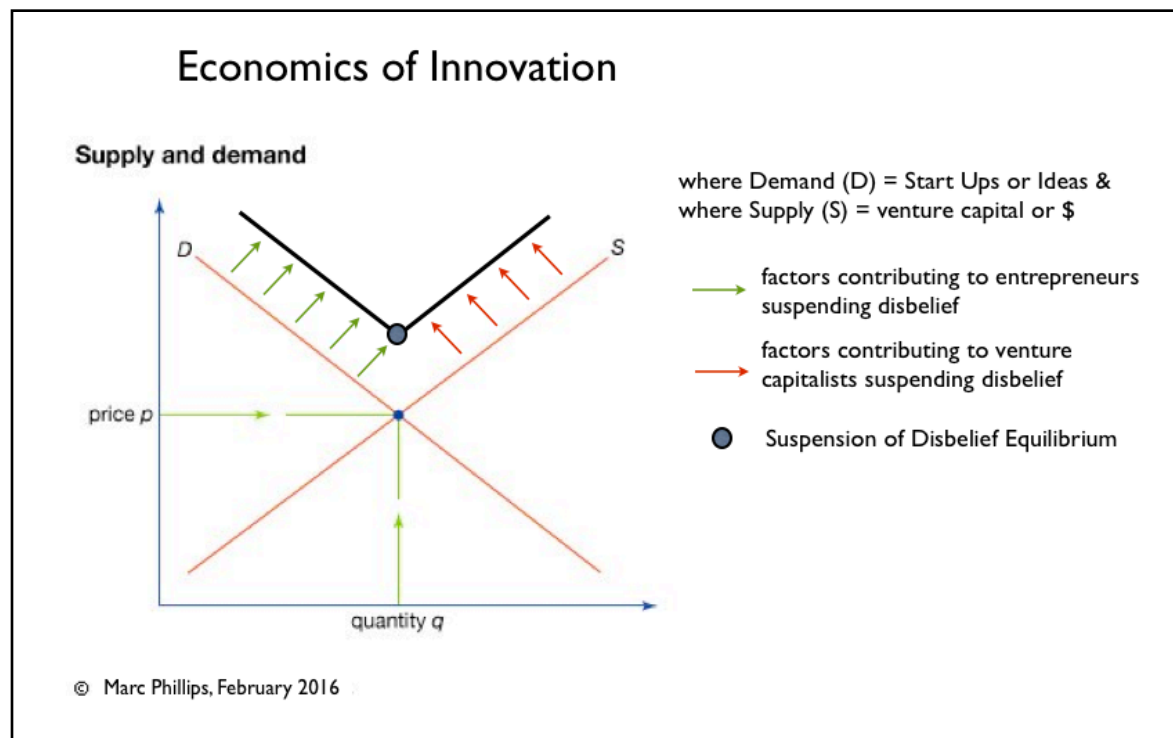
To the outside observer beyond Silicon Valley's inner walls of venture capital firms, it is assumed that entrepreneurs and venture capitalists goals are aligned in that the company will ultimately succeed. While this may exist for a very rare set of companies and has existed in the past, I believe the past 10 years of exponentially increasing valuations of start up companies evidences that entrepreneurs and investors are equally yet unknowingly aligned and in truth believe the company will actually not succeed. In effect, they are mutually suspended in disbelief that the start up will succeed. Put another way, the majority of entrepreneurs and venture capitalists don't believe the company they are building will be successful.

While this may be considered counter-intuitive for many to think that the default position of entrepreneurs and venture capitalists is that the company will not succeed as compared to the logical conclusion that they expect it to succeed, I believe it is so. In fact, I believe that many entrepreneurs and venture capitalist agree with this underlying thesis yet

have not thought to freely express their suspicions. I believe it is so and will herein describe why both entrepreneurs and venture capitalist parties are accomplices to the mutual suspension of disbelief.

Without the other, the state of suspension of disbelief would not exist as individual rationale human pessimism would reveal itself to the entrepreneur and or venture capitalist, yet when bound together, they reach a equilibrium of suspended disbelief. This equilibrium represents the higher price of innovation and the higher valuation of the start up technology company. It is derived by the demand side (entrepreneurs' ideas) and supply side (venture capitalists' money) reaching this equilibrium.

Without the suspension of disbelief, the real price of the start up and valuation would be lower and that which represents a real world equilibrium. We can understand and investigate the economic model of innovation through this notion of suspended disbelief which drives unrealistic valuations of start up technology companies.



Analyzing how start up company valuations are calculated provides insights into the theory of suspended disbelief. Over the past decade from 2006 to

2016, I have witnessed first hand hundreds of Silicon Valley based start up technology company founders appealing to investors' fear of missing out (FoMo) and placing inflated higher valuations on their companies than necessary. Venture capitalists often are at fault as they fail to rationalize the inflated valuations. Rather than basing prices of start ups on sensible revenue to valuation multiple, both venture capitalists and entrepreneurs willingly turn a blind eye and ignore these multiples. Put simply, they willingly collude in their suspension of disbelief.

In the Silicon Valley world of start up investing, it is very typical for start ups to project revenue forecasts for future years which, on a valuation metric of sales revenue to valuation, is beyond belief. Recently, a technology data company based in Los Angeles sent me an investor term sheet signed by a venture capitalist pricing the company at \$8 million pre-money valuation with \$750,000 committed, raising a total of \$2.6 million. The company's actual revenues for the 2015 full calendar year were US\$160,000 implying a 50 times multiple (\$8M divided by \$160,000). Forecasted 2016 revenue was stated in the investment pitch deck as \$1 million (a 6.25 time increase on 2015 revenue).

When I queried why the current revenue to valuation multiple was 50 times the founder of this LA data start up was unable to substantiate any reasoning nor rationally explain how such a high multiple was derived at.

I have asked this exact question hundreds of times to different start up companies raising venture capital over the past 10 years. While some entrepreneurs will cite valuation metrics of other competitor companies who have been funded or point to customer numbers to valuation ratio's or long term revenue to valuation ratio's, the most common answer I receive from the entrepreneurs is unequivocally the same. That answer is most commonly silence. They simply don't know and do not have an answer as to why the valuation they are arbitrarily placing on their start up company is so excessively high. These '*moment of silence*' is when the founders and venture capitalist display irrationality in valuing of start up technology companies. I have all too often witnessed this moment.

I have concluded that the state of '*suspension of disbelief*' reveals itself when the entrepreneur can not answer this question and the '*moment of silence*' occurs.

Oppositionists may argue the higher valuation includes the ‘opportunity factor’ yet hundreds of entrepreneurs I have met repeatedly cannot explain the reason why there is such a high valuation in early stage venture capital financing compared to traditional Series A rounds. Although we can’t rule out pure greed as a driver to increased valuation or competitor valuations, it is evident from the absence to any contrarian facts or reasoning that the entrepreneur does not believe their start up will succeed any more than the venture capitalist does. Hence this notion of competing anti-belief forces is evidenced. I argue that if the entrepreneur believed whole heartedly that their start up would succeed then they would not be placing the company in a precarious financing situation by increasing the early stage valuations at a rate which is excessively inflated.

If the entrepreneur believed that the future revenues forecasted are achievable, and the valuation multiple of the company is lower in the immediate subsequent round than the previous round, then it is evident that the entrepreneur is not valuing the future as much as the present and as such doesn’t believe their start up revenues will be achieved and valuation point met.

It is not only the entrepreneur who is suspending their disbelief. It is also the supply side of the equation, represented by the venture capitalist. I have seen investors blindly advance millions of dollars to start ups at excessive valuations, which does little more than signal their willingness to *suspend the disbelief*. They do not question the unrealistic valuation, rather they collude in this disbelief the entrepreneur has.

Opponents will argue that during the early stages of a a startup, it is almost impossible to estimate the intrinsic value or upside of a company. I’ve spoken to venture capitalists who passed on Uber’s seed round of investment and could not have fathomed it would reach tens of billions of dollars in valuation! While some venture capitalist would prefer to refer to the *suspension of disbelief* as risk adjusted return expectation on an illiquid asset with little future information, I beg to differ. While I do understand that start up valuations has been irrational and does include an x factor for the potential revenue upside as well as competition for deals to invest in, venture capitalists should not be given *carte blanche* mandates to invest at unrealistic valuations.

Venture capitalists are typically not investing their own personal money and are removed from the real cost of buying equity in a start up. Rather they are focused squarely on what equity percentage is received for their investment and how much potentially the company is one day valued at. This becomes a mental exercise where venture capitalist talk and think about a hypothetical valuation, and it is so unrealistic that the stock certificate in a start up company is like a lottery ticket in their hands.

It is at somewhat frightening proportions and left unchecked or unquestioned, it will produce an inefficient market that is unsustainable for both entrepreneurs and venture capitalists. While I do not pretend that largely private company markets which venture capital invest in should be subject to market efficiencies of public markets, I do believe the venture capital markets are largely inefficient and create the realm for the *suspension of disbelief* to exist.

The venture capital world is now reflecting on this constant recurring issue of overvalued early stage companies. Partly, they are fueled by investors who are insensitive to valuation as they prey on the entrepreneurs suspension of disbelief that their start up will fail and that it's more valuable than what a realistic revenue multiple suggests it should be.

These two forces of suspension of disbelief work as equal and opposite forces against each other, creating the equilibrium of suspended disbelief which equals the inflated valuation of a start up. In a rationale world where decisions are made based on the belief that something will happen, the world of start ups comprised of entrepreneurs with ideas and venture capitalists with money who co-exist and are co-dependent on in a state of disbelief.

One only needs to visualize the hundreds of thousands of entrepreneurs and tens of thousands of investors or venture capitalists engaged in their respective states of disbelief. Think of the thousands of pitch presentations entrepreneurs make to venture capitalist and investors each day whether on telephone calls or in person. Multiply those present within these investment pitch presentations and the combined effect is a cumulative suspension of their unbounded disbelief forming above the point of equilibrium where actual demand meets supply in a rational market.

Economics of Innovation: Factors Contributing to the Suspension of Disbelief for Entrepreneurs.

There are contributing factors and forces that lead to a state of suspension of disbelief for both founders and venture capitalists.

For entrepreneurs, the desire to create a company and belief in the Silicon Valley mantra to change the world is formidable. Combined with youth, the motivation and aspiration to create and change are often driving forces to start a company. Entrepreneurs often seek to start a company with like minded co-founders before they have researched or come up with an original idea or a sustainable solution to a problem. Often the problem does not actually exist and if so, does not have a commercially viable solution or is so complicated, any technology solution cannot fix it. We only need to look at the post-mortems of start up companies that have shut down to view evidence of some which failed due to this set of circumstances.

The X of Y factor

In my book *Inside Silicon Valley (2013)*, I reference a San Francisco start up I met with called Storefront, which was pitched to me as the AirBnB.com of the retail stores. I call this *the X of Y factor*. Raising a total of \$8.9 million (source: <https://www.crunchbase.com/organization/storefront#/entity>), Storefront shut down their business on March 17, 2016. In my due diligence in 2013 and in meeting with their founders, it was obvious to me there was no burning pain for an online marketplace for short-term retail space rentals.

The founders had limited experience in commercial leasing and retailing and I was convinced they were suspended in disbelief. They repeated several times in my meeting with them that Storefront had a similar potential growth trajectory as AirBnB. Entrepreneurs do fall in love with other like start ups to their own and use this as the *the X of Y factor* to not only motivate themselves but to excite investors.

So how did I evaluate this investment opportunity? I rang and spoke to several commercial building leasing executives at brokerage firms and shopping mall leasing managers. Research showed that retail brands are maniacal about their image and retail shopping experience in which short term pop up stores do not offer consistent brand experiences. Additionally, commercial realtors manage the client and lease space complexities

unique to commercial properties. In short, the technology solution did not address the problem.

The 16 investors who funded StoreFront to \$8.9 million clearly didn't do comprehensive research and contributed to the suspension of disbelief by not doing so. Venture capitalists invest in the big picture vision and the X of Y factor that StoreFront would be the AirBnB for retail stores in this case didn't work out. Just because AirBnB became a juggernaut Unicorn start up that raised over \$2.3B (source: <https://www.crunchbase.com/organization/airbnb>) and has disrupted the accommodation industry, doesn't mean that it can translate to other real estate/ property sectors.

Entrepreneurs will often fall into a state of suspension of disbelief by confusing their start up technology idea (X) with that of a well known emerging successful technology company (Y) with similar characteristics at first glance yet very different characteristics on detailed analysis.

Fast Friends

Start ups by nature must seize on an opportunity to develop technology for an emerging market and the race to be the leader in a particular sector often requires founding teams to form fast. This contributes to the suspension of disbelief as founders rally to form fast friendships and rapidly hype the opportunity as much as the product roadmap to each other when courting co-founders. I have personal experience in this and brokered dozens of introductions that have led to co-founders starting technology companies as a result thereof. Social networks such as LinkedIn and Facebook are commonly used by entrepreneurs to find co-founders. Many readers herein need only remember when they were asked by someone to make an introduction to a LinkedIn connection.

In situations where founding teams do not know each other well, there is greater likelihood of suspended disbelief. This scenario results in further risk of failure. When founders are not fully committed to the belief in the technology they are developing, yet are convinced by co-founders, their motivation shifts from the believing in the company mission to the reliance on other founders to execute in both building a minimum viable product and raising venture capital. The detection of this doubt or non-committal behavior of founders is the earliest signs that the process towards a state of suspended disbelief has commenced.

This can result in '*founder fallout*', a well known risk discussed by venture capitalists when evaluating a start up company. Founders disagreeing resulting in one leaving can be a costly exercise to fix once a start up is funded. At best, the company survives once a co-founder leaves yet often this adversely impacts the shareholding capitalization table which venture capitalists refer to as an *upside down cap table*. At worst, the wrong founding team being formed is of fatal consequence for a start up company which implodes culturally.

I have experienced both scenarios. Firstly, a San Francisco based SaaS fault detection software company had two founders who had previously worked together at Riverbed Technologies. They were friendly and hence knew each other. Given their prior relationship, they mutually suspended their own disbelief for 9 months before admitting to their investors (myself being one of them) that they should shut the company down. The company was shut down and 90 cents on the dollar returned to seed investors.

I have been an investor in another Silicon Valley software company where the 2 founders did not know each other well, were from different countries and introduced by a Sand Hill Road venture capitalists. After 3 years they fellout of favor with each other, resulting in the non technical co-founder leaving. In this scenario, the technical founder had clearly been in a state of suspended disbelief having lofty idealistic ideas about product, financing and reporting. This led to a cultural implosion which the company survived yet resulted in excessive staff being employed, costs incurred and over \$1 million wasted.

Peer Group & Alumni

The expectations of peer groups and college or university alumni is a clear driver and influence for entrepreneurs seeking success and a contributing factor for them to suspend their disbelief.

A key ingredient for venture capitalists to fund a start up is a strong founding team. Entrepreneurs who start companies from within their education college or University Alumni are favored, all things being equal, by venture capitalists over those who are not. We need only cite examples like Google, Yahoo, Palantir to name a few which resulted from co-founders at nearby Stanford University. I need no reminder of this having felt the full impact of the Alumni network having spent 15 years living in Palo Alto,

within 2 miles of Stanford's campus which borders Sand Hill Road, where dozens of the most successful venture capitalist are headquartered.

The ramifications of the Alumni network as a source of seed funding for start ups inextricably binds entrepreneurs to their College or University alumni. These peer groups are powerful drivers for entrepreneurs to in many ways blindly pursue start ups and unknowingly enter a state of suspended disbelief. It can be legitimately reasoned that graduates of esteemed technology educational institutes do possess a sense of entitlement which is understood given the combination of the tuition fees paid, success of previous graduates and strength of alumni network. It is unmistakably beneficial for graduates to have access to an alumni network for both Alumni investment groups, mentoring and for initial customers yet this combined sense of entitlement from attending prestigious universities contributes to directly to the propensity to suspend their disbelief.

I speak from first hand experience having invested in start ups formed by graduates of Stanford, Cornell, Dartmouth and other Ivy League Universities. Like me, all venture capitalist want to de-risk their investments and having a strong collegiate alumni bond to secure founders is one way to reduce the downside risk.

Recently, I was invited by a senior member of the Massachusetts Institute of Technology (MIT) Angel Investor group to an investor night at Wilson Sonsini law firm in Palo Alto. You had to be either a graduate of MIT or friend of one of their Alumni. Only founders who had graduated from MIT are able to present their start up technology company and seek investment from the MIT Angel group. While I can reason there is greater trust and transparency amongst an alumni, there is also risk of nepotism which isn't healthy.

I have sat in board meetings and watched start up founders from these universities suspend their disbelief due to the pressures placed on them by their network. The fear of failure in front of the Alumni and social peer group is not only a great motivator yet a factor in entrepreneurs extending their suspension of disbelief. The latter is much easier to do for an intelligent entrepreneur rather than to fail in front of the crowd.

Those entrepreneurs innovating who believe they are rightfully obliged to be successful in a start up are further likely to suspend their disbelief in

success when graduating from a more prestigious university. One may look to the exponential rise in college tuition to the valuations of start ups for quantitative rationale of this supposition. Whether it be conclusive or suggestive, the over valuations of start ups I believe are related to the excessive rise in college education. This economic model of college universities directly contributes to the sense of entitlement and forces that affect the suspension of disbelief as college graduate cannot or do not want to believe that they are not going to be successful when they have paid such a high price for the right to attend an educational institution which propagates the myth of right of entry equals commercial success. The College Board (<https://www.collegeboard.org>) released statistics that found that even after controlling for the effects of general inflation, 2008 college tuition and fees posed three times the burden as in 1978.

I will not digress into my thoughts about the social impact of the \$1 trillion college debt market in the USA yet it should be recognized that there is a positive correlation between entrepreneurs with college debt and those with higher perceptions of self importance and consequently will suspend their disbelief more than those who have lower amounts of college debts.

Perception of Self Importance

Another factor leading to the suspension of disbelief is that most people think they are better than what they are. While we may not think this is true, in most cases it is. This is not a criticism of anyone and in fact it should be admitted here that loving yourself is one of life's great truths.

In my book *Inside Silicon Valley* I speak of the "Competition" slide in an investor pitch deck as being essential. Not only does it allow venture capitalists to understand the market for which the start up competes against yet also which benefits and features each competitors has. The astute entrepreneur will not feign competition but rather embrace the investor with their knowledge of it, so as to give reasons and tactics as to how their company is better and will execute in the market to out compete others. The entrepreneur who does not provide a competitor overview or one which lacks details, is by their omission displaying clear behavior leading to the suspension of disbelief.

I have experienced hundreds of entrepreneurs who are blindsided to competition. Some entrepreneurs merely dismiss competitors as having inferior technology yet in most instances aren't aware of larger companies

that can compete. I find myself hearing the words of Andy Grove, Intel founder when he famously said 'only the paranoid survive'. It is a necessary challenge to the technology roadmap for entrepreneurs to map out competitors positioning, features and benefits and compare them. A failure to do so show the entrepreneur is ignorant and upholding a belief in their technology which is narrow in perspective. A lack of competitor analysis by entrepreneurs shows their high sense of self importance. At best it displays an arrogance and at a minimum, ignorance that competitors aren't a threat. It is a symptomatic sign of the suspension of disbelief and should be noted by both entrepreneurs and investors as an unenviable trait.

Excess Entrepreneurial Demand

We live in a time where there is excessive demand by people to be entrepreneurs. The quest for success and money is driving record number of workers to become entrepreneurs. The increased demand for ideas also increases the quantity of time (in days, weeks, years) that an idea can suspend the disbelief of investors and seek financing based on over inflated values. The barriers to entry are low as entrepreneur require only access to a basic computer to create visually compelling investor pitch decks.

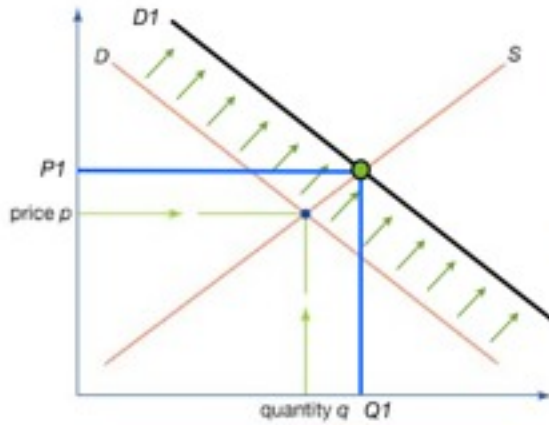
The increase in demand for entrepreneurship and creation of start ups results in a combination of factors detailed herein which lead to higher valuations as a result of entrepreneurs suspending their disbelief. The X of Y factor, process of forming fast friends, impacts of the entrepreneur peer group & alumni combined with the distorted perception of an entrepreneur's self importance are elements contribution to the entrepreneurs suspending their disbelief. I am convinced there are other factors influenced by venture capitalist which will be explored in the following chapter.

Overall Effect of Increased Demand of Ideas & Starts Ups

As illustrated in the below chart, the net overall effect of entrepreneurs sustaining their suspension of disbelief is an increase in valuations of the start ups (P1) resulting from increased demand in entrepreneurial ideas (D1) and start up technology companies.

Effect of Increase in Demand of Ideas/Start Ups

Supply and demand



where Demand (D) = Start Ups or Ideas & where Supply (S) = venture capital or \$

- D1 is the increased demand of entrepreneurs ideas and start ups leads to increased price/valuation (P1) of start ups
- Supply of venture capital and money remains constant
- Increased price (valuation) of entrepreneurial ideas/ start ups

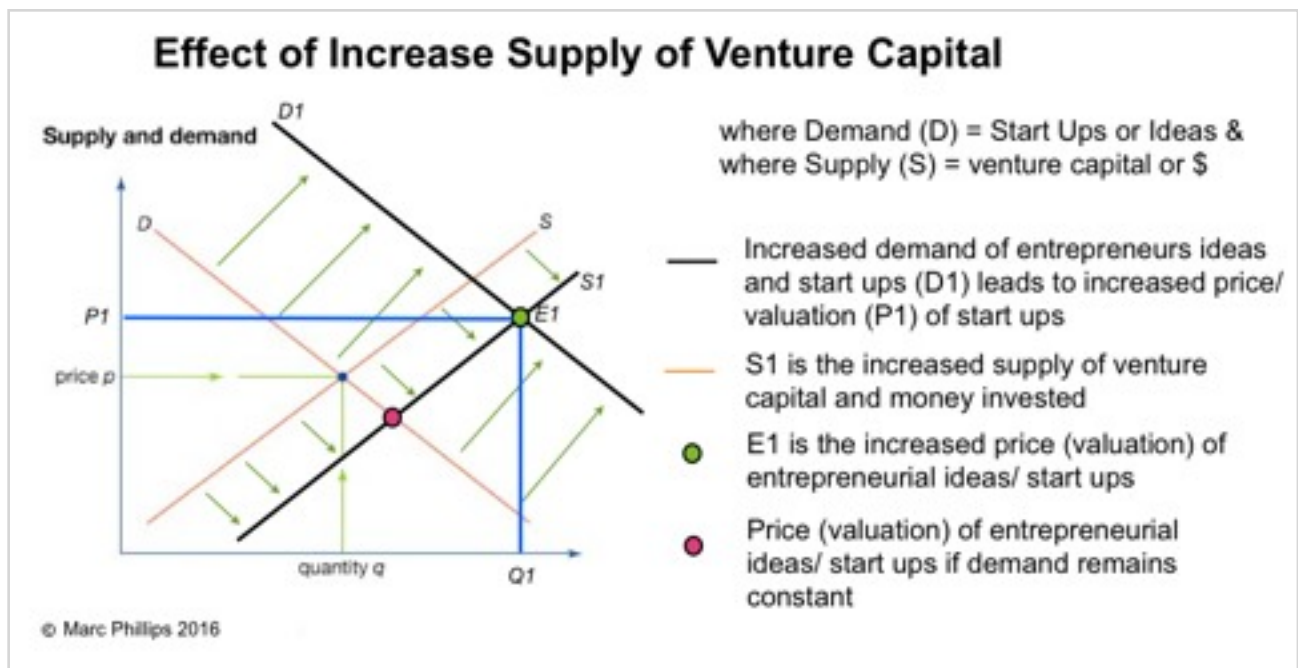
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Chapter 3. Economics of Innovation: Factors Contributing to the Suspension of Disbelief for Venture Capitalists.

Venture capitalists contribute to the state of suspension of disbelief. We can plot the effect of an increase in supply of venture capital in the economy of innovation to determine the start up technology company valuations.

In the previous chapter, the factors contributing to a rise in demand of start up ideas that lead to a rise in suspended disbelief and increased valuations were outlined and represented by the demand line $D1$.

In this chapter, we will explore the factors contributing to investors and venture capitalists increasing the supply of money. As more money is supplied to start up technology companies ($S1$), the new price of start ups is higher at the equilibrium ($E1$). If there were no new ideas or the number of start ups did not increase, the price of those start up ideas would fall, as represented by the red dot. However, more money available to fund start ups creates greater awareness amongst entrepreneurs resulting in more start ups being formed. The $E1$ equilibrium illustrates that with more money supplied to start ups, the higher demand fueled by the combination of both entrepreneurs *and* venture capitalist suspension of disbelief results in the higher price and valuations.



This knock on effect is, in part, driven by the cycle of momentum where entrepreneurs start companies in *hot sectors* and venture capitalists want to have an investment in one of these companies. Big data, on demand transportation, data security, mobile commerce, artificial intelligence are a few recent examples of *hot sectors* that saw the combination of both rapid growth of entrepreneurs starting companies and valuations rising as venture capitalists poured in money to get one of these technology companies in their portfolio.

Sharp Elbows

While venture capitalists don't like to admit it, they often have to scramble to get into the deal which leads to fierce competition and increased valuation in the company. The term *sharp elbows* refers to when venture capitalist are pushed out of a deal by another venture capitalist and typically results in a higher valuation. I have experienced this first hand several times, which despite being painful initially, made me reflect on the market forces and in I must admit, assisted in forming this theory of suspended disbelief. No pain, no gain as the saying goes!

In April 2014, John Joseph co-founder of PacketZoom.com based in Burlingame in Silicon Valley California contacted me. John and I had been previous shareholders together in Playhaven, a mobile games & app advertising network. After 2 meetings with John and his co-founder Chetan Ahuja, we verbally committed a range of \$300,000 to \$400,000 into their \$1M+ investment round. A range allows founders to *soft circle* this amount and provides them with flexibility, which is key to closing the venture capital financing.

The second meeting with Chetan and John was a Tuesday afternoon and on the Thursday late morning (less than 48 hours later), John rang me to apologize and informed me that 2 other venture capital firms had provided a higher valuation and the term sheets were signed. So Baseline Ventures and First Round Capital won the deal over other venture capitalists <https://www.crunchbase.com/organization/packetzoom#/entity>. These *sharp elbows* have several effects. They drive up valuation which was the case here with PacketZoom. It was clear to me a contributing factor was due to the founders previous roles in successfully exited companies. John previously was at Playhaven (acquired by Science Inc. <https://>

www.crunchbase.com/organization/playhaven#/entity) and Chetan was an engineer at Admob (acquired by Google).

Venture capitalists will move very swiftly and in many ways become valuation insensitive if they want to invest in a company. When they sense or become aware that the start up technology company has competing term sheets or commitments, as was the case with Arafura Ventures and PacketZoom, the larger or brand name venture capitalist will drive up the valuation. This has 2 effects. Firstly, it further suspends the founders disbelief that their business is worth more and increases the supply of money deployed into start ups. While all markets experience higher prices resulting from an increased demand or competition for a product or service, the illiquid private nature of start ups makes it very difficult for venture capitalists to know how much more they need to increase a term sheet valuation to in order to be successful in being selected by entrepreneurs to invest in their start up company. This is one of the reasons why a pre-money valuation company of say \$6 million can easily within 2 days become a pre-money valuation company of \$7 million. The increases in valuation result from many factors yet the *sharp elbows* factor creates a fear of missing out and this contributed to increasing valuations in the economy of innovation.

In this situation, the venture capitalists who drive up valuations will often invest more money to maintain their percentage of equity in the start up company. For example, where \$1.5 million is invested at a pre-money valuation of \$6 million, the venture capitalists own 20% of the company. Yet when the valuation is increased higher by sharp elbowing \$7m, \$1.75 million is required to be invested in order for the venture capitalists to have their standard minimum 20% of ownership. In summary, the *sharp elbows factor* increases in supply of venture capital as venture capitalists suspend their disbelief.

Investment Mandates - Hitting the Bid

Another significant factors in suspending the disbelief for venture capitalists is that they have investment mandates. They have to make investments and deploy the capital raised. When I first began investing as a venture capitalist, I thought it was easy to find entrepreneurs. Having been an entrepreneur raising venture capital, the belief is that the venture capitalists

are inundated with start up investment opportunities. That is true yet the quality of investment decks is always the issue. Set against this is venture capitalists must justify their employment as money managers. They need to make investments. Unlike fund managers trading public stocks, there is no Stock Exchange board to look at or stockbrokers to place orders with. VCs have to work to find deals. Venture capitalists see lots of investment pitch decks and 90 per cent are ideas not worthy of further consideration. The effect of this is that it takes up hours of venture capitalists days. Meetings, presentations, coffees, attending demo days run by accelerators and incubators, dinner parties, breakfast catch ups with previous work colleagues and friends. It is an endless business development cycle akin to a hollywood agent sitting through auditions looking for the next Brad Pitt or Angelina Jolie.

When venture capitalists have not made an investment according to the timeframe mandated by their limited partners, the general partners operating the venture fund are pressured to finance start ups and make investments. In a 2014 meeting with Dave Samuel, Managing Director of Freestyle (<http://freestyle.vc>), a venture capital firm located in San Francisco Dave explained the imperative importance of his fund investing in one deal every 30 days. In effect, Dave's venture firm has to *hit the bid* every month.

When VCs haven't made an investment within their prescribed mandated period, they will naturally get nervous and increase the likelihood of pushing up the valuation to ensure they are selected as the successful venture firm to fund the company. Again, we can see how this increases the supply of money being invested at a higher valuation to ensure venture capitalists get their 20% to 25% equity percentage in the company which they like to own.

I was asked if I would like to take a meeting with the founders of FirstJob.com (<https://www.crunchbase.com/organization/firstjob#/entity>). When I heard they had received a term sheet from a venture capitalist with a pre-money valuation of \$13 million raising \$3 million, I rationalized when learning their first year revenues were \$300,000 that it was in fact another manifestation of the suspension of disbelief theory. The pre-money valuation was 43.3 times their annual revenue rate (ARR), calculated as

43.3 X \$300,000 = \$13 million. I won't mention the name of the venture capital firm which led the round with \$1.25 million. It is clear evidence that the venture capitalists were increasing the company valuation to ensure they were selected as the successful investors. I think it reasonable to say that FirstJob is not a breakthrough technology in a new sector.

When you look at Monster Worldwide, Inc. (NYSE:MWW) which owns Monster.com, one of the most visited employment websites in the United States and one of the largest in the world, you can see their gross sales for Year End 2015 was US \$666.90 and market capitalization at time of writing in May 2016 is \$258 million. That is a Price Sales multiple of 2.6 times! Compare this to the 43x price sales multiple that FirstJob received on their \$13 million pre-money valuation. This is a simple calculation that surely intelligent venture capitalists make when evaluation valuations.

When these excessive valuation multiples are being paid by venture capitalists for start up technology that isn't new, it becomes clear that VCs have suspended disbelief resulting from their mandated requirements to invest. There should be greater accountability to limited partners of venture capital funds when they over pay for start ups at excessive valuations because they have not made sufficient investments within their mandated cycles. Limited partners should ask for stop gaps in fund agreements so that general partners of venture capital firms are prohibited from funding companies without unique technology at high valuations.

Ability to Socialize

It is an onerous and somewhat lonely profession being a venture capitalist. You are popular for a short period of time as entrepreneurs buzz like bees around the money pot during a raising process yet once the investments are made, entrepreneurs are (and rightly so) focused on running the company while venture capitalists must continue to socialize with other venture capitalists in order to find deals. That is part of their mandate.

Venture capitalists who lack the ability to socialize will receive less referral leads on investment opportunities in start ups from other venture capitalists. VCs look for like minded and like hearted co-investment investors. I once heard Mike Maples, Managing Director of Floodgate Ventures speak at the AppNation Conference (<http://>

appnationconference.com/an4/speakers/mike-maples/) in December 2012 in San Francisco where he spoke of investing with venture capitalists who were *kindred spirits* being important to him. I agree 100%. In order to find VC and founders who feel like *kindred spirits*, you need to socialize and now many Silicon Valley venture capitalists who do not possess the innate skills required to socialize or mingle. It's critical to the success of a venture capitalist to be able to work the room and meet venture capitalist as well as entrepreneurs in order to get referral business. Entrepreneurs will often refer other entrepreneurs to venture capitalists if they respect and like them. Being admired by entrepreneurs is easy for venture capitalists as they have money to invest, yet being liked is more difficult. The social skills are important for all venture capitalists and it is important to invest alongside other venture capitalist who you do like and like you. There are most often many difficult times during the lifecycle of a start up funded technology company when personality and social skills are more important than intellect and size of fund.

Being on the *Silicon Valley invite list* helps in gaining access to meet other venture capitalists and in theory should result in greater qualified start up investment opportunities. The machinations of how this type of socializing and networking which happens behind many closed doors and in private is not accessible to the rest of the world. In many ways, Silicon Valley is a series of small communities dotted around towns like Palo Alto, Menlo Park, Los Altos, Los Gatos, Cupertino, South of Market, the Mission, San Mateo and Burlingame to name a few.

No where more evident is the socializing and networking in Palo Alto and Atherton in the heart of Silicon Valley. At a recent brunch garden party I was invited to on March 4, 2016 hosted by Pejman Nozad at his family home in Atherton a few blocks from where I live and write this today, over 40 venture capitalists and angel investors gathered. A Coupe Cafe coffee cart caught my eye as I bee-lined to order a double espresso and stood back to scan the garden patio while munching on fresh pineapple.

Named by Forbes in 2012 as "one of the most successful angel investors", Pejman was gracious, announcing that it was his honor to invite people to his family home and share in good food and conversation. He's invested in over 100 startups and has seeded several multi-billion dollar companies

such as Dropbox, Lending Club, Zenpayroll, Doordash, Guardant Health and others.

The conversations are never particularly about work but more about being witty and funny. It's about being yourself and finding common ground with others. An exchange of business cards or a suggestion to email each other and connect in person to *compare notes* is the local Silicon Valley speak used to confirm a following up meeting.

While at this event and as I was thinking of the theory of disbelief I was engaged in a conversation with several venture capitalists, Niko Bonatsos from New Enterprise Associates, a multi-billion dollar venture capital firm (<https://www.crunchbase.com/organization/new-enterprise-associates>) and Collin West from Correlation Ventures (<http://correlationvc.com/team>).

The conversation turned to how much valuations of start ups had dropped in the past 6 to 12 months which we agreed ranged from 25% to 40%. Collin noted that Correlation Ventures were extremely happy with their seed investment in Casper (<https://www.crunchbase.com/organization/casper>) when the valuation was \$5 million! A number of venture capitalist who had joined the conversation were getting very excited about the increase in valuation. Caspar has raised at the time of writing in May 2016, over \$71 million. With \$40 million in sales in 2015 full financial year, and a \$55 million Series B investment round in June 2015, I estimate the valuation is conservatively a minimum of \$200 million which would see (on paper) a 40x return on Correlation Ventures seed investment. The calculation is $40 \times \$5 \text{ million} = \200 million .

It was in this moment where venture capitalist celebrated and did the mental math to work out the uptick on valuation from seed to series B could be anywhere from 40x to 50x that that little bell rang in my head about how venture capitalist will use uptick valuations as a way to suspend their disbelief. Forgetting the celebrity component of Leonardo di Caprio investing as part of that \$55M, the backdrop is akin to a Hollywood movie. A large mansion overlooking a brunch spread combined with A list venture capitalist mingling in the Spring morning sunlight talking about how successful their investments have been. As I downed another double espresso through the all-to-familiar Coupa Cafe to-go cup, I realized that

venture capitalists need to talk about their accomplishments to gain social acceptance. Yet until a company is acquired and there is a liquidity event, it is arguable to say that the valuation is not what it may seem. It is a price agreed to at a point in time to get more working venture capital to expand the business. While it is likely the company can be sold for a higher amount than the previous valuation, it is not a certainty and it is the time between the venture capital rounds where human nature comes into play and venture capitalists need to feel worthy in a social setting. Although the conversation about Casper we had that March morning was factual, the hopes of the venture capitalists were and are suspended in disbelief, waiting for that point in time when there is an exit and liquidity event that returns the invested funds back to the venture fund.

If you asked a farmer about this scenario, the reply might be that the VCs are *counting chickens before they hatch*. Regardless of the merit or not of doing so, venture capitalists will engage in this behavior in social settings to validate their self-worth and also attract deal flow. Hence, the need to validate social acceptance in the venture community combined with being mandated to invest result in venture capitalists often overpaying for start ups which raises the company valuations.

Frequency of Investments

It is interesting to note that one of the most frequently asked questions of both entrepreneurs and venture capitalists to venture capitalists is how many deals and at what stage they have invested in the past 2 or 3 deals. This question has become a benchmark question and reflecting on this, it is clear the question is to determine the level of confidence and activity in investing. It can become embarrassing if a venture capitalist hasn't made recent investments as it correlates directly to not only how intelligent and respected you are yet are you keeping up with investing in new break out *hot sector* technologies.

Whether we like it or not, venture capitalists will judge other VCs on this. The consequence is that the less active a venture capitalist is, the lesser chance they have of receiving deal flow from more active VCs. Being active as an investor provides fluidity and momentum which shows confidence. Investors gravitate towards other investors who are confident as they appear to be more successful. That is human nature. When these confident

investors succeed and have success, then success begets success. They are more likely then to invest more. This is obvious when one thinks about it yet worth noting in the context of understanding Silicon Valley investors.

In a workshop on how to prepare investment pitch decks I had conducted at Orrick Law Firm in Menlo Park in April 2015, one of twenty attendees was Mathias Christensen, Danish founder of a San Francisco start up company called Netlify.com. In January 2016, the founders of Netlify informed me they were raising \$1+ million on a \$6 million pre-money valuation.

A well known high net angel investor had agreed to put in \$100,000 at this valuation of \$6 million. I was informed he had been an early investor in Houzz.com which as of the date of writing has raised over \$200 million <https://www.crunchbase.com/organization/houzz#/entity>. There were also other prolific angel investors speaking with the company and it is there frequency of investments and knowledge amongst other investors of this that was sustaining the high valuation.

With Netlify's revenues at approximately \$100,000 for 2015 full financial year, to make this a worthwhile venture investment at a next round valuation of say \$10 million pre-money, Netlify would need to reach an annualized recurring revenue (ARR) of \$800,000 before raising their next round of capital. It was difficult to see the required growth trajectory in their actual customer acquisition rates. Furthermore, the \$1 million dollars Netlify were seeking would not get them to this revenue number with the 18 months time frame they planned to deploy the funds.

An analysis of Netlify's website visitors, percentage of sign ups to trial and conversions to paid customers clearly showed insufficient growth rates to achieve revenue growth rates which would excite investors in future rounds at a higher valuation. In short, given their revenues and revenue growth prospects, the valuation was too high at a pre-money of \$6 million.

Suspending disbelief is the phenomena that describes how other venture capitalists can make investments at valuation multiples on annual recurring revenue above 10 times when the company is not showing fast growth.

I spoke with several other investors looking at Netlify saying openly that Netlify will find it will cost 3 times more to acquire customers than planned, and the *cost per acquisition* as a percentage of *long term value* of each customer will be too high. Put another way, the unit economics of Netlify compared to other open source publishing platforms such as WordPress would be unsustainable.

Stage in Fund Cycle

If the fund is in early stage of their lifecycle and have just begun investing, it is more likely that venture capitalists will suspend their disbelief when compared to when the fund is in the later stages and less money is available to deploy. One only needs to think about when our wallet is filled with crisp bills from a recent cash withdrawal at an ATM compared to when we have one \$10 note left in the wallet. As human nature predicts, we are less likely to be as enthusiastic about shopping when we have \$10 compared to \$500 cash in our wallet.

Even venture capitalists are subject to the economic laws of perceived purchasing power. In the later stages of a fund cycle, venture capitalists have allocated funds to participate in reserve rounds of start up portfolio companies they have previously invested in. Additionally, venture capitalists in the later stages of their funds are often focused on raising additional capital for newer funds as opposed to looking at new investments. This shift in focus tends to lower the suspension of disbelief when venture capitalists are pre-occupied.

Shady Pool

One of the factors which can drive up valuations in start up technology companies in Silicon Valley is when their management make angel investments in other technology start ups. Angel investment funding platforms such as AngelList facilitate this. Yet there needs to be more supervision and regulation amongst funded companies whose executives use their position to create *side car investment pools* and misuse their positions to facilitate investments in other start ups instead of focusing on their own investments. At a dinner in San Francisco in 2015, I met a CEO of a payments company who had been funded by Y-Combinator. I was not the only investor sitting around the table who was perplexed when he announced he was also moonlighting as a partner in a seed fund, offering

access to European investors to participate in local Y-Combinator deals. To my mind, this is *shady pool!* Y Combinator has incubated and seed funded to \$120,000 only, well known companies such as AirBnB, Stripe, Instacart and Dropbox. While I can appreciate that international investors want to access local Silicon Valley start up companies, it is not the place for founders of start ups to be providing such access. The entrepreneurs should be focused 100% on the start up and not investing in other companies at this stage. It is this type of activity that drives up valuations as clearly there is a conflict of interest when entrepreneurs are spruiking start up investments from the same incubator they are funded by.

Love The Team

A clear sign that a venture capitalist is operating in a state of suspended disbelief is when you hear them repeatedly express how much they *love the team* of a start up company. Teams are critical to success and without them great companies are not built yet it is often unavoidable that venture capitalists get too up close and personal to founding team members of start up companies. Let me say this is not a bad thing or an unnatural part of being a venture capitalist. I've always favored operating venture capitalists who roll up their sleeves and take part in helping the founders build the business. However, there is a fine line which must be recognized and respected where venture capitalist should not cross and tell other VCs that they *love the team*. It often represents a personal and not professional objective analysis of the company.

VC Brand Power

In general, smaller venture capitalists do suspend their disbelief further when more established well known venture capitalists invest in a venture round. I have witnessed first hand venture capitalist who invest purely when a brand name venture firm is investing. Smaller VCs often do not have the domain knowledge, unique insights or research staff to analyze the market nor gain insight from higher level contacts that the larger VC firms do.

When Khosla Ventures invested in SWYPcard.com 9 months after my venture firm Arafura Ventures had invested, there was a degree of satisfaction that a tier 1 multi-billion dollar venture capital firm had invested. Not only was this a vote of confidence in the company yet created a greater

level of optimism amongst the smaller angel investors who had individually committed capital to the previous seed round financings.

It is justifiable to invest alongside a brand name venture firm at higher valuations as it is easy for general partners of venture firms to point to these brand name venture capitalists and say 'well they are cleverer than we are'.

When my venture firm Arafura Ventures re-invested into the Series A round of Transifex, a Menlo Park localization software start up, the valuation was less of a concern as long as New Enterprise Associates (<https://www.crunchbase.com/organization/new-enterprise-associates#/entity>), one of the largest and oldest venture capitalist firms was investing.

For many reasons, investors will want to co-invest with investors who have proven successful track records. Yet, smaller venture capitalist usually pay a premium as these start up companies will often receive higher valuations from larger well known venture capitalists who are often less sensitive to valuation.

Venture capitalists will often look at the cashflow forecasts presented by entrepreneurs and back out a calculation for valuation. This has the advantage for venture capitalists that they can control or dictate the valuation. In early 2014, I met with K.V. Rao, founder/CEO of Aviso Inc. in their Mountain View, California office. They were raising a \$6 million Series A round which had a pre-money valuation of \$12 million. Given there were 3 or 4 customers which were all in trial, it was a high valuation that we eventually passed on. In speaking with several of the venture capital firms which eventually funded what became an \$8million Series A (<https://www.crunchbase.com/organization/aviso-inc#/entity>), it was very apparent that a high valuation wasn't a concern as the investment round netted out at a 30% stake for the venture capitalists. While it would have been possible for Aviso.com to raise a smaller amount of capital to reach product and revenue milestones, the larger Series A ensures an accelerated pace of development.

Founder Equity Clawbacks

Although it is sometimes difficult for venture capitalists to influence the valuation set by entrepreneurs, it is not uncommon to have a range verbally agreed upon by leading investors and entrepreneurs in follow on rounds. This results from board meetings where financing is discussed as financial reports are presented.

One impact of venture capitalist suspending their disbelief is where they write terms into agreements to protect their downside and guarantee greater returns if the company isn't as successful as what they want it to be.

It becomes more evident that venture capitalists are driving up valuations to secure investments into hot start ups when you see perverse clauses in term sheets drafted by the attorneys of the venture capitalists. One such term is the *founder equity clawback* which allows the venture capital firm to recoup equity from the founders if certain events materialize. Equity clawbacks provides a type of insurance for venture capitalist against higher valuations of technology start up companies pursued by founders.

The following term is from a term sheet from a Silicon Valley start up technology company I am a shareholder in. It was on the insistence of the lead venture capitalist in the round of finance that the founder of the company accepted the term.

Company Share Repurchase Right

Founder shall enter into an agreement pursuant to which the Company will have an option to repurchase at cost 40% of the shares of Common Stock held by Founder as of the Closing (the "Restricted Shares") in the event that such Founder's service relationship with the Company is terminated by (i) the Founder without "good reason" or (ii) the Company with "cause" prior to the expiration of three (3) years from the Closing date. Assuming the Founder's continuous status as an employee or consultant does not terminate, the shares subject to the Company's repurchase option shall vest and be released from the repurchase option in accordance with the following schedule: 1/36th of the Restricted Shares shall vest monthly (on the same day of the month as the Closing date), beginning on the first

month following the Closing date; provided that, notwithstanding the foregoing, 100% of the Restricted Shares shall immediately vest if (i) the Company consummates a Change of Control and (ii) Founder is terminated by the Company without “cause” or Founder terminates his position with the Company with “good reason” within a period commencing 90 days prior to the consummation of a Change of Control and ending on the first anniversary of such Change of Control.

This clause effectively gives the venture capitalist the opportunity to seek to terminate the founder if they are not satisfied with the company’s performance. The “cause” is left open in sub-section (ii) above and is like a shotgun to the head of the founder. For instance, if the venture capitalist repeatedly ask the founder to perform certain actions/tasks which are not done, technically they can push on this term. The important point to remember here is that venture capitalist will drive up the valuation of a start up yet protect themselves by inserting *equity clawback* clauses into the term sheets once they have agreed in principle to the amount to be invested at a valuation. The entrepreneur is at first overjoyed at the higher valuation yet it comes with conditions such as these which, if the company doesn’t perform to plan, can be enforced. It is up to the founders as whether they prefer a lower valuation without these onerous/ perilous terms or to accept a higher valuation with an equity clawback.

Liquidation Preferences, Warrants & Guaranteed Late Stage Valuation

The venture capitalist will also use a range of mechanisms in term sheets of start ups such as liquidation preferences (<http://www.investopedia.com/terms/l/liquidation-preference.asp>) and put warrants (<http://www.investopedia.com/terms/p/putwarrant.asp>) to favour their investments. I will not digress into these mechanisms as they are well covered in other publications and articles available to readers.

It is known to venture capitalists that as companies reach later stages of investments (Series C, D, E, F, G, etc) that investors will often enforce clauses which guarantee higher valuations in subsequent rounds of venture capital. It is often the founders of the company who agree to give up their own personal equity should the company not perform on certain milestones such as future valuations. This is part of the *Unicorn movement* which has allowed technology start up companies to become valued at over \$1 billion

dollars. Although public market price sales multiples are higher in recent years than historically, which help support the private market multiples trending higher, the *prid pro quo* for venture capitalist is that they will invest at a higher valuation yet if subsequent rounds do not meet or surpass an additional valuation then it is the founders or common stockholders who are diluted so that the preferred shareholders receive more equity. This protects venture capitalists if there is a *downround* where the valuation falls in subsequent rounds of finance.

In an article titled "Fidelity Slashes More Startup Valuations" published in Fortune.com on 28 Feb 2016, (<http://fortune.com/2016/02/28/fidelity-slashes-more-startup-valuations/>), Fidelity mutual funds marked down the valuation of their venture capital funded technology companies (compared to Dec 31 2015 values):

23andMe: -12.78%
 Appirio: -6.81%
 AppNexus: -15.58%
 Dataminr: -4.76%
 Domo: -8.72%
 Blue Apron: -12.18%
 Cloudflare: -30.55%
 Delphix: -11.66%
 Dropbox: -10.34%
 Moderna: -25%
 MongoDB: -13.36%
 Nutanix: -16.92%
 Oportun Finance: -18.37%
 Pronutria Biosciences: -28.91%
 Stemcentrx: -37.74%
 Taboola.com: -8.35%
 Turn: -6.59%
 Twilio: -12.56%
 Zenefits: -14.18%

What is interesting to note is that "Fidelity has, in the past, tended to hold biotech startups at cost" and "In some cases, such as with Dropbox,

Fidelity is in the money on some of its securities (Series A stock) and losing money on some (Series C stock)."

This *portfolio approach to valuations* is not new yet what should be noted is that larger funds investing in technology companies take this approach which evidences and supports the theory of suspended disbelief because higher valuations in one company in an earlier round of venture capital can be offset against other later stage valuations that are lower. The mutual and venture funds simply revalue the later stage companies down. This type of later stage portfolio valuation smoothing signals to early stage venture capital investors that they can afford to value start up technology companies at higher valuations and creates an environment where the suspension of disbelief and supply of money to support it co-exists.

Overall Effect of Increased Supply of Venture Capital

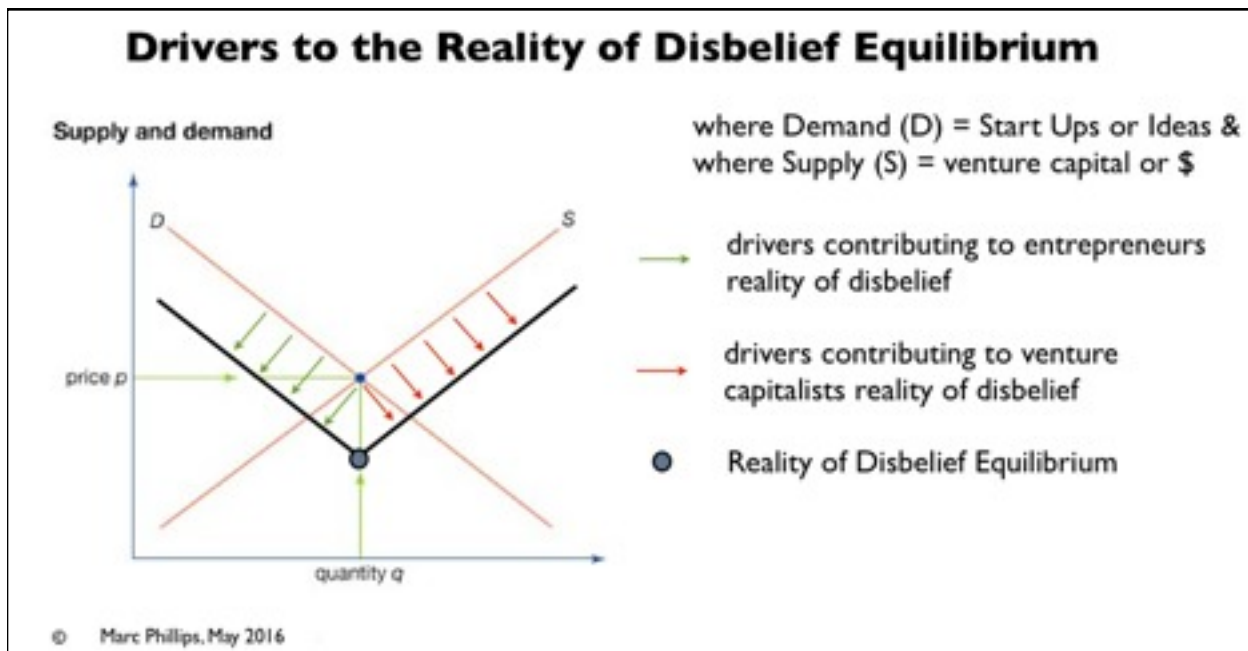
While it is at first glance, not intuitive to think of venture capitalists being co-contributors in the suspension of disbelief in start up investments, I hope the above details some of the influences which lead to VCs reaching this stage of suspended disbelief. A combination of competing sharp elbows, being mandated to frequently invest, social pressures and aspirations to invest with tier 1 venture capitalists together with punitive term sheet clauses all validate and testify the theory of suspended disbelief and how increased supply of venture capital increases valuations in start up technology companies.

Chapter 4. Economics of Innovation: Drivers to the Reality of Disbelief Equilibrium

When the amount of venture capital funds being invested falls and entrepreneurs reduce the number of innovations, the point of equilibrium of the suspension of disbelief also falls.

It is important to understand that while the suspension of disbelief remains, there are drivers towards a point of reality, which in the economy of innovation should be explored. While there are many macro economic factors which can drive down both the number of ideas that entrepreneurs have (demand) and the amount of venture capital for investment (supply), there are certain drivers that should be explained as they are not overtly apparent.

We can plot the point at which both entrepreneurs and venture capitalists begin to understand that the suspension of disbelief is being driven to what I will refer herein as the *reality of disbelief*.



The effect of the *reality of disbelief* is like a balloon losing air. The amount of disbelief reduces and this effect is caused, in part, by a decrease in both the supply of venture capital in the economy of innovation and demand by

entrepreneurs to innovate. The combined effect is that start up technology company valuations fall.

It is important to investigate these drivers to the reality of disbelief. It is permissible to think logically about the juxtaposition of how the state of suspended disbelief exist within the context of the condition of reality of disbelief. For value is created from the perception of worth and how thoughts conflict impact valuations of start up technologies companies as flippantly as publicly traded stocks. We have seen time and time again, examples in Silicon Valley where either or and both an entrepreneur and venture capitalist continue to believe in high valuations of start up technology companies when market forces are evidencing lower valuations.

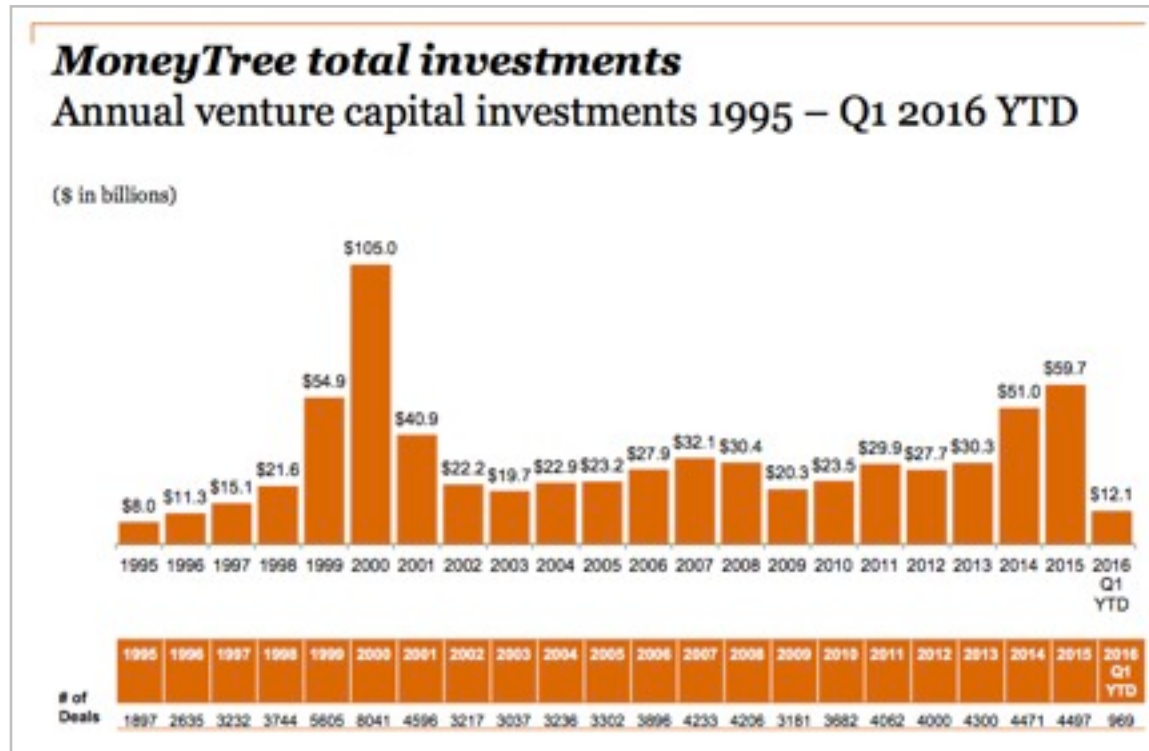
Different sectors within the technology innovation economy will see different rates of change as the impact of different drivers to the reality of disbelief occur at different frequency. Investors with varying degrees of venture capital (from angel investors to billion dollar venture funds) also display different *rates of change* in moving from optimism towards pessimism of valuations.

In the previous chapter, it was noted that that venture capitalists put certain clauses into term sheets for start up technology companies that clearly evidences the *reality of disbelief*. These clauses include equity clawbacks which dilute founders and reward preferred shareholders such as venture capitalists, liquidation preferences, warrants & guaranteed late stage valuations. These clauses point to explicit evidence of venture capitalists driving towards the point in the future where valuation has fallen and their suspended disbelief falls.

VC Investment Amounts & Number of Deals Valuation

This accompanying table shows that the amount of total venture capital invested in start up technology companies has increased and decreased in since 1995. Apart from 2000, the height of the dotcom bubble, 2015 saw \$59.7 billion venture capital invested in 4497 deals. Since 2009, technology valuations have steadily risen in accordance with the amount invested. This shows that when more venture capital is available, in general more start ups will have higher valuations.

Conversely, when the number of deals and total venture capital invested reduces is to drive valuations lower as the reality of a slowing innovation economy sets in.



Source: The Q1 2016 Updated PricewaterhouseCoopers/National Venture Capital Association MoneyTree™ Report, based on data from Thomson Reuters.

Valuation Guidance

Entrepreneurs tend to lag behind venture capitalists in behavior which drives them to the reality of disbelief. Optimistic entrepreneurs exalt in the state of suspended disbelief where their start up valuations are artificially high and their dreams of fame and fortune too often rest on imaginary clouds. This period existed from 2009 to 2015 and underpinned by the annually increasing available venture capital invested.

As I write this in May 2016, less funds have been invested in venture capital and there is a heightened awareness of this amongst entrepreneurs, which drives them to the reality equilibrium. A clear sign of reality starting to set in is when entrepreneurs ask a venture capitalist for *valuation guidance*.

In a recent call at the time of writing an entrepreneur asked for valuation guidance. At the end of his investment pitch, he asked me if there was any advice I could give. My answer was simple. I informed the entrepreneur that a venture capitalist will interpret this question a schoolboy error. It's like showing your hand in poker. Bluff is part of the process of suspending disbelief and under no circumstances unless countering offering a VC initiated valuation offer, should an entrepreneur ask for valuation guidance from a venture capitalist. My advice to entrepreneurs is to perhaps offer a valuation range, for example \$6 million to \$8 million, if they are unsure yet beware that the minimum valuation (that is, \$6 million) is what the venture capitalist will feel is the high point, not the low point of the valuation negotiation. Entrepreneurs should be very careful in suggesting a specific valuation amount or range.

Delay in Closing Venture Rounds

Often, an entrepreneur will receive an investment by a *lead venture capitalist*. At a recent meeting with the founders of enHatch, a software start up, in New York City in 2016, I was informed that Floodgate Ventures (<http://floodgate.com>) invested \$1.5 million into the venture round of \$3.25M on a pre-money valuation of \$7M. Floodgate invested in October 2015 yet the round was not closed as of May, 2016. While 2 other VC firms invested in early 2016, there was not a single closing date of all funds. In this situation, the round of \$3.25 million is not closed until all the total amount listed in the term sheet to be raised has been transferred to the start up company. It is worthy of discussing what happens to the valuation when there is a delay in closing the venture round.

With respect to convertible notes which has a set valuation price which all note holders invest under, a delay in raising all the funds doesn't affect the reality of disbelief as the entrepreneurs can convert the money invested into equity regardless of whether they have raised their desired amount of capital.

In contrast, where there is a fixed priced equity round, that is, when the start up company is selling preferred stock on a fixed valuation, then any delay in the closing of the round can deflate the suspended disbelief. In a hot market, the entrepreneur should be able to point to traction on product build, increased revenue and a larger team giving they have started to

spend the initial venture capital. Yet in a cooling market, the situation that the entrepreneur has not closed the venture capital round suggests to venture capitalist that the valuation should be lower and or increases the pressure on the entrepreneur to uphold the suspension of disbelief. When more time to close a venture capital round occurs, this creates pressure on the entrepreneur and the point of reality of disbelief becomes more prevalent.

In this situation, where entrepreneurs have one or more venture capitalists money wired into their accounts yet have a portion of their venture round not subscribed too, the invested venture capitalist will often use a tactic to convince prospective investors. This is where venture capitalist tell other VCs they will *fill the rest of the round*. In this scenario, venture capitalist are assisting their portfolio company to close the round. It is a tactic that often works as it acts as the ultimate endorsement from the existing investor. Whereas it is important to have a diversified base of venture capitalists who bring different skill sets to the management team of the start up technology company, venture capitalists will forego this option to ensure that there isn't a delay in closing a venture round. In effect, they contribute to the suspension of disbelief, knowing that if they prolong the closing of a venture round, the reality of disbelief will occur.

Longer Due Diligence

The longer a due diligence process takes, the more likely entrepreneurs will feel the reality of disbelief set in. Most deals taking longer to close will incur the risk of not being completed. Time is a variable that is used by both entrepreneurs and venture capitalists to suspend disbelief. Savvy entrepreneurs will early in their first call or meeting with venture capitalists tell them that they plan to close the current round of financing by a specific date. This parlance is used by entrepreneurs to manage the expectations of venture capitalists and to set the pace of the deal motion. “We aim to close by month end” or “in 2 weeks” are prescribed by entrepreneurs to venture capitalists to draw a line in the sand and can be later referred to by entrepreneurs to set a notional deadline for venture capitalists to make a decision by. Once venture capitalists get a sense that the entrepreneur is going to close the round by that particular date, they are astutely aware the financing is proceeding well and there are multiple VCs prepared to invest. That will further suspend their disbelief and hold up the valuation of a

technology start up company. It will force them to to make a decision and this is precisely how a successful entrepreneur can use time to suspend disbelief in a valuation. Entrepreneurs will use the term *soft circled*, to indicate venture capital parlance that they have committed investors willing to invest.

Conversely, the longer a deal takes to close and more time required by entrepreneurs to close their financing, the reality of disbelief looms like a grey cloud in the sunny sky. For time will be one constant that an entrepreneur will find forces them to accept a lower valuation and drive them to the point of reality of their disbelief.

I will now cite one example where the reality of disbelief is driven by the venture capitalist and another in which the entrepreneur voluntarily enacts their disbelief. In both examples, it has squarely to do with the due diligence process.

Co-Investor Requirements

In March 2015, my venture capital firm, Arafura Ventures invested into the seed round convertible note of SWYPcard.com - an all in one credit card which held all other credit card details. The maximum value of the convertible note was \$8M and had a maturity date of 31 December, 2016. That means that the money invested via the convertible note had to be repaid with interest by the end of 2016 year. This 18 to 24 month period for a convertible note is typical in Silicon Valley.

In September 2015, one of Silicon Valley's most pre-eminent venture capitalists, Khosla Ventures (<http://www.khoslaventures.com>) began discussions with SWYPcard.com and after several meetings verbally expressed their interest to invest up to \$3 million. After several months of prolonged due diligence, \$1 million was invested along with several requirements that in effect was a driver to this reality of disbelief for the founders of SWYPcard.com.

I was well aware in discussions with the management of SWYPcard.com that the prolonged due diligence from Khosla Ventures was frustrating. In various meetings, Khosla's initial \$3 million amount they spoke of being invested was gradually lowered over a 3 month period. While some venture

capitalists I know would refer to this as larger VCs being *schoolyard bullies*, it really depends on which side of the negotiating table you sit on. Entrepreneurs are well advised to be forewarned that venture capitalists will initially fuel the suspension of disbelief by suggesting a larger amount of venture capital they would be willing to invest, knowing full well it excites the entrepreneur. Then, as the entrepreneur has swallowed their bait, the venture capitalist will slowly reel them in with a longer due diligence process that involves meetings they set up with potential clients, distribution partners and even corporate development opportunities. This is a process of due diligence that venture capitalists rightly go through in order to seek feedback on their company product, technology and management team. As venture capitalists receive feedback during the due diligence process, they will often vary the amount of money they are prepared to commit and also impose certain requirements upon the start up company.

In SWYPcard.com case, Khosla Ventures' required within 90 days of their \$1million investment that a *strategic investor* was required to invest and if this did not happen, the preferred stockholders would receive 2x their stock and in effect diluting the common stockholders, which included the founders. Let's analyze the effect on this in context of the reality of disbelief equilibrium.

Firstly, Khosla Ventures upheld the suspended disbelief by offering an approximate 35% premium on the \$8 million valuation cap. All convertible note holders were paid their interest and received preferred stock in the priced round that Khosla Ventures invested their \$1 million. However, the requirement to bring in *only* a strategic investor such as a credit card issuer, bank or non venture capital fund not only forced SWYPcard to hold more than 50 meetings and calls with strategic investors, it provided a framework upon which the framework for the conditions of reality of disbelief to operate within. Put simply, if SWYPcard.com management could not bring another \$1 million into the current round from strategic investors they would see preferred stockholders double their equity stakes and lose out by being diluted further.

The interesting paradox for myself as a preferred stockholder and ardent supporter both personally and professionally of the SWYPcard.com

founders and team was that the 90 day clause to extend due diligence put the right measure of pressure on the team to produce results yet drove down the heightened belief in the value of the business. Although spirits have always remained optimistic during this period in Q1 2016, the sense of value the entrepreneurs place on their business has been, in my opinion, reached a lower plateau due to Khosla Ventures insisting on the clause in the term sheet which requires the specific nature of the co-investor.

Founder Frustration

Founders will often provide clear evidence that the forces of reality of disbelief are apparent. Venture capitalists are in some ways psychologists, looking for these chinks in the emotional armour of entrepreneurs. Having an emotional even keel is important for entrepreneurs as dealing with stress is a key component of achieving success.

Recently, I was introduced to the founders of Intricately.com, a San Francisco technology start up company. After 1 face to face meeting and 1 phone call with their team, we decided to formally pursue technical product due diligence. The process I usually undertake is to send at least 3 Chief Information Officers, Chief Technical Officers and hands on developers with experience in the sector a demo login, application summary along with a brief synopsis of their business.

With Intricately.com, I had set up a call with the founders and Ajit Deshpande at Salesforce.com as I wanted to see how their solution could scale across Salesforce and hear first hand the founders sales pitch. The call went well. I then set up a call with long time colleague Erik Johnson, who was currently acting as Chief Information Officer of DocuSign and I include internal notes from my call herein to help the reader understand the process of due diligence venture capitalist go through:

1. *Integration into Salesforce while cool isn't something that would move the needle for them.*
2. *He thinks it is a crowded space from a cloud services perspective as he gets reports from different vendors on which SaaS apps are being used by his global staff and competitors. he also gets reports from <http://www.ciphercloud.com> on a security and compliance basis which was*

3. He concluded the space is slightly narrow being only IT/Cloud companies and he said there would be others out there but couldn't think of their names.

I then reached out to several Microsoft engineering VPs and developers I knew to get their opinions and thoughts. Again, I include their feedback verbatim herein:

Other companies doing similar stuff

- *One of the best is [RainKing](#). Online tool with SFDC integration. You can search by business type (eg: BioTech companies in Los Angeles) or characteristic (eg: Akamai customers in Utah). Then it brings up a list of companies, with profile info, technology spend and organization contacts. Sales people like RainKing because the information is more complete + accurate than JigSaw or [Data.com](#) (acquired by SFDC)*
- *New technologies include <http://www.datanyze.com/> They analyze a website's HTML, looking for footprints that show what technologies are being used. EG: they can detect what CDN or load balancer is being used. Founder is a young Russian guy called Ilya. The stuff they can derive is very cool, especially b/c they combine it with data from other sources. Probably a closer competitor to intricately.*

I realize both RainKing and Datanyze are based on different underlying technology to intricately, but customers don't care, its presenting mostly the same info.

At this point, I could tell there was some serious competition and *head winds* that Intricately would have to contend with in their product roadmap. During this time, I had kept the Intricately.com founders updated with the feedback I was getting. I do this while conducting due diligence for several reasons. Firstly, it allows me to build up a level of dialogue with the founders which is a forerunner to what it would be like if an investment is made. Having open responsive and reciprocal communications with start up technology founders is key. Secondly, the level of responsiveness by founders to their venture capitalist investors is critical. Founders need to be aware that monthly board meetings are not the forum to deliver all the news of the business and frequent communications provide a healthy working relationship.

On 7 April 2016, I received this email from one of the founders, Mike Pollack <mike@intricately.com>

Marc,

We're in the midst of diligence with a number of other firms. Although given your unresponsiveness over the past two weeks we assumed you passed- the lack of communication was a bit unsettling. Perhaps there isn't as much of a fit here as we had initially thought. I don't think there's any reason to connect later next week.

*Best,
mp*

In this situation, it was apparent that the founder had reached a point of where the reality of disbelief had started to dawn upon them. As no date of closure had been set and that I had set up calls with SalesForce, provided feedback from DocuSign CIO and Microsoft, I can only deduce the founders reacted adversely and in hope of suspending their disbelief and in an effort to evade the moment where reality of their disbelief sets in, they abandoned discussions knowing the due diligence process was taking longer than they anticipated. There are no hard and fast rules for the length of time for negotiations and if entrepreneurs do not provide guidance on a date for an investment round to close, venture capitalist do not have any reason to commit. In this scenario, the founders of this start up admitted the the process of due diligence frustrated them which evidenced this as a driver of the reality of disbelief.

Coming in *Over The Top*

Where entrepreneurs show venture capitalist they are susceptible to the reality of disbelief, VCs will often *come in over the top*. This is where venture capitalists sensing their is a lower than normal valuation or where other venture capitalists have declined to invest and founders are malleable to a lower valuation than previously pitched at. Coming into an open financing round *over the top* is when a VC invests more money than what the entrepreneurs were asking for. While this can and often does occur in competitively fought after deals that are high growth brand names, most

commonly this is where a venture capitalist smells fear in the entrepreneur and pounces.

I passed on an investment in Los Angeles based Floqast (<http://floqast.com/>), a financial reconciliations software start-up introduced to me in 2014 by Amplify (<http://amplify.la>), a leading LA incubator mainly due to lack of visibility into their sales execution strategy. I really liked the founders who had deep financial accounting expertise and scrappy approach to customer acquisition, yet I couldn't get comfortable with how they planned to sell into the mid market. We were offered a \$100,000 investment as part of the \$500,000 round at a pre-money valuation of \$2.5 million.

9 months later at lunch at Lyfe Restaurant in Palo Alto, Rob Meinhardt, a Managing Partner of Toba Capital (<http://tobacapital.com>) I was told they invested \$1M for 1/3 of the company. Doing the math, you can see that Toba would have most likely lowered the valuation from a pre-money of \$2.5 million to around around \$2.3 million and invested \$1million. In this situation, entrepreneurs feel they have more money and can execute on their vision faster to create more value. Venture capitalists *coming over the top* can provide more money at a lower valuation, convincing the entrepreneur that by raising more money now will ensure a faster acceleration of the company to milestones that will pay off in a higher valuation.

This example shows that the reality of disbelief and suspension of disbelief are opposing yet inter-related forces in the economics of innovation. They act to balance each other and depending on the supply of venture capital will play out differently.

Downrounds

Start up technology companies which have not grown fast enough to ascertain investor interest will be, in some cases, forced to accept a lower valuation when raising subsequent rounds than their valuation of previous rounds. Clearly, in these circumstances, the point of reality of disbelief is reached and these are most definitely accompanied by changes in management.

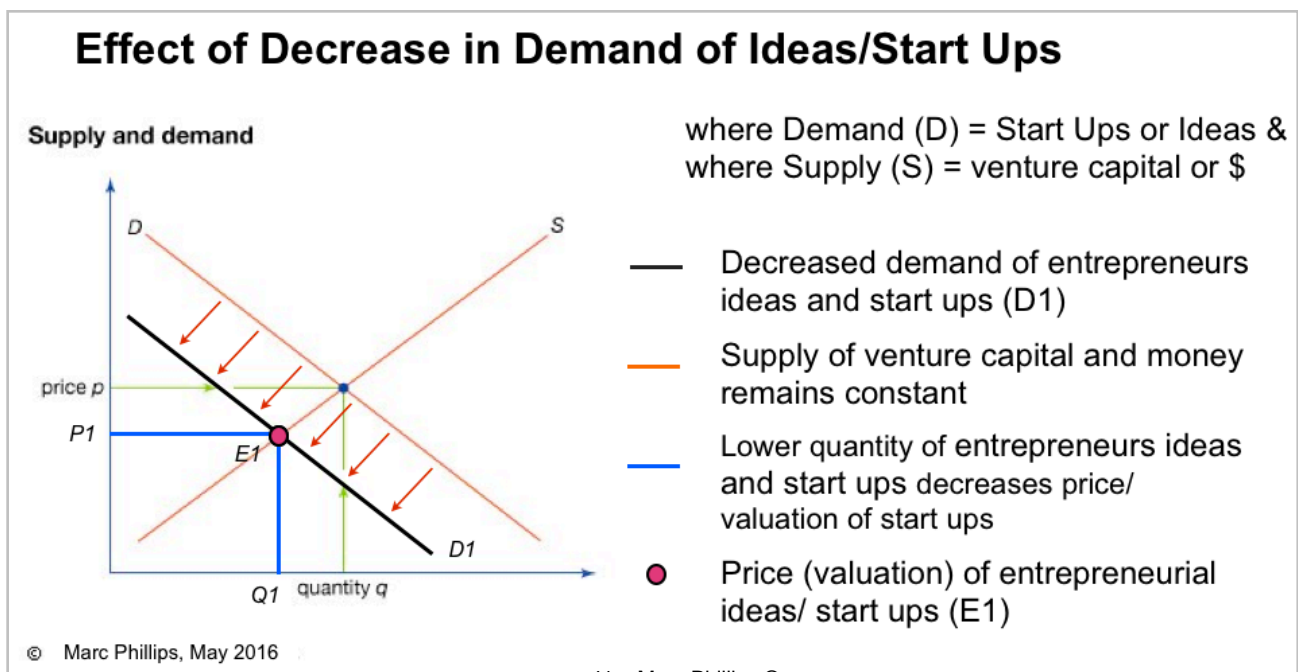
Economics of Innovation: Factors Contributing to the Decrease in Innovation by Entrepreneurs.

At some point in the cycle of innovation, there is a decrease in the entrepreneur's overall idea generation which results in less technology start up companies being formed or lower valuations paid by venture capitalists. While there is different rates of speed for which innovation occurs in specific sectors (for example, medical device hardware Vs autonomous driving software), it is interesting to consider the impact that lower levels of innovation have from within operating start ups that have been funded by venture capitalists and to investigate the motivations that lead to this decrease.

It is worthy to review how entrepreneurs faced with lower technology innovation in their start ups deal with the consequential lower valuations that can result from decreased innovations or perceived inability to innovate.

For both entrepreneurs and venture capitalists, it is important before and during operating or investing in a start up technology company to understand that there will be factors which drive down the quality and quantity of innovation. This places pressure on the supply of venture capital which can, when combined, lower the start up company valuation.

This effect can be diagrammatically seen here in the attached chart.



While it may appear at first glance an absurdity that there could or is a decrease in entrepreneurial ideas within start up companies, it does happen. I have witness first hand various examples of this taking place within start ups and come to the conclusion that while entrepreneurs have best intentions to innovate, there are factors and circumstances that make innovation difficult. It is the entrepreneurs that can counter these anti-innovation *head winds* into their business which ultimately achieve higher valuations.

The Competitive Analysis Slide in Investment Pitch Deck

In my book *Inside Silicon Valley (2013)*, I prescribe the importance of including a competitor analysis in the investment pitch deck. Specifically, I advise entrepreneurs that Slide 10 of their investment presentation includes a competitor analysis. Apart from being able to help venture capitalists determine competitors and see how much, if any, the competitors have raised, the *competitors slide* ensures the entrepreneurs have the analytical dexterity to write down features and benefits as well as understand the market positioning of their competitors. This bodes well for entrepreneurs when they are faced with moving competitive landscapes and have to innovate in the future.

Astute venture capitalists know at some point in the future, the start up they are investing in will be required to innovate and their ability to do so will impact valuation. I strongly urge all entrepreneurs to include a competitor analysis in their investment pitch deck and regularly check product roadmaps against competitors. Failure to do so will at some point result in less effective innovation and put entrepreneurs at risk of receiving a lower valuation for their start up.

Flatrounds

A *flatround* of venture capital is where a start up technology company sells shares in the company to investors at the same price in the previous round of venture capital raised. A *flatround* is a clear sign that the demand for entrepreneurs ideas and technology has fallen and the price of the innovation is lower. I have experienced several scenarios where flatrounds have occurred.

In 2014, I had a meeting with Toufi Saliba, the founder of WhoKnows Inc. (<https://www.crunchbase.com/organization/whoknows>) in which Citrix Systems, Intel Capital & PivotNorth Capital invested \$4.5 million.

WhoKnows are a knowledge management software company. While the technology was strong, longer sales cycles and the amount of time it had taken to get customer traction was the main reason why I passed on investing in the round of finance. Fast forward to July 2015 and the CEO reached out to me again via email stating that he was happy to offer the same favorable terms they had offered their inside investors 6 months prior which was an \$11 million with a 20% discount on a preferred convertible note.

Entrepreneurs will often leave open their financing instrument such as a convertible note and update potential investors with good news of progress in an effort to secure a venture capital investment. The carrot offered by entrepreneurs to venture capitalist is often the opportunity to invest on the same terms and at the same valuation that investors 3, 6 or 12 months prior had invested on.

At some point, it is important for both entrepreneurs and investors to realize that investing after the majority of investors have is not investing in the same round but rather a future round. While entrepreneurs do not like to call any investment being made at a *flatround*, it is fanciful to believe that attracting investors at the same valuation capped in a convertible note 6 or 12 months later is in fact part of the same round. In my book, it is a *flatround* for any investment made 6 months after the majority of investors wrote their checks.

Swinging At The Plate

Successful entrepreneurs will do well to convince investors they are constantly innovating. Over lunch at Kanpai, a Japanese restaurant in Palo Alto during May 2015, the co-founder of Gridium (a software company my VC firm invested into in 2012) and I were discussing product innovation. Tom Arnold, CEO of Gridium used the baseball parlance of *swinging at the plate* when referring to continuing to develop products until they hit a home run. It is a good analogy and one which venture capitalists should look for in entrepreneurs. This is the type of engrained mentality that is required in entrepreneurs which VCs should identify as being very capable management.

While Gridium's first product *SnapMeter* is today being used inside hundreds of commercial buildings across America, their technical team had in the face of being presented with a lower valuation on a subsequent

venture capital round, had not regressed with a decrease in innovation but rather was determined to ensure they developed new products including *Billcast* and *Tikkit*, a work order management software product.

I cannot emphasize more the importance of entrepreneurs *swinging at the plate*. Constantly thinking of innovation is essential in not only the unfettered belief that entrepreneurs are required to have in order to succeed but in the face of their venture investors, it is crucial the VCs believe entrepreneurs are at the plate of innovation and swinging for the home run fence. If VCs start to feel or get a sense that entrepreneurs have lost that hunger to innovate, they will look to either replace the founders and management.

Pivot

The dreaded word in the hallways and meeting rooms of Silicon Valley venture capitalists. When entrepreneurs launch a product and it doesn't get the traction and scale required to reach the targets they forecasted and upon which venture capitalists invested, they are forced to either pivot the company or continue to develop more products. The most famous pivot in recent years was when Odeo, a syndicated podcasting company pivoted to become Twitter in 2006.

A pivot most certainly has a downward effect on valuation as venture capitalists invested in a start up company who is *pivoting* typically has no alternative but to endure the pain of the process. I can only speak for myself yet when I hear the word *pivot* in an investment pitch I am instantly turned off. While it may be short sighted, I am honestly sharing my philosophy as entrepreneurs need to understand that a *pivot* says to venture capitalist that the initial idea was not worth the price paid for it. It's as simple as that and hence, a lower valuation results. While some investors are risk averse and happy to invest in start ups that have pivoted, it does add an additional risk to the eventual success, which is why the valuation is lowered.

Having experienced investing in start ups that have had to pivot, I can generally say that the net effect is that one of the founders typically is moved from being in a position of direct responsibility with the product or management of the company. This is usually instigated by the venture capitalists who require evidence that there has been a change in

management to appease the pain of having to charter a new course on the innovation horizon.

Founder Friction & Fall Out

When ideas and innovation within a start up technology company falls and there is resulting downward pressure on valuation, one of the common side effects is that founders fall out of favor with each other. There are two distinct forms which I have observed.

Firstly, there is *founder friction* which is not uncommon and often referred to by venture capitalist as *marriage issues* which occurs as entrepreneurs often spend more time together than their spouses! Putting aside the normal personal roller coaster of emotions that comes with running a funded start up, it is crucial for venture capitalist to detect any early signs of founder friction. One of the ways to avoid founders becoming agitated with each other is for regular out of office events. Over the years, I have strongly supported portfolio companies having offsite events which aid team building and diffuse founder friction. Whether this be go kart racing in Burlingame, near San Francisco airport or taking an AirBnB rental in Half Moon Bay so start up staff can enjoy cooking a meal together and walking along the beach between whiteboarding sessions, the end result is to humanize what is often a very intense emotional time for founders.

The most expensive cost to both management being able to execute on growth and punitive cost for dispensing founders is the termination costs association with founders falling out and one having to leave the company. While I have decided not to include specific real examples of founders who have sat around my dinner table at my house over the years to air their grievances with founders, I can say that it is the single biggest destructive element and risk that entrepreneurs and venture capitalists should try to ignore. It typically takes 2 quarters of lost productivity and several hundreds of thousands of dollars to pay for *founder fallout* in legal and termination costs.

This does not include the cultural impact it has on other staff members of start ups who, when faced with witnessing and being impacted by founder fallout, become at best less productive and at worst decide to look for another job.

On several occasions, I have had to step in between founders to diffuse moral dilemma's and negotiate between them as they decide to go their separate ways. While it is important to be clinical in dealing with founders, it is very important to listen intently and be empathetic (not necessarily sympathetic) to each founder. Founders form relationships with people on an emotional axis and often venture capitalists who have no experience in starting or running a company fail to understand this. Fortunately, having operated and invested in start up technology companies, I can understand the founder meridians and recommend that founders are treated with soft hands during their times of friction and fallout. It will cost the venture capitalist less money in lost productivity and termination payments yet more importantly, help the founders reduce the negative impact on innovation and save them from lower valuations.

The Cycle of Innovation

It is also necessary for both entrepreneurs and venture capitalists to understand the inevitability of the demand curve falling so that lower prices for ideas reach an equilibrium. That is the cycle of innovation and without *flatrounds, pivots, founder fall outs* and failed *swings at bat*, there would not be new start ups formed as a result. It is important for purveyors of the innovation economy to understand that there are factors which force down the price of start up valuations.

Without falls in ideas, new ideas would not germinate in the same way fire destroys to allow for seedlings of new trees have room to grow, so do start ups fail to continue the cycle of innovation.

Travis Kalanik, founder & CEO of Uber which has now raised over \$12B in venture capital (<https://www.crunchbase.com/organization/uber>), spoke at FailCon in 2011 about his experiences in failure. It is a great video to watch and hear first hand from arguably one of the most successful entrepreneurs in raising venture capital. View the video now at <https://www.youtube.com/watch?v=2QrX5jsiico>

Acqui-Hire: Merging Companies into Another

It often becomes clear to both entrepreneurs and venture capitalists that continuing to finance a start up company is not going to yield a positive outcome. Venture Capitalist are adverse to reloading into portfolio companies where the likelihood of a venture exit multiple is not a reality. In this situation, venture capitalists will look for a strategic acquisition from a

larger company to recoup the entire or part of their investment. While this often takes the form of an *acqui-hire*, an abbreviated term for the price paid for a company (acquisition) that is equivalent to how much it would alternatively cost to employ (hire) the number of employees in the start up. This has become more common in Silicon Valley in recent years due to the shortage of engineering talent available. Where recruiters can charge up to 30 per cent of the first year remuneration (\$50,000 of a \$150,000 salary), a start up company of 10 engineers can be, at a minimum, valued at \$500,000 in an *acqui-hire* which is the equivalent of paying for a recruiter to find. The benefit for the acquirer is that the product and engineering team who built it are intact, which can result in faster speed to market for the new product being acquired.

On 25 June 2015, over lunch at Siam Royal Authentic Thai restaurant on University Avenue, Palo Alto (next to the Apple Store), I met with Jim Stoneham, founder/CEO of Opsmatic. Opsmatic (<https://www.crunchbase.com/organization/opsmatic>) had raised \$3M in venture capital from various seed investors including Jerry Yang (co-founder of Yahoo!) at a \$8M valuation. Jim was looking to raise an additional round of \$1.5M capital at \$11 million, an increase in valuation of \$3M. However with only \$7,000 in monthly recurring revenue (lets say \$100,000 annualized revenue), it was outside of my target zone with a 100+ times sales to valuation multiple! At the time of meeting Opsmatic, with only \$300,000 cash in the bank, it was clear to me they were *in the hole* - a term venture capitalist use to describe funded start ups who are going to run out of cash.

Although New York Stock Exchange listed, New Relic Inc. (www.newrelic.com) *acqui-hired* Opsmatic on November 6, 2015, it was apparent that Opsmatic could not get the additional \$1.5 million financing completed. As reported in Venture Beat (see <http://venturebeat.com/2015/11/05/new-relic-buys-devops-monitoring-tool-opsmatic/>), “*terms of the deal weren’t disclosed*” which is Silicon Valley speak for an *acqui-hire*. It was clearly apparent that Opsmatic’s valuation fell prey to an *acqui-hire* as without being able to evidence any meaningful progress beyond \$7,000 monthly revenue for \$3 million invested, they could not convince investors there was any justification for an increased valuation of \$11 million.

Roadkill

When larger companies launch competitive products to start up technology companies, and over time, the start up companies lose out competitively to

these more established and better funded companies, the effect can be devastating on the entrepreneurs of the company that is failing to advance market share. We refer to this as *roadkill*. When entrepreneurs know that a larger company is competing with them, they might reduce their demand for innovation as they fear being *roadkill*. Venture capitalist will often refer internally to the *threat of roadkill* by larger companies.

Deer in the Headlights

Entrepreneurs will often be blinded by the brightness of a particular sector. I have witnessed several start ups being funded in the ride sharing and on-demand transportation sector which has resulted due to the \$2 billion raised by Lyft (<https://www.crunchbase.com/organization/lyft#/entity>) and \$12.5 billion raised by Uber (<https://www.crunchbase.com/organization/uber#/entity>). In my opinion, it is very difficult for companies to compete when incumbent competitors raise incredibly large sums of money.

However, entrepreneurs are drawn to these sectors and in my opinion are like a *deer in the headlights* as they strive to build a company against monoliths. It is very hard to compete and while these start up companies gain traction from unsophisticated investors, they eventually will find their entrepreneurial innovation will decrease as their competitors outpace them with more venture capital.

It should be noted that at the time of writing (June 2016), Uber announced it had raised \$3.5B from Saudi Arabian Public Investment Fund Another day. It is memorizing to see that Uber's latest investment is worth more than all U.S.-based seed funding in 2015, which CrunchBase estimates totaled \$2.7 billion. This further evidences the winner take all mentality that many venture capitalists have.

Seeds of Doubt

All entrepreneurs spend much of their time doubting their start up will succeed. The seeds of doubt are sprinkled constantly and when these doubts become overwhelming, there can be a resulting decrease in innovation. The battle over self doubt is relentless and is all entrepreneurs ride the *emotional rollercoaster* in start up land. It is important for entrepreneurs to take time out each week to clear their heads and disconnect as much as possible for one day atleast to relax and regenerate. One simple piece of advice I give entrepreneurs is to write down the fears, doubts and anxieties and instead of replaying the scenarios

of these doubts in their heads. Once written down on a sheet of paper, entrepreneurs should spend time thinking about how to combat these fears and doubt with practical alternatives and strategies. Drawing on emotional energy to water the constant seeds of doubt will decrease innovation as your brain will be dealing with negative thoughts instead of positive thoughts.

It is important to be aware of the overwhelming doubt that makes up the point of suspension of disbelief. Try and limit the doubts each day as like cars on a highway, too many doubts will lead to a thought jam in your brain. Entrepreneurs need to be aware that venture capitalists have constant doubts about you and the business they have invested in. It is important to address these doubts and talk openly with your venture capital investors about these doubts they have. This will lead to a much closer working relationship.

Entrepreneurs who are open about their concerns are much more respected and likely to build deeper relationships with venture capitalists. In addition, venture capitalist can provide invaluable advice to entrepreneurs to help reduce the fall of idea generation and help to provide methods to innovate. In October 2014, I met Joe Waltman, founder & CEO of VetPronto, an on-demand house call veterinary services for dogs and cats. Several months later VetPronto were selected from thousands of companies to be in the elite company as a Y Combinator member. Joe had sold his previous email marketing company to Twitter.

Y Combinator is one of Silicon Valley's best known (and hardest to get into) incubators. With an intensive 3 month course and \$120,000 invested, the emphasis is on fast prototyping of business models and building scalable businesses. Famous alumni include AirBnB, Stripe, Dropbox and Instacart, to name a few.

What Joe did incredible well was in monthly updates following being accepted into Y Combinator was to send emails to investors with both achievements and challenges. Sending email updates is a good tactic employed by entrepreneurs who wish to keep investors informed of progress prior to formally raising a round of venture capital. Yet Joe was clear in identifying VetPronto's challenges and asking for assistance.

In addition to talking about appointment numbers and booking revenues, Joe was equally upfront in his monthly emails about the help he needed with his challenges which included *scaling customer acquisition channels, technical debt of development code, burn rate, holiday slow down periods and analytics*. Joe clearly had good communication skills, was seeking buy in from potential venture capitalists to enhance VetPronto's innovation cycles, which is all about reducing the risk of valuation. Entrepreneurs should take note of VetPronto's playbook.

The Impact of Failure

When a founder has failed previously in a start up, they are more likely to decrease their innovation when faced with conditions that reduce their suspension of disbelief. While we applaud and acknowledge entrepreneurs who have had multiple successful exits, the serial entrepreneur with failed start ups is more likely to reduce their efforts to innovate when they know their initial ideas have not got traction.

Overall Effect of Decreased Demand of Ideas & Starts Ups

As illustrated in the above chart, the net overall effect of entrepreneurs decreasing innovative ideas leads to lower valuations. It is important to understand the factors and influences which affect the demand curve to drive down the price of innovation. Entrepreneurs should be very cognizant of these factors at play and be able to resist a fall in demand for their innovations.

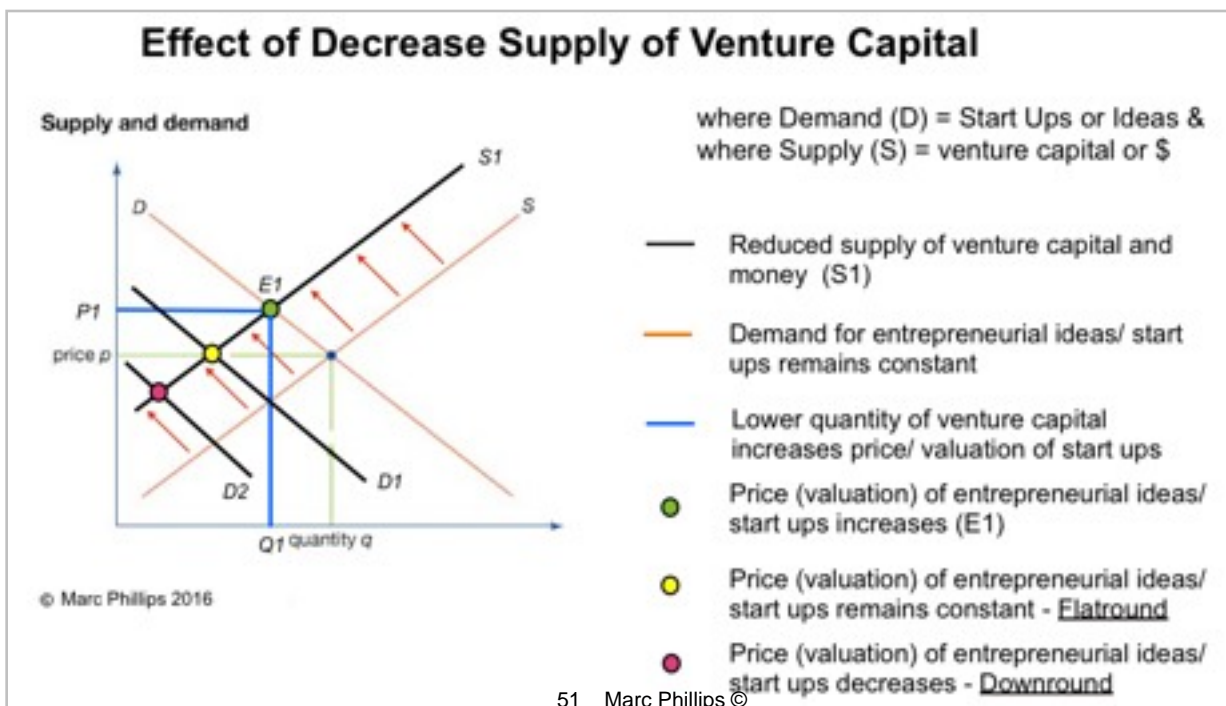
Economics of Innovation: Factors Contributing to the Decrease in Supply of Venture Capital

So why do investors really stop investing or at least slow down the frequency and amount of venture capital they deploy? In this chapter, we will explore the factors contributing to investors and venture capitalists decreasing the amount of venture capital deployed into start ups, rather than review the factors affecting the overall decrease in the supply of money.

I have chosen to focus on the micro-economic impacts of a reduction in venture capital provided to operating start ups rather than explain the macro-economic factors that effect the amount of venture capital raised by venture funds. I feel this is much more insightful to and explains the dynamic between entrepreneurs and venture capitalists.

More specifically, where venture backed technology start ups are raising subsequent rounds of capital, the blogs and newspapers covering start ups often do not have visibility into the intricacies that drive a reduction in supply of venture capital.

Where demand for entrepreneurial ideas and start ups stays constant (D), a reduction in the total supply of venture capital (S1) would theoretically lead to higher prices for innovation and increased valuations (E1), as represented in the diagram herein.



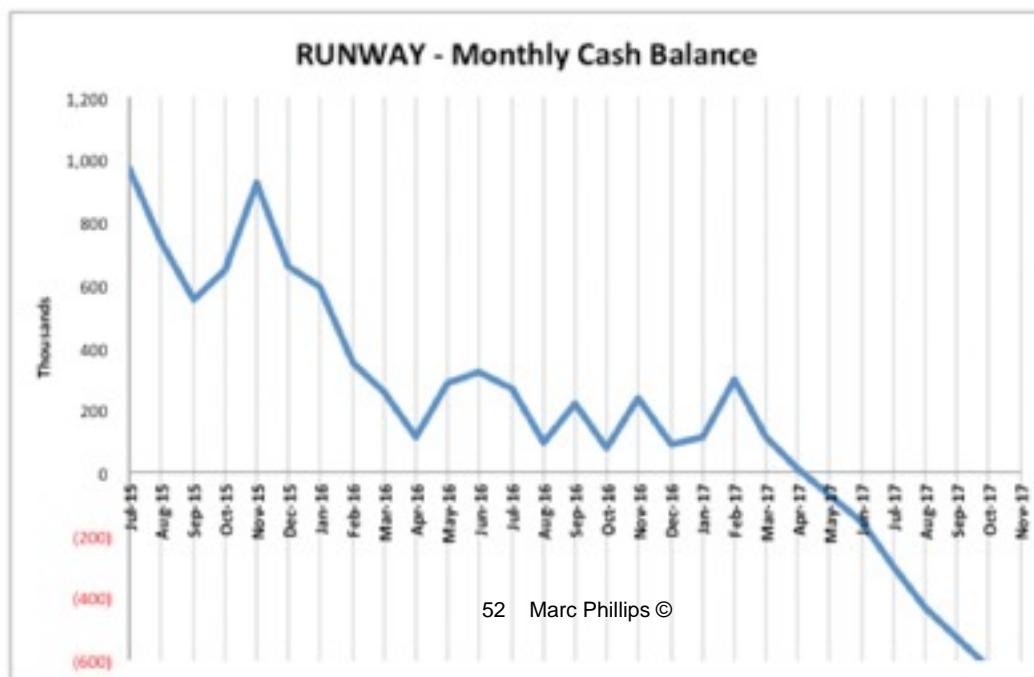
Inside Venture Rounds

However, start up companies often seek existing *inside* investors to *reload*, a venture capital term describing where insiders commit more venture capital to a company they have previously invested in. This often occurs when a start up technology company has not quite met their milestones and not prepared to raise venture capital outside of existing investors as it could lead to a lower valuation. Therefore, entrepreneurs will often ask existing investors for more venture capital at the same valuation that money was previously raised at. This is referred to as a *flatround* because the valuation is remains the same, or flat.

Where start up technology companies which have raised venture capital have not met milestones and struggling to show progress of product development or usage growth and revenue they are often penalized by investors who will only invest a lesser amount of money at a lower valuation. This is referred to as a *downround*. Depending on the circumstances, downrounds can have a larger or smaller amount of venture capital invested at a lower valuation than the start up company previously raised money at.

The Timeline of Belief

As part of the due diligence before investing in a company, venture capitalist will evaluate how the funds will be spent and what length of time the cash will be used up. This is often referred to by entrepreneurs as their *cash runway*, which can be illustrated in the diagram herein. It shows the



available cash in bank (including accounts receivables) against the month and year.

It depicts when (the month and year) the company will run out of cash and graphically illustrates the timeline when more venture capital will be needed. This telling chart is also used by VCs as a *timeline of belief* in which they have given the company to achieve certain milestones. While it makes sense for entrepreneurs and venture capitalist to discuss at the time of making the investment specific milestones and set dates in the future for these to be achieved, they often do not.

While the wiser venture capitalists should be astute with their limited partners' money invested into their venture fund, and set goals, milestones and targets for early stage start ups, this is not always the case. I have encountered many different styles of venture capitalists and some have varying timelines of belief. Angel and high net worth investors will often invest \$10,000 to \$50,000 into a start up technology company and have no more expectations than gambling on the craps table in Las Vegas.

Investors representing other people's money should be more focused on helping their portfolio company achieve their goals. It is very clear to me that some venture capitalists are too hands off and have a clear timeline of belief that extends *only* to the end of the cash runway. While I found this disturbing at first when co-investing alongside larger institutional venture capital firms, it became apparent that certain venture capitalist will only suspend their disbelief as long as the initial cash runway of the venture

round they invested into. If that company doesn't live up to their expectations they will not re-invest.

It is somewhere during the cash runway that the *VC timeline of belief* ends and if the start up isn't doing well they begin to think about reducing the amount of money they would like to *allocate* to the company in a future investment round. In this scenario, the start up company is either faced with a *flatround* or at worst, a *downround*.

In May 2016, I met with Floodgate Ventures, the lead venture capitalists of Enhatch Inc. over coffee at Coupa Cafe at Stanford University to discuss joining their current round of investment. Enhatch (<https://www.crunchbase.com/organization/enhatch#/entity>) is a software provider for field sales teams based in New Jersey. The valuation offered was the same as it was when other venture capitalists had invested in November 2015 (6 months prior) which signalled to me that it was a *flatround*. Over breakfast at Rockefeller Plaza Cafe in New York City in late May 2016 with Peter Verrillo, co-founder and CEO of Enhatch I learned that inside investors had verbally committed an additional \$500,000 (approximately) and he was looking for a new venture firm to match that amount.

This is a classic example of how venture capitalist will in fact look to decrease their investment in a current portfolio company by syndicating the investment to offload their exposure. By providing favorable terms to new investors, venture capitalists will by default set the stage for their entrepreneurs to help sell the flatround financing. While I am not passing opinion on whether this is good or bad, for it depends on the circumstances, the fact remains that when venture capitalists decrease the amount they wish to invest into a company and look for other venture firms to take up some of their allocation at the same valuation that they invested at previously, the effect is to put downward pressure on the perception of valuation.

In this scenario, my venture firm decided not to invest as it was clear to me that the existing investors were not fully committed to financing the business and were rather looking for the *last dumb money* in the round of capital. While this is my personal opinion, it is important for entrepreneurs and venture capitalists to understand that where investment terms are left open for additional venture capital, the risk exists for flatrounds to occur. While this provides greater flexibility for entrepreneurs, it exerts pressure

on them to execute on raising capital while running the business. VCs are more skeptical of start ups that have taken a longer time to raise their round of capital as it become apparent they are running out of faith from backers in their timeline of belief.

It is important for entrepreneurs to understand that it is only a matter of time before their VCs will give up if the company isn't performing and that will reduce funds flowing to entrepreneurs. When entrepreneurs and venture capitalist collaborate to convince new VCs to get involved, it is something to be weary of.

At the time of writing (June 2016), I received an email from Carla Holtz, CEO of Parrable, a next generation mobile identification software start up, that they had raised \$2.3 million as part of the Initial Closing with the option to raise an additional \$700,000 within 6 months. I do caution entrepreneurs about the structure of convertible notes that provide additional time to raise additional funds at the same valuation as it provides a false floor of both entrepreneur and venture capital expectations.

It gives the venture capitalists who are already invested a slightly less perfect position as the latter investors have more *wiggle room* to wait for the company to report on results. This can lead to lesser amounts of venture capital being invested than what the term sheet calls for.

Take the Money

I have encountered several CEOs of Silicon Valley software companies my venture fund has invested in that have not wanted to raise additional venture capital during 2012 to 2014 when they could have easily done so.

While some start up CEOs do not wish to *take the money*, others do so when it is not required. I am of the opinion that when the venture capital money is available to take, it is good to raise capital rather than stretch to profitability or another milestone in the hope of a greater valuation based on future revenue or cash earnings multiples at some point in the future.

This is largely due to macro or external factors that can influence the supply of venture capital that the start up is not in control of. Inexperienced CEOs often do not factor in these influences and when times are good they become oblivious to the venture capital climate turning cold and valuations falling which can put pressure on their investors and result in lower

amounts of venture capital being available to be allocated across their portfolio companies.

Value is a perception by investors and when venture capital is being deployed, it is important for entrepreneurs to take it as valuations can easily change as investors are fickle and will decrease their allocations. When portfolio companies don't wish to raise a round at the time the venture capitalists would like them to, there is a mismatch of expectations and in many ways friction results. VCs will often retreat from being involved in the company and decide, without the entrepreneurs knowing it, that they are going to decrease the amount of venture capital they will invest.

An upside down Cap Table

A capitalization table (or cap table) is a table providing an analysis of the founders' and investors' percentage of ownership, equity dilution, and value of equity in each round of investment. It is a standard request for venture capitalist conducting due diligence to ask entrepreneurs for the most recent cap table

When venture capitalists see a cap table that has too many different stockholders and the founders have less than 50% of an early stage (seed or Series A company), they will refer to it as an *upside down cap table*. That is, the founders own less than 50% on a fully diluted basis. In one sense, it is a sign that the reality of equilibrium has set in and in another way, it shows either the inexperience of the founders in financing or the investors are unsophisticated.

The great thing about the Silicon Valley venture capital industry is that it is well understood the founders are the stars of the show. They are the people who need to make the most money out of the sale of the company. Like Hollywood's leading A-list actors, Silicon Valley need their poster star entrepreneurs. Think Evan Spiegel of Snapchat, Mark Zuckerberg of Facebook, etc. Success needs to have a face. This is why when venture capitalists invest in start ups here in Silicon Valley they are often flexible on early stage valuation as they wish to ensure the company has enough money to reach their milestones and that the entrepreneurs have enough of the majority of stock so that future venture rounds do not dilute them. Where founders are diluted of their stock too early in venture capital, there is risk for them to keep being motivated once they learn that their investors

have preyed on their inexperience and can back fire, leaving the start up founders demotivated to continue the company.

I have lost count of the number of start ups that have originated in England, New Zealand, Sweden, France and Brazil which come to Silicon Valley having raised \$500,000 from investors in their home countries who have taken 40% to 50% of the company stock in the first round. This has a devastating effect on entrepreneurs when they show the *upside down cap table* to investors in Silicon Valley.

In December 2014, I met with Anthony Kelani, CEO & Co-Founder of ShowKit.com. ShowKit was the winner of Tech Crunch Disrupt NY 2014 Battlefield Finalists. You can watch Anthony pitch at <https://www.youtube.com/watch?v=zv48eU4aBqs>.

Anthony was looking to raise a Series A investment of several million dollars yet after he showed me the cap table which had Curios Minds (<https://www.crunchbase.com/organization/curious-minds#/entity>) owning almost 50%, I advised him he needed to renegotiate the investment percentage with this early stage investor as no venture capitalist I knew would be agreeable to invest when the incubator who helped form the company was such a large shareholder for the \$210,000 investment they had made in August 2013.

I explained to Anthony that the typical Silicon Valley incubator/accelerator would take 4% to 7% of equity in exchange for \$50,000 to \$120,000 investment. This was a clear example of an *upside down cap table*. Entrepreneurs take note that it is very important to maintain a significant majority of the stock in their start up in the early rounds of venture capital. If the VCs you are negotiating with do not understand this, it is advisable to reconsidering taking their money. An *upside down cap table* will eventually demotivate you and your co-founders. While investors can agree to issue more stock options to management to compensate for early stage dilution, it is a band-aid approach to a serious injury.

At the time of writing (June 2016), Crunchbase records show at <https://www.crunchbase.com/organization/showkit#/entity> that ShowKit has not raised any venture capital since October 2014.

VCs Feeling Less Confident in 2016

Monitoring the sentiment of confidence amongst venture capitalists is important as it will provide early warning signals of any macro factors which may reduce the amount of venture capital deployed in start up technology companies.

At the time of writing, new research found VCs are less confident in 2016 than previously. The Silicon Valley Venture Capitalist Confidence Index showed a reading for the first quarter of 3.54 on a 5 point scale (with 5 indicating the highest confidence and 1 the lowest). That's down slightly from the prior quarter's reading of 3.59. The report's author, University of San Francisco Professor Mark Cannice, said *"the numbers suggest a reasonably steady transition from heady days of unsustainably high valuations to more restrained and capital efficient venture investing."*

The quarterly Silicon Valley Venture Capitalist Confidence Index® (Bloomberg ticker symbol: SVVCCI) is based on an on-going survey of San Francisco Bay Area/Silicon Valley venture capitalists. The Index measures and reports the opinions of professional venture capitalists in their estimation of the high growth venture entrepreneurial environment in the San Francisco Bay Area over the next 6 to 18 months.

Overall Effect of Decreased Venture Capital in Starts Ups

While a reduction in the supply of venture capital can lead to higher valuations as fewer dollars chase the same number of start up technology companies seeking funding, the effect for companies already funded can cause them to be valued at the same amount (flatrounds) or at lower valuations (flatrounds). With VC confidence waning in mid 2016 from the previous 8 years of growth in venture capital, there will be tighter budgets set by venture capitalist so start ups extend their cash runway in an effort to hit milestones with a smaller amount of capital deployed.

Economics of Innovation: The Elasticity of Knowledge

Now that we have considered the factors impacting both demand for ideas by entrepreneurs and the supply of venture capital for start up technology companies, the conditions upon which the suspension of disbelief and reality of belief are prevalent, we can turn our attention to discussing the elasticity of knowledge.

At the outset of this book, I proposed the theory of suspended disbelief and motioned for readers to consider that a majority of entrepreneurs know they will fail in their technology start ups prior to their commencement of the start up business operating and they are in effect aided by venture capitalist who collectively over value companies.

What became apparent as I investigated the economics of innovation is that entrepreneurs and to an extent venture capitalists have varying elasticities of knowledge. While we know man advances all aspects of their environment to improve standards of living, even those who fail in technology start ups are gaining knowledge. The extent to which entrepreneurs are prepared to alter the price of their innovations and subsequent technology company valuations also varies. A primary factor is the experience an entrepreneur has and the extent to which they require the knowledge of a venture capitalist as part of the venture capital round.

Venture capitalists as an integral part of funding start ups regularly engage in parting their knowledge to assist entrepreneurs. The rate at which the knowledge is disseminated by VCs and acquired by entrepreneurs affects the rate at which both demand and supply curves in the economics of innovation model shift.

Valuation Takers & Inelasticity of Knowledge

Entrepreneurs will often accept a valuation proposed in a term sheet provided by a venture capital firm. Where the perception from an entrepreneur is that the VC has superior knowledge to themselves, entrepreneurs are often willing to *take the valuation* offered because they feel they can learn from the VC. Put simply, entrepreneurs are willing to forgo a higher valuation and price of their equity in the start up company because they seek to gain the knowledge resulting from being funded.

Hence, the entrepreneurs is inelastic in their demand for innovation and knowledge and the lower valuation does not deter them from increasing their innovation efforts to work as a start up entrepreneur.

In September 2014, I met with Chris Rothstein - an ex Googler who had received an investment from Ravi Belani who runs the Alchemist Accelerator (www.alchemistaccelerator.com) based in San Francisco. As a mentor for Alchemist Accelerator, it was my responsibility to meet with Chris at Silicon Valley Bank's office one Monday night in Santa Clara.

As a mentor, you review the investment pitch deck and help refine it. In return you get access to one on one meetings with qualified pre-selected start up technology companies. Chris and his co-founder had started Groove Labs Inc (www.grooveapp.com). In December, 2014 we re-engaged and Chris informed me they had 40 clients and monthly recurring revenue (MRR) was around \$13,000. Chris was raising up to \$1 million on a \$6 million pre-money valuation convertible note. I knew there were various venture capitalist talking with Chris for several months as I had met up for lunch in November 2014 and we had also spoken on the phone several times.

This was Chris' first venture funded start up since leaving Google and was eager to learn from mentors and venture capitalist that were experienced. Like many of the entrepreneurs I have mentored over the years, Chris was mid 20's, not from the Bay Area of San Francisco and looked to venture capitalist for guidance, stewardship and a shared vision.

On 12 January 2015, I emailed Chris the following:

"Good to speak to you today and thanks for your time. Just to confirm of our conversation, I confirm that Arafura Ventures would like to invest \$100,000 into a \$1M round based on co-investing with the other Palo Alto micro VC you mentioned who has put the \$750k term sheet. Our investment strategy is to deploy up to \$1.5M into companies and see benefit in having another co-investor who will reload in future rounds. This maximizes the investment and minimizes the effort on future rounds as you bring in new investors as they like to see insiders re-investing. Angel investors typically don't reinvest. The benefit of having 2 smaller VCs in at this stage is that Arafura has provided "bridge rounds" for our portfolio

companies which helps hit milestones before setting off on larger rounds for additional capital."

Chris clearly had expertise and I felt could build great product and as I got to know him, he had proven himself as one of the rare multi-taskers who could build a product and sell!

On February 16, 2015 Chris emailed me the Convertible Note term sheet he was negotiating with Quest Ventures(<http://www.questvp.com/portfolio/groove/>), a Palo Alto based micro VC fund. Within a week or so Chris rang to tell me he had accepted \$750,000 from Quest at a valuation pre-money valuation of \$5 million yet the note did not have a discount to the next round of financing. Essentially what transpired here in the negotiation was that Chris had taken the valuation proposed as I felt his demand for knowledge, insight and guidance was more important than a higher valuation.

It is not surprising to me that founders are inelastic in their demand for knowledge as they value it from a venture capitalist who can guide and teach them more than the valuation or price of their start up equity.

Valuation Makers & Elasticity of Knowledge

Conversely, entrepreneurs that *do not* accept a proposed valuation proposed in a VC term sheet because it does not meet their higher expectations of valuation, they are relatively elastic in their demand for knowledge. Experienced entrepreneurs' demand for knowledge is more elastic than inexperienced entrepreneurs when there is a change in the valuation proposed by venture capitalists (price of innovation). In this scenario, entrepreneurs may abandon their technology start up as they want to make and not take a valuation or more likely, not pursue an investment term sheet from that venture capitalist.

In early April 2014, I was introduced to and met with K. V. Rao, the Founder and CEO, Aviso, Inc, (<https://www.crunchbase.com/organization/aviso-inc#/entity>) a predictive financial analytics technology start up based in Mountain View, California. K.V had previously founded Zuora Inc (<https://en.wikipedia.org/wiki/Zuora>) a well known billing, commerce, and finance software as a service (SaaS) platform that as of writing (June 2016) had raised over \$242 million (<https://www.crunchbase.com/organization/zuora>).

K.V and I sat around a small office table that Spring morning as he enthusiastically demonstrated his product. After speaking with several CFOs of medium to large enterprises including Robyn Denholm, CFO of Juniper Networks Inc (NYSE: JNPR), I was pleased to hear that it was a product that was in demand. After speaking with Jason Pressman, Managing Director of Shasta Ventures (http://www.shastaventures.com/team/jason_pressman) I realized that Jason had been on the board of directors of Zuora for 6 years and he informed me he was quite keen to lead the \$6 million Series A investment round which K.V was offering. However, the pre-money valuation of \$12 million based on only \$250,000 in annualized revenue (and those were early trials) was hard to justify. I understood that Shasta Ventures were 'backing the founder' having seen the success of K.V as co-founder/CEO of Zuora over the past 6 years.

This is a clear example of how K.V was able to set the valuation and elasticity of knowledge was prevalent. His quest for knowledge was not as great as younger entrepreneurs as K.V was in his early 50s and very experienced. Compare K.V Rao and his 25 years experience to Chris Rothstein in his mid 20s to see how the elasticity of knowledge works within the framework of the innovation economy.

On April 9, 2015 Aviso (www.aviso.com) announced a \$15 million round of Series B funding co-led by Scale Venture Partners and Next World Capital, with participation from all existing angels and investors, including Shasta Ventures, First Round Capital, Bloomberg Beta and Cowboy Ventures.

Overall Effect of The Elasticity of Knowledge

It has become increasingly obvious to me that the quest for knowledge amongst entrepreneurs and start up technology company valuations are diametrically opposed. The younger the entrepreneur with limited knowledge and experience, the more likely they will forgo a higher valuation to secure knowledge from more experienced venture capitalists. They are inelastic in their demand for knowledge.

The older and more experienced an entrepreneur with a track record, the less likely they require learnings from venture capitalists and can command higher valuations of start up technology companies. They are elastic in their demand for knowledge.

It is important to explore how quickly or slowly knowledge is gained by entrepreneurs from venture capitalists and the impact it has on valuations. Further research is required and I hope this analysis inspires quantitative research into the measurement of the elasticity of knowledge against the price of innovation and valuations of start up technology companies. Venture capitalists often fail to deliver on sharing their knowledge and entrepreneurs too often over estimate the amount of knowledge that a venture capitalist has to offer.

As I reflect on the suspension of disbelief and the seemingly irrational argument I had with myself over several years before putting my thoughts down on paper, I can conclude that the thirst for knowledge and the desire to work with smart people compels both entrepreneurs and venture capitalists to willingly enter into a state of suspended disbelief.

It is right to want to aspire to learn and acquire knowledge. This is why Silicon Valley is a harbour of intellectual elitists wanting to out-sprint, out-run not only their competitors but the expectations and abilities they have of themselves.

Conclusion

I have spent many hours over days across months and for the past 5 years thinking about the objections to the theory of suspension of disbelief I have received from experienced investors and venture capitalists who have co-invested in start up technology companies.

Some of my colleagues have strongly sided in my favor while others have flatly disagreed. I cannot fault their line of reason that why would venture capitalist invest or entrepreneurs start a company when they know it won't be successful.

While I remain an optimist, it is important to challenge any long term position investors have with an equity or debt position. Start ups exist in a largely private illiquid market and the inner workings of their operations from both an entrepreneurial and interactions between venture capitalist is not transparent nor disclosed.

In this book I have tried to take an impartial and balance approach to the discussion around the suspension of disbelief, the reality of disbelief equilibrium and reference the economics of innovation using the universally understood laws of demand and supply.

It has been my intention to stir the leaves of thought amongst often inward looking venture capitalists as much as inexperienced entrepreneurs in writing this book.

It has been increasingly obvious to me in recent years that there is a force, a condition and a set of behaviors within the economy of innovation that I can only describe as being suspended disbelief.

Hope and belief is what keeps the world of innovation moving forward and as I write and you read these words, the forces of belief, disbelief, reality and hope are intertwined in conversations where entrepreneurial demand for ideas and venture capitalist supply of money are intersecting at differing valuations points along the demand and supply curves of the economy of innovation.

Marc Phillips, Palo Alto, June 2016.