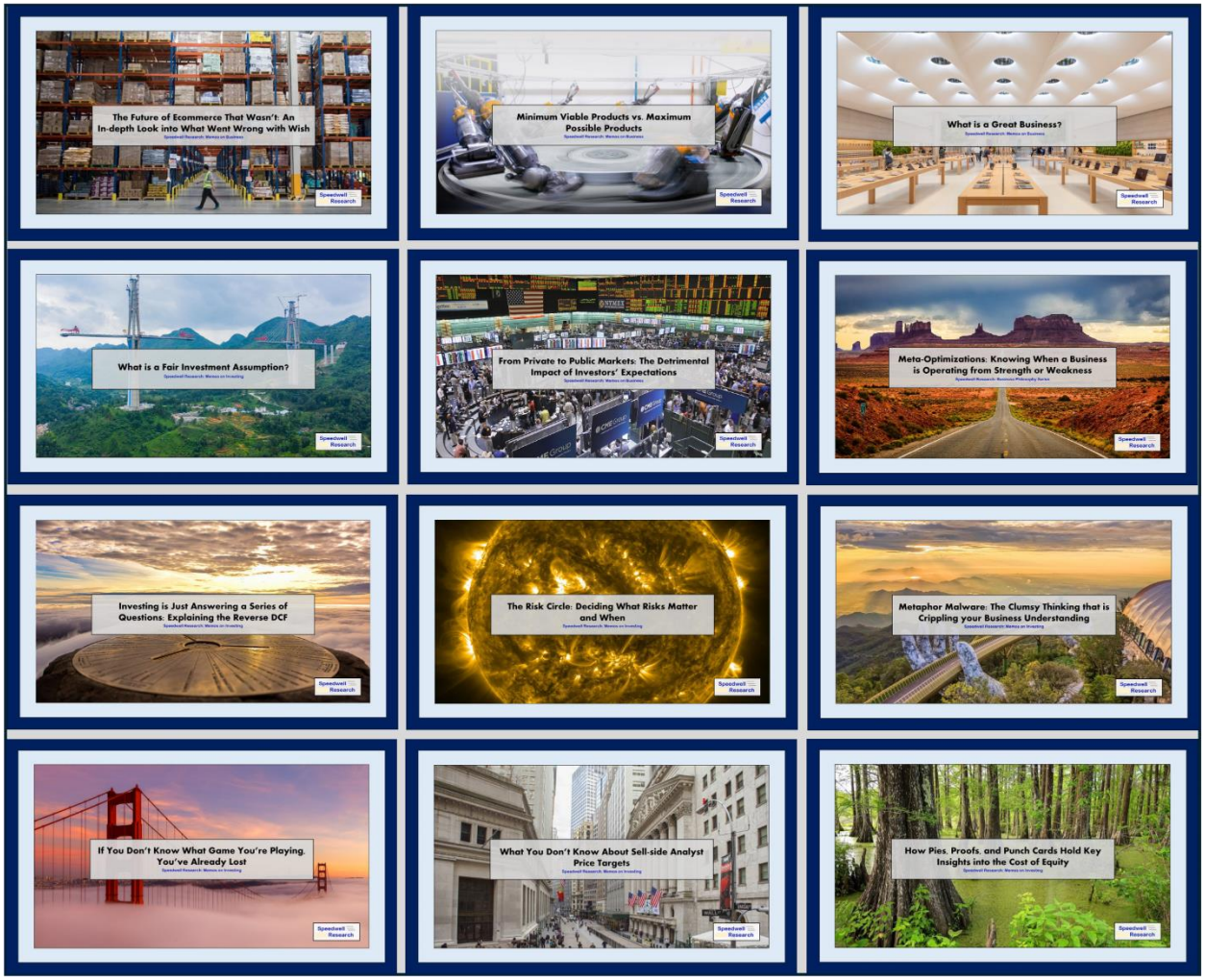
Speedwell Research's Top 12 Memos of 2024



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Business Memos

The Future of Ecommerce That Wasn't: An In-depth Look into What Went Wrong with Wish

What an Investor Could Have Learned from Wish's S-1

The Set Up.

2020 is drawing to a close.

The QQQ is up over 75% from its lows.

Bitcoin is up over 400%.

David Portnoy has traded in his sports commentary for stock commentary.

And the idea that work from home would create "Covid Beneficiaries" wasn't even hackneyed yet.

This was the backdrop in which investors were introduced to the "next" ecommerce winner.

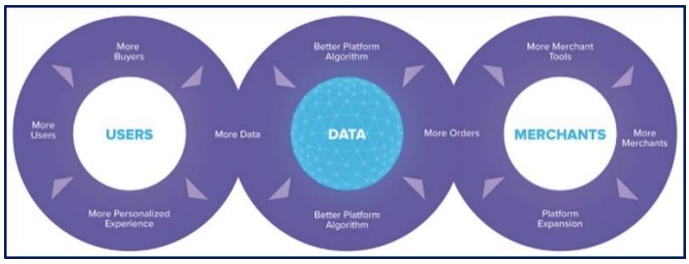
Pitching Wish.

It was magnificent. A new way to surface items. A demand generator. A low-cost way for merchants to not only sell their products, but also be found in the first place.

Whereas Amazon was great when you knew what items you wanted to buy and could deliver them to you rapidly, Wish was serving an entirely different market.

Wish was about discovery, deals, and novelty, but also data and a sophisticated algorithm that would know what consumers wanted before they did. Tiktok excelled in recommending videos and could keep you glued to your screen for hours; Wish would do the same for product merchandise.

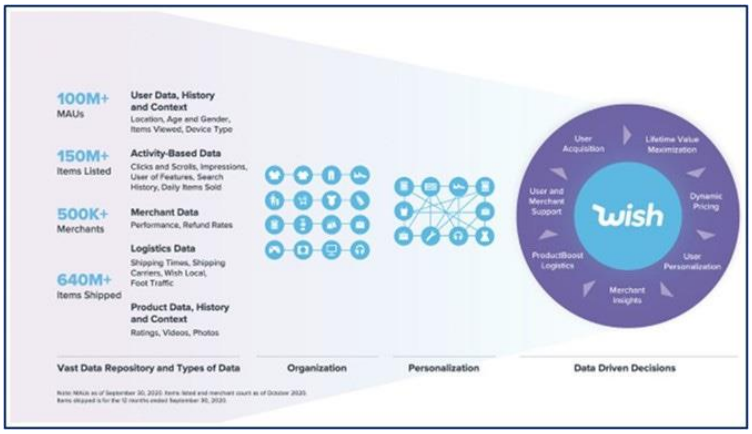
As Amazon continued to load their app with more and more sponsored ads, it was harder for merchants to stand out without paying for that top search slot. And besides, Amazon ads only worked when the user was searching for relevant keywords.



From Wish's S-1.

Wish would not only show users products they wanted to buy, but they would also help physical stores with merchandise procurement. Wish would help small businesses stock their stores by leveraging their millions of data points and direct wholesaler connections to tell the small store owner what products to order and when. Even better, Wish buyers could pick up their packages in-store and see a display shelf with Wish-stocked inventory to impulsively purchase.

And the best part about all of this is that Wish wouldn't be directly competing with any existing companies. They would be focusing on an area of commerce that is commonly overlooked.



From the S-1. They note how their "activity based data" and "user data, history, and context" will help drive personalized recommendations.

If you know what happens next, try to forget it. For this exercise we want to rely only on information an investor would have known at the time before things went wrong. We will rely primarily on the S-1 and to a much smaller extent (and for ease of comparison) the 2020 10-K.[1]

How to Not Draw the Wrong Lessons.

A good explanation is a story that is hard to vary.[2] If we did a postmortem of WebVan (grocery delivery) or Pets.com (online specialty store for Pets), what would we say went wrong? If we did the postmortem in 2006, most likely we would have said it was a silly and unrealistic idea. But if we were to do a postmortem now, with the existence of Instacart (grocery delivery) and Chewy (online specialty store for pets), how would our understanding change?

This is not a trivial exercise. It is far too easy to be dismissive about a failing business and think it was the entrepreneur's ill-thought-out idea or just incompetence, but this does not hold scrutiny.

Look at Apple. For how many years was Steve Jobs and his insistence on not licensing the Mac operating system seen as the impetus for their failure? And the same thing happened again when the iPhone was released: analysts thought their unwillingness to license the phone's iOS would ultimately lead to their demise. Now though, Apple's success is attributed to their close integration and their proprietary software is a key selling point, which wouldn't be possible if they licensed it.

If you took over Lego in 2004 when it was nearing bankruptcy, what would you diagnose as the problem? Would you have thought that with digital entertainment kids just don't want to play with toy blocks anymore? Or would you have thought the focus on "noncore" activities like theme parks, clothing, and video game development were the issues? Perhaps the product was good but was simply too expensive? You know that today there are vastly more digital entertainment options than there were in 2004, they still have theme parks and video games, and their products are still expensive, so what was it?

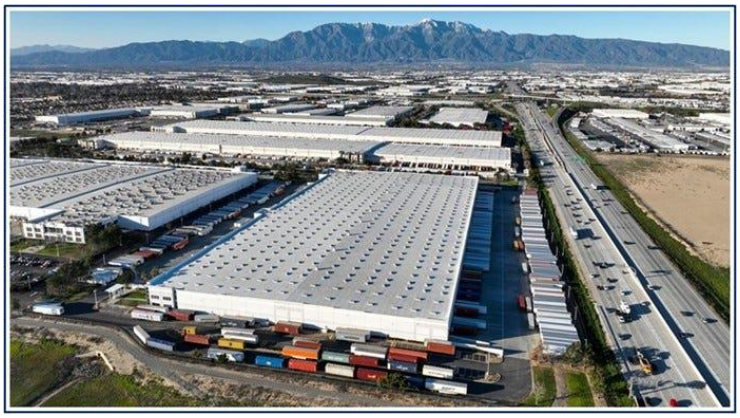
If you were appointed CEO of Crocs in 2008 when their stock dropped 98% and was on the verge of entering bankruptcy, tell us that you wouldn't be tempted to lay the blame on the aesthetics of the shoes. It is the most ridiculed shoe design with "ugly" virtually synonymous with Crocs and yet they now sell over 150 million of them a year. Again, what some people would identify as the problem of the business turned out to be a virtue.

This is why counterfactuals, or what would still be true under different circumstances, are so important. Turnaround stories are great because they provide their own counterfactuals. When

looking at Wish, we will try to dispute reasons for failure that have seemed to not be the culprit for other successful companies.

As we noted at the beginning of this section, a good explanation is a story that is hard to vary. What that means is we shouldn't be able to change facts of the story and still get the same outcome. So, if we are saying Wish was unsuccessful because of their focus on cheap items with slow shipping, we shouldn't be able to point to another company that did something similar and was successful.

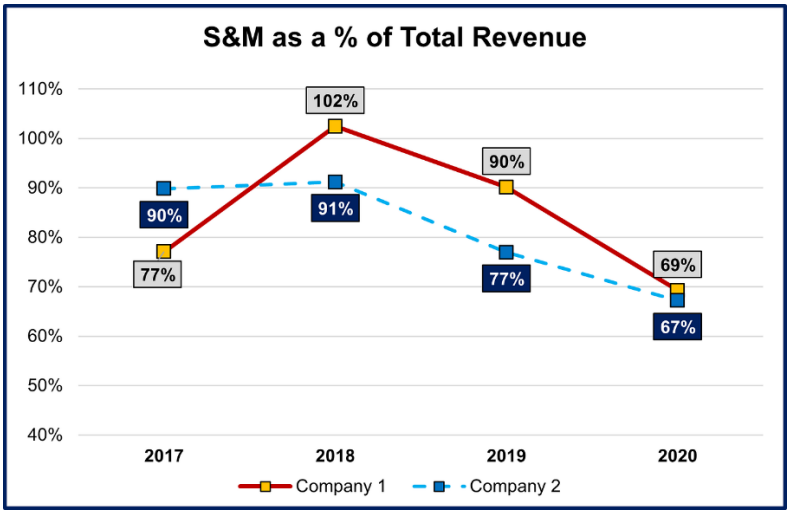
Let's begin.



Wish (Ex-Post Facto) Premortem Analysis.

One of the more commonly cited reasons for Wish's failure is how much they spend on Sales and Market (or S&M). This is only half correct though.

Look at the chart below that shows S&M as a % of revenue. One company would go on to be a dominant ecommerce platform that posted over $2bn in operating profit in its most recent quarter. The other would do a 30 for 1 reverse stock split to avoid being delisted as a penny stock.



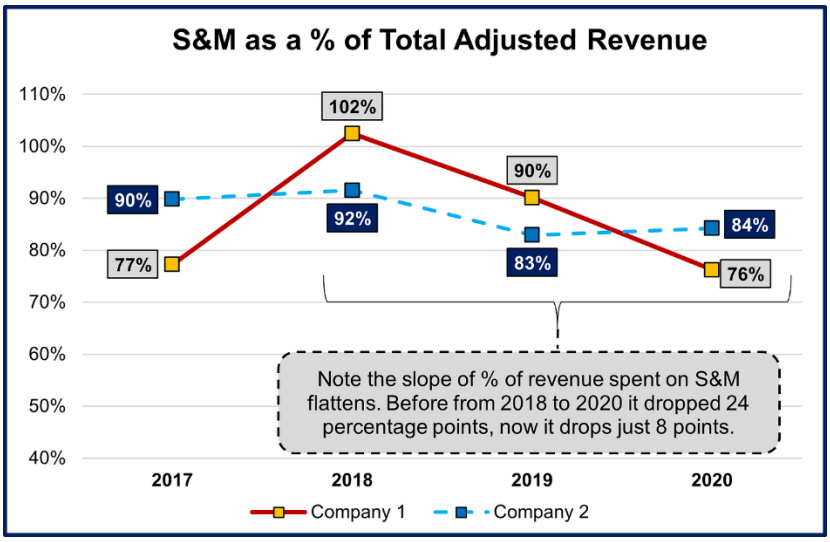
Note that both companies spent almost all of their revenues on advertising and would incur notable losses to sustain that. How much money they spent on advertising wasn't the problem, despite how often that was cited as an issue.

The issue was how ineffective the advertising was.

Now we can adjust revenues to backout logistics revenue for one company, which S&M does not really support. For fairness, we adjust 1P sales for the other company. (See this piece for an explanation of how 1P and 3P sales can skew economic reality).

We see the story changes with these adjustments to revenues. Whereas both companies spent almost all of their revenues on marketing in 2018, by 2020 Company 1 reduced their spend by 26 percentage points, whereas Company 2 reduced their spend by just 8 points.

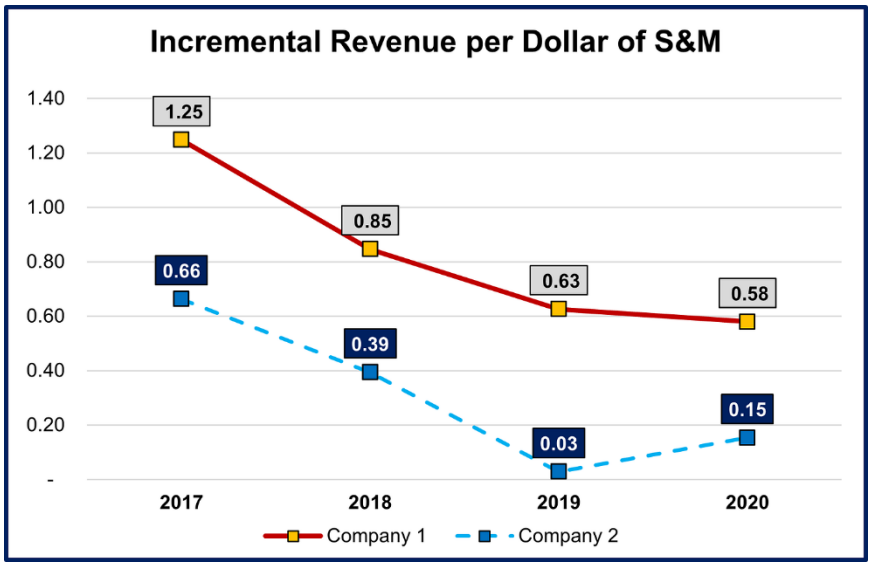
This is called marketing leverage. In theory, as a company scales, their revenues grow. And while they may keep the total dollars spent on marketing high, in percentage terms it falls as revenues grow more than their marketing budget does.



In theory, there are two kinds of marketing, just like with capex: 1) growth marketing, and 2) maintenance marketing. Growth marketing would be marketing designed to acquire new customers and make incremental sales. Maintenance marketing is designed to keep users you already have. If you ever got a "$5 off your next DoorDash" or "20% of your next three Lyfts", then you have been the beneficiary of maintenance marketing. These companies may have earned you as a customer in the past, but they need to keep reengaging with you in order for you to stay. Their hope is that eventually you will build a habit with them, and they will not need to offer you any more promos to stay a customer.

We can do a rough test to gauge S&M efficiency. In the graph below, we take incremental revenues and divide it by the total marketing budget for each year. While this metric isn't perfect, it will allow us to get a rough idea of marketing efficiency. (Others may prefer to use gross profits, but the output is similar).

While this test cannot tell us whether they are acquiring a new user to replace the one that churned, or if they are reengaging an existing user to stay, it still gives us a good sense of how much marketing is needed to keep their existing revenues.



What we see above is that in 2020, Company 1 would earn 58 cents of revenue per dollar of S&M spent whereas Company 2 would earn 15 cents. In the year before the pandemic, Company 2 was earning just 3 cents of revenue growth per dollar they spent on marketing. What this suggests is that most marketing was spent just to replace users that left or reengage existing users to purchase again. If Company 2 cut marketing, then revenues would disappear. We cannot draw from the available info whether Company 1 is spending money well or not. That would depend on their gross margins and how long the customer stays around. If they make 58 cents in revenue for spending a dollar in marketing, they could eventually make it back if that buyer buys every year for about 2 years.[3]

If you haven't guessed by now, Company 2 is Wish. Company 1 is Pinduoduo, the Chinese ecommerce company that displaced Alibaba in terms of most active buyers, and now also has a higher market cap.

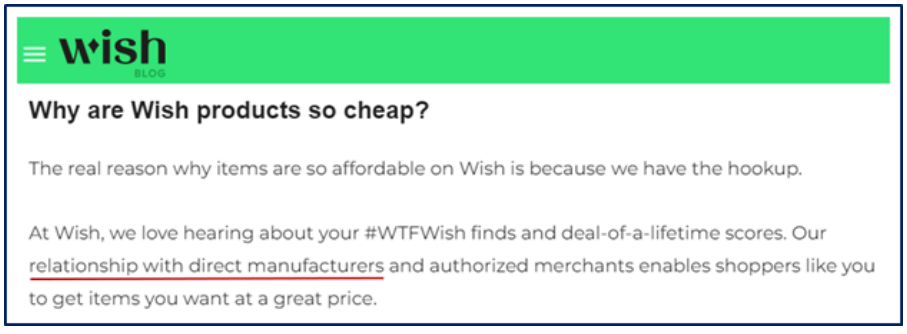
Before moving back to our Wish analysis, we will say a bit more about Pinduoduo and other ecommerce players, and in the process, address three other common reasons Wish is thought to have failed: 1) their products were cheap tchotchkesthat had no market and 2) their shipping was too slow, and 3) fake listings.

The Wish That Was: Pinduoduo

In China, Pinduoduo pioneered the business model of community group buying, which was essentially purchasing products at steep discounts so long as enough people shared the item that the merchant reached some predefined figure of sales. For example, get a 140 Yuan air fryer so long as 100 people commit to buy it. The need for a deal to "tip" created a novel user acquisition engine as those yearning for cheap air fryers lobbied friends to join the deal[4]. Additionally, the model originally relied on group leaders who would arrange the last mile pick up of items: a group leader would start a deal, get a bunch of friends to join the deal, and then all of the items would be shipped to them. While this may seem odd, it makes more sense in the context of how Pinduoduo originally gained traction: through fruit sales. Essentially, Pinduoduo helped aggregate enough buyers that a farm could rationalize delivering a single order and still make money given the low value of most produce. While in short order they moved towards a more traditional delivery experience, it was only after they gained scale.

There are three key aspects that are different to note here: the first is their direct relations with farms, or manufacturers, the second is their logistics solutions, and the third is their customer acquisition engine.

Let's start with the first aspect. The direct manufacturer relationship allowed them to keep costs low and cut out the distributors' mark-ups. Wish would essentially do the same thing. In the blog post below, they note that it's their direct manufacturer relationship that makes their products so cheap. We also see that Shein, the fast fashion clothing retailer, does something similar.


wish
BLOG

Why are Wish products so cheap?

The real reason why items are so affordable on Wish is because we have the hookup.

At Wish, we love hearing about your #WTFWish finds and deal-of-a-lifetime scores. Our relationship with direct manufacturers and authorized merchants enables shoppers like you to get items you want at a great price.

From Wish's Blog.

This is an important point because another criticism Wish gets is that they failed because their site is full of cheap, low-quality tchotchkes that had no purpose beyond short-lived novelty. However, Pinduoduo had success selling a lot of the same. Their international version of the app, Temu, has also gained enough traction that we can say there clearly is demand for these sorts of goods. Furthermore, Shein followed suit and added a lot more general merchandise to their site. In fact, some are now attributing Temu as the reason Wish cannot turnaround the company.

The second criticism that Wish gets is that their shipping was too slow. Wish's thinking was that a consumer would be willing to wait a longer amount of time to save money. While they had other shipping issues which did seem problematic (items not arriving), the wait itself was not necessarily a problem. We see with Etsy that people are willing to wait usually at least a week, or much longer, for an item they really want. With Pinduoduo, we see people are willing to suffer some inconvenience to save money. Shein has 2 to 8 day waits and Temu has 6 to 20. So, it seems unlikely Wish's 1 to 4 week shipping times was enough of an issue to kill them.

The third reason, as shown in this New York Times Article, was fake and misleading product listings. The NYT even notes employees created a store called "bestdeeal9" with "unbelievable bargains" like a $2,700 TV selling for a $1 to track how often customers complained when the item never came. The NYT states that:

> *Deceptive experiments like "bestdeeal9" drove customers away, as did low product standards and unreliable shipping. When the rising cost of ads forced it to scale back its marketing, the company struggled to attract new shoppers.*
>
> **– New York Times, "How Wish Built (and Fumbled) a Dollar Store for the Internet."**

We would disagree with this assertion though, because customers never had high expectations on the app to begin with. Many reviews talk about how Wish is "hit or miss", but that doesn't entirely bother them, as it is very cheap and they can sometimes find great deals. The "unreliable shipping" also didn't seem to be the issue, as long as the item eventually got there. Buyers talk about how they would often forget what they ordered anyway, and would be pleasantly surprised when they got a "gift" from themselves. The rising ad costs inherently has nothing to do with retaining users, but just acquiring new ones—they wouldn't need to replace all of their users in the first place if there wasn't a problem. (Look no further than Etsy, who recently complained about high ad costs, although that didn't cause them to lose users).

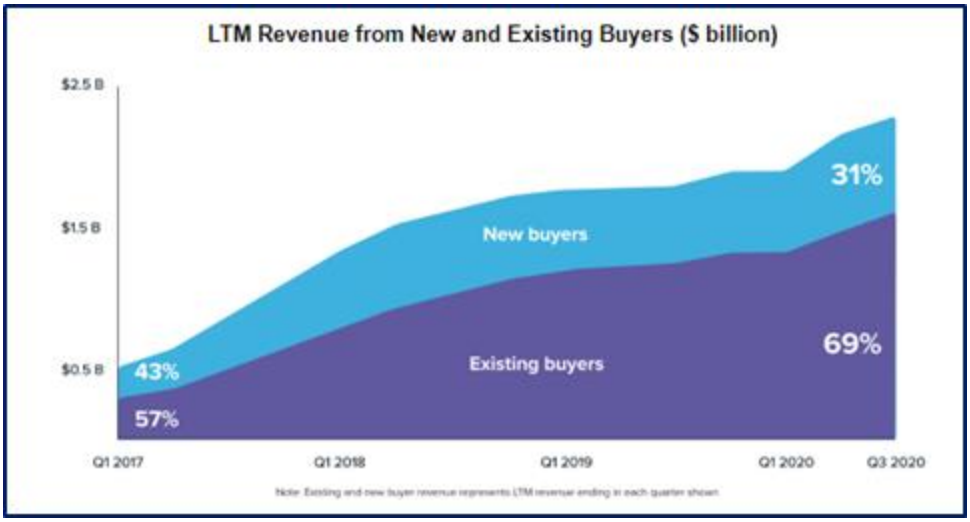
To be honest, there is no clear singular issue you can point to in theory that would have predicted their demise. Almost everything someone could come up with could describe a different marketplace at a different point in time. eBay was fraught with scams when they first launched and Amazon had (and perhaps has) plenty of dangerous, cheap merchandise. Temu sells the same stuff as Wish, and with the same potential for it to show up a month later. Every 3rd party marketplace has had to deal with fake listings.

There is no *one* proximate reason why Wish turned out the way it did, and there is nothing in the business plan that in principle doomed them to fail. We will say a few more words on this later, but what is absolutely clear is that despite whatever narrative you want to attribute to their downfall, the numbers clearly anticipated it.

Wish Customer Churn Analysis.

All of the analysis below is from disclosures available in the S-1.

The chart below shows that LTM revenues from new buyers is 31% versus existing buyers at 69%.



Also in the S-1 they note that they have achieved a "buyer acquisition cost" or BAC of under two years. They define BAC as all digital marketing spend directed at app downloads divided by all new users in a period. So, note that other marketing spend, like brand marketing, is not included.

> In addition to LTV, we also focus on managing our new BAC and continuously improving the ratio of LTV to BAC. All of our annual cohorts since 2016 have achieved a BAC payback period of under two years, and our most mature of the cohorts disclosed – the 2016 cohort – has achieved a 2.8x LTV to BAC ratio by year 4. We are intently focused on managing our BAC and are using our data science capabilities to implement more efficient buyer acquisition strategies as we scale and target additional users and buyers in new geographies.

S-1 Page 94.

What we want to do is use these two facts to try to figure out how much marketing spend is spent on *existing buyers*. In theory, if existing buyers require promotions to purchase again (which is included in marketing spend), then they effectively need to be re-acquired in order to become buyers again. This is problematic if the promotion spend that Wish must incur on existing customers is so high that they can never make a profit from their customers.

The Los Angeles Lakers were sponsored by Wish.

The first analysis we run shows that we can use the facts above to estimate there is over $600mn in marketing left after acquiring their new users. While some of this was spent on brand marketing, like their large deal with the Los Angeles Lakers, even that was estimated to just cost $12-14mn annually. While in the analysis below we take the full $629mn as a % of sales, even a fraction of that would suggest their core ecommerce platform would never be profitable without meaningful changes.

Wish Existing Buyer Reengagement Analysis	
(all figures in mns of $ and as of 3Q20)	
3Q20:	
LTM Revenue	$1,944
LTM S&M	$1,593
% of Revenue from:	
New Buyers	31%
Existing Buyers	69%
$ of Revenue from:	
New Buyers	$603
Existing Buyers	$1,341
Assumed Gross Margin*	80%
Gross Profits from New Buyers	**$482**
Payback Period	2 Years
Implied CAC for New Buyers	$964
LTM S&M	$1,593
Less: Implied CAC for New Buyers	$964
Excess S&M to Reengage Buyers**	**$629**
as a % of Existing Buyer Revenue	**47%**

**Not using reported since it includes logistics revenue which is lower gross margin. **Includes brand marketing.*

Total LTM revenue of $1,944mn x 69%

Gross profits from new buyers of $482 x 2

While this does include some brand marketing, it still suggest a large amount of marketing is spent on keeping existing buyers.

For context, other 3P marketplaces like eBay have about 20% operating margins and Alibaba's Core Commerce segment in 2020 was 32%. If we consider these platforms as optimistically what Wish's aspirational margin profile could look like, then we see that spending anywhere near the 47% figure above would quickly consume their entire margin.

And we can confirm in the S-1 that their marketing plans do include re-engaging customers with deeply discounted promotions. The two disclosures below are from pages 90 and 134.

Invest in our sales and marketing engine. We have made significant investments in our data science which underpins all aspects of our operations including marketing and user acquisition. By leveraging our unique and scaled data set and algorithms, our goal is to execute cost-effective and successful digital marketing strategies to acquire new users and re-engage existing users on the Wish platform. We consider our user acquisition expertise a strong competitive advantage and have invested in this capability over time to continue to drive user and revenue growth. We will need to continue to invest in our marketing efforts to attract new users and increase user engagement.

From Page 90 in the S-1.

Drive Profitable Lifetime Value from Existing Users. We will continue to improve the engagement and monetization of our users on our platform to maximize their lifetime value. We plan to achieve this goal using a number of strategies. We will use our data science to drive personalization of our platform, so that we can continue to offer a differentiated mobile shopping experience and continue to drive higher user engagement. We will also continue to offer deeply discounted promotions, including LQD, and an overall gamified experience that further incentivizes users to make a purchase. In addition, we will promote robust, user-generated content which will continue to serve as a source of trust and quality for our largely unbranded product selection. We will also seek to continuously improve our ease of use by investing in our user support and logistics platform to enable faster deliveries and localization of our platform, ensuring optimal engagement by our global user base.

From Page 134 in the S-1. LQD is limited quantity deal where they sell higher end merchandise for below cost in order to keep users engaged.

We will do one final analysis to estimate churn before concluding. However, we want to note that this analysis is unnecessary to make the point we are about to. If you simply saw that they lost users despite spending >80% of revenues on marketing, or almost ~$1.5bn, is there any explanation you would accept that could convince you the business was healthy? Imagine your Chief Marketing Officer just told you they spent $1.5bn to lose 2mn buyers and grow revenues 2%. How would anyone possibly see that as a good thing? And yet, with a little bump in numbers from Covid in 2020, it was overlooked by investors in favor of the hope of buying the next Amazon at IPO.

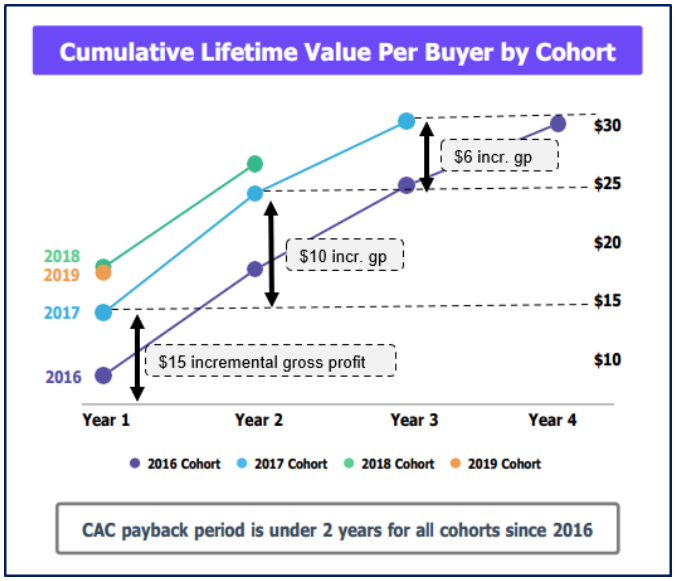
Wish Buyer Growth Red Flag

(in mns)	2017	2018	2019	2020
LTM Buyers	52	64	62	64
Buyer Growth		**12**	**-2**	**2**
Revenue as a % of S&M		*92%*	*83%*	*84%*
Core Marketplace Revenue Growth		*56%*	*2%*	*15%*

In the S-1 they disclose the following LTV chart. They calculate "LTV" as cumulative gross profits over a period of time attributable to new buyers acquired in a given cohort, divided by total new buyers, which is most certainly not what an LTV really is.

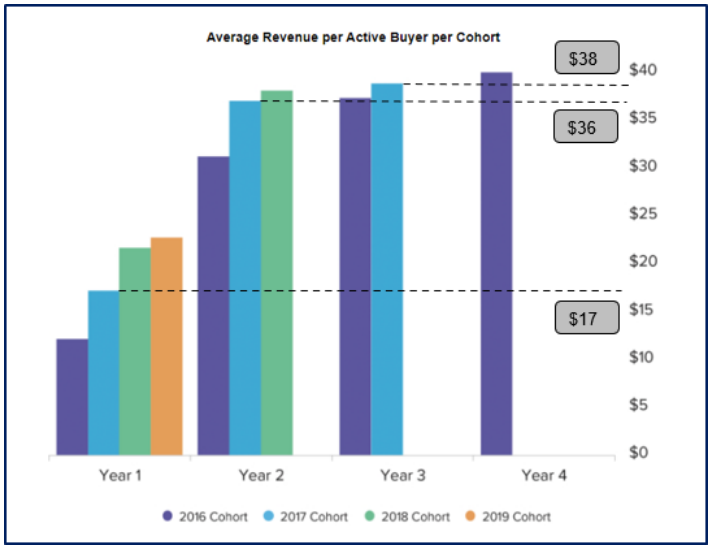
For example, let's say a cohort generated $15 of gross profit in year one and then another $10 of gross profit in year two. They would add those two numbers up and say the "LTV" of the customer in year 2 is $25. Therefore, if you wanted to calculate how much each cohort generated in gross

profits in a given year, you just have to take the difference between each year. In this example, this cohort generated $10 in gross profits in the second year versus $15 in the first year, suggesting ample churn. What you would want to see is each year's incremental figure stay steady or increase.



The chart above shows cumulative gross profit by cohort. If it was a perfectly linear line, then that would mean in each period the cohort bought the same amount of goods as the previous period.

We will focus just on the 2017 cohort for simplicity. We annotated it to show how we estimated incremental gross profits. The average buyer from the 2017 cohort earns $15 in gross profits in year 1, which drops to $10 in year 2, and then to $6 in year 3. We can already see that by year 3, each cohort is generating about 1/3rd what it did in year 1, which suggests heavy churn. Remember that Wish's payback period is about 2 years, which means it isn't until year 3 they make that small incremental gross profit. And remember, this is just to pay back the initial marketing investment, not other S&M they spent on promotions to reengage that buyer.



From this chart we can see what the average revenue per active buyer is. Since the first chart counts all gross profits for the given cohort and this second chart shows us the average of only active buyers, we can back into how what percent of the cohort is still active. We similarly annotated the chart above where we guessed the average revenue per active buyer and fed it into the table below.

Wish Churn Analysis

2017 Cohort	Avg Rev. per Active Buyer	Gross Margins	Avg. GP per Active Buyer	Incremental GP per Buyer	% of Cohort Active
Year 1	$17	85%	$15	$15	100%
Year 2	$36	85%	$31	$10	33%
Year 3	$38	85%	$32	$6	19%
		Implied Lifetime**		2.3 Years	

**Uses 14.5 for Incremental GP in Y1 to lower implied gross margins. Gross margin could be different than reported since internal reporting is different than financial.*
***This is an estimate. Use the compounding formula to estimate annual churn, which is about 44%. Then taking 1/C.*

Here, we can see that that the difference between the gross profit for total buyers divided by the gross profit per average active buyer gives us a churn estimate. At the end of year 1, 100% of buyers are active (by definition) and by year three that drops to 19%. That comes out to about 44% annual churn over two years. It is also noteworthy that the churn is much worse in the first year. A full 67% of buyers do not return after buying once.

Now, remember that their average payback period is under 2 years. That is rather problematic in the context of almost no one being left after 2 years! They have a thin amount of remaining users that not only need to cover all of the reengagement marketing, but also all of their G&A and R&D cost. And that's before they can even make a profit!

This is a fundamentally broken business. Users do not stay long enough, they have to pay to get users to return, and users are not profitable.

What Happened Next?

The Covid bump they got turned into a Covid headwind, and in a different funding environment they cut back on marketing which caused revenues to further fall. Marketplace revenues fell -34% in 2021, mirroring almost exactly their -35% y/y cut in S&M. At the end of 2021, CEO and Founder Peter Szulczewski stepped down from his post. 2022 proved much more brutal though. Wish would cut S&M -77%, which resulted in marketplace revenues plummeting -80% y/y. In April 2023, Wish's parent company, ContextLogic, did a 30 for 1 reverse stock split as shares were literally trading for pennies. Today, they have about $450mn in cash, $220mn in liabilities, and, after many cuts, are still on track to burn ~$300mn a year. Their market cap is currently about $100mn, down 99.5% from their peak of ~$20bn.

What Is The Lesson?

Earlier we said that an explanation is a story that cannot easily vary. Well, we have trouble figuring out exactly what the story is that cannot vary. There is nothing in principle wrong with an ecommerce offering catered to the consumers in the low-end of household earnings. Some would note that the low average order value would make it hard to make enough contribution profit per order, but that is essentially what Pinduoduo did in China, what Shopee is doing in Southeast Asia and Brazil, and what Temu is doing in the US. While we don't know exactly if all of those initiatives will end up being profitable, it is hard to claim it is the idea itself that is rotten.

Clearly, Wish had a problem with both their high cost to acquire users and their ability to retain them. We know that Pinduoduo had a better customer acquisition engine piggy backing off of Tencent's Weixin with preferred placement and the Community Group Buy model was a novel way to spur consumer sharing, free of charge. Shein had TikTok and went viral early on with "Shein hauls", where influencers would post everything they purchased. They would later lean into influencer marketing on TikTok to much success. Amazon has Amazon Prime which helps retain users, and their optimal customer service helps keep customers satisfied at potential churn events. Wish was lacking something in the customer acquisition and retention area, but exactly what isn't obvious.

Perhaps it was a mix of everything that individually created customer churn events from slow shipping to "unreliable shipping", fraud, fake listings, sub-par customer service, inadequate item selection, poor item quality, inaccurate recommendations, or perhaps even internal issues. But

again, other companies have survived similar or worse issues. And the longer the list, the more it speaks to our lack of confidence in any one variable. As an investor from the outside, it isn't apparent what the key problem was, at least not to us.

What is crystal clear though is that there were issues since at least 2019, and some red flags prior. An investor only needed the company's IPO prospectus to see these problems brewing, and could have avoided even worrying about any potential "narrative fallacy" by just focusing on the financials.

Rewind a few years ago and I actually sat in on an IPO meeting with Founder and CEO Peter Szulczewski. When asked about the meeting, I remember saying, "I have not seen a single number yet so this could all change, but it is actually a very impressive company, and they have an interesting model". I talked to that person later, and when they could tell my impression of the company had changed, they asked why?

I replied simply: "The numbers."

If something doesn't look right, don't overcomplicate it.

Appendix

[1] It is true that by time the 2020 10-K in March of 2021 that the stock would be down from its IPO value by about 30%. However, that was not because 4Q2020 showed anything an investor couldn't have seen in 3Q2020 (last quarter when IPOed). We only use the full year 2020 because it is easier to compare.

[2] Credit to David Deutsch for the concept.

[3] If gross margins are assumed to be 80% we take 1/80% = 1.25. That means they need $1.25 in revenue to recoup enough gross profit cover the $1 they spent on S&M. We can take the 58 cents and divide by 1.25 to get about 2.2 years, which is the payback. The company would want the user to stay around longer in order to make money off of them.

[4] This is very similar to Groupon's original model where enough people had to join the deal in order for it to tip and everyone to receive the deal.

Minimum Viable Products versus Maximum Possible Products

The Difference Between Learning and Proving

Intro.

> *The test of a first-rate intelligence is the ability to hold two opposing ideas in mind at the same time and still retain the ability to function.*
>
> *– Scott Fitzgerald*

Is the customer always right? Or does the customer not know what they want?

Do you build what your customers say they want? Or do you build what they don't know they want yet?

There are two seemingly contradictory ways to build a great product and a great company.

Do you build a perfect product and then introduce it to the customer, or do you get something out in front of the customer as quick as possible because you do not know what perfection is.

The former style is best portrayed by Apple, who in deep secrecy creates a new product with zero customer feedback prior to releasing it. The latter is usually referred to as a MVP or minimum viable product, popularized by Eric Ries's Lean Startup. This is essentially how Amazon started as nothing was automated on the back end. Every time they made a book sale, a bell rung and a person manually sorted through books to pick & pack on the floor (they later facetiously noted that the idea of packing on a table was revolutionary).

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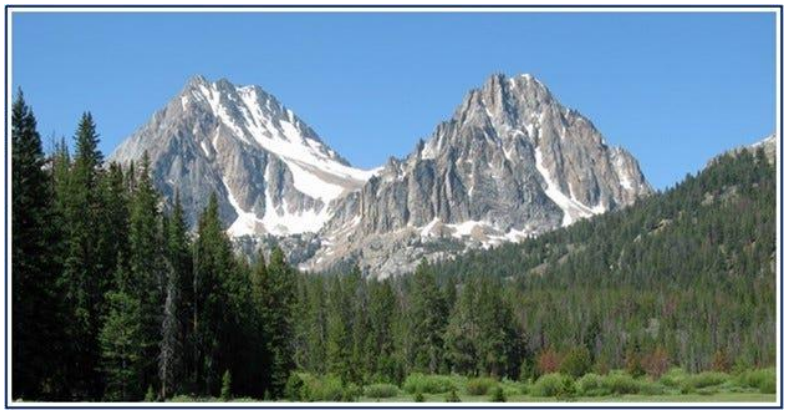
Amazon's website in 1995.

These two innovation strategies seem worlds apart, but they have one fundamental underlying similarity.



The Foundation of Dueling Innovation Strategies.

Steve Jobs and Jeff Bezos both are building products that they themselves want to use.

Even when these products are created in secrecy, the person that the product is built for is usually themselves. Steve Jobs just thought how he would want to use the iPhone and built that. He was still building it to a customer, it just was a sample size of N=1. Similarly, James Dyson was solving problems he thought annoying: vacuums that lost suction, needed bags, and were hard to maneuver.

If you watch an episode of Shark Tank, you will see a very high correlation between interesting products that have strong use cases and whether that entrepreneur was solving a problem they

themselves had. In fact, it is a considered a criticism if a Shark says "I don't know what problem your product solves."

This idea is similar to the Clay Christensen framework of "Jobs to Be Done". A product is "hired" for something specific and if that entrepreneur built that product with a problem they had in mind—after they checked that all the existing alternatives couldn't complete that job—then there is a high probability that that product fulfills a unique job. (That doesn't mean it isn't extremely niche though and thus might not be attractive as a business opportunity, i.e. Bob Iger's proverbial trombone oil).

But there is of course still major differences between the two innovation styles: Do you know exactly what the customer wants? Or are you just lobbing an idea out and relying on the customer to get you closer to the end product?

An Early Dyson Vacuum.

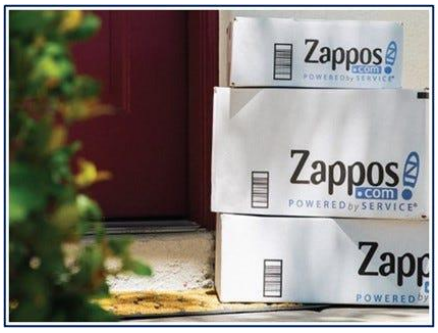
Execution vs Idea Validation.

A keen observer may have noticed that there are really two aspects to an MVP. First, there is the MVP where an entrepreneur doesn't know exactly what they should make and so they rely on customers to tell them with feedback. Second, there is an MVP in execution. While these two typically go together since someone who doesn't know what to make will (or should) not spend much time on making the product as good as possible, they do not necessarily have to.

Amazon was an MVP only in execution because Jeff Bezos wasn't worried about validating the idea: he knew people would buy things online. But he didn't spend time perfecting a backend system and the design of the site, instead he just got started and knew all of these things would continue to improve overtime.

In contrast, Zappos founder Nick Swinmurn was unsure if people would buy shoes online in 1999. It was widely assumed that customer would want to feel how a shoe fits before buying it, so footwear wouldn't be a good candidate for online sales.

Instead of just accepting that commonly held "wisdom", he would snap photos of shoes from local retailers and post them online. If they sold, he could then purchase them at the store and ship them off. Swinmurn proved there was latent demand for online shoe sales. Zappos was both an MVP in execution and in idea validation.



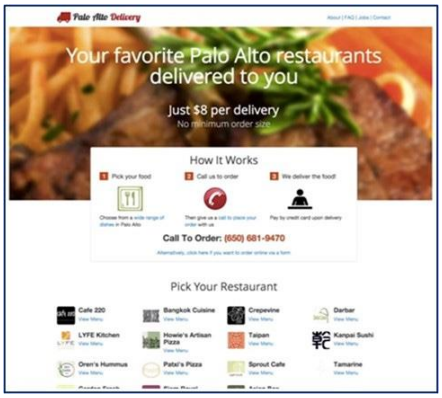
The founders of DoorDash, before focusing on delivery, thought they would create software for small businesses to help them manage their business better. However, the small business owners they spoke with were disinterested in that. But one owner pointed out that delivery was a pain point, so they moved to focus on that.

Instead of spending months to push out a polished product, they created an MVP to test if the idea had validation. As DoorDash Cofounder, Stanley Tang notes below, "it was super simple, ugly and we weren't really expecting anything".

> They decided to build a basic web page with menus from local restaurants to see if there was demand for a delivery business. "It was super simple, ugly, and honestly we weren't really expecting anything," Tang said at a Stanford lecture years later. "All of a sudden we got a phone call – someone called! They wanted to order Thai food."
>
> - Seattle Times

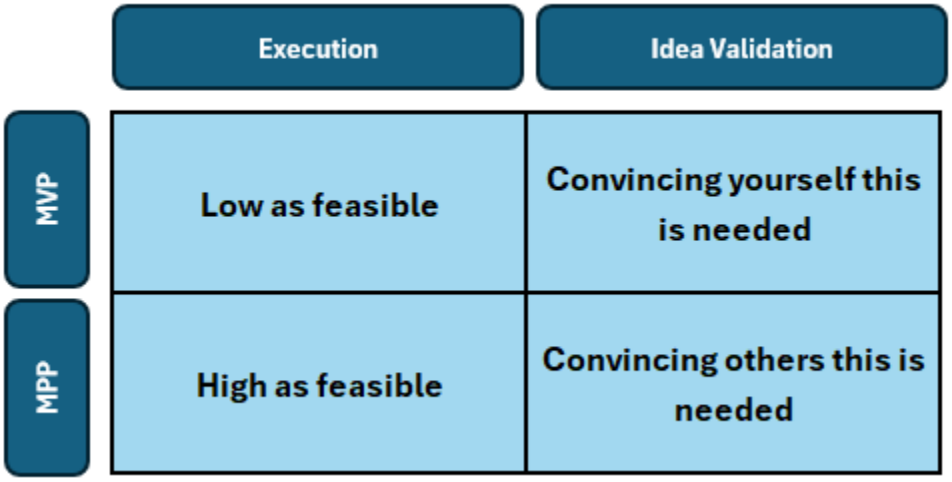
Alfred Lin, who would lead Sequia's Series A investment in DoorDash after being unsure about the idea initially when he saw them at Y combinator, similarly noted that they didn't know if this was a real problem they were solving.

> We weren't sure whether this was a problem that needed to be solved at the time, but it turned out to be a very big problem," he told me. "All restaurants would deliver if they could, but it didn't make sense for every restaurant to have their own. The same was true with all local merchants."
>
> - San Francisco Business Times



Before changing their name to DoorDash it was called Palo Alto Delivery.

On the other end of the spectrum, is what we will call a "Maximum possible product". This is Apple's iPhone. Maximum possible product's, or MPPs, *are not about idea validation to the entrepreneur, but rather to the masses*. **MPPs require very high execution because they are trying to convince people that they need something they previously didn't know they did.** Any sort of mediocrity in the product is doing a disservice to convincing them that they need this product.



We will talk more about MPPs in a moment, but first let us think in terms of the Consumer's Hierarchy of Preferences to gain a better understanding of why something works.

Consumer Preferences Matter.

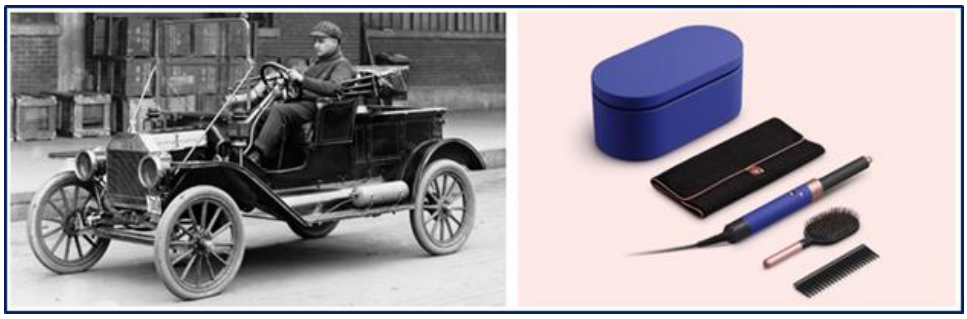
The Consumer's Hierarchy of Preferences can also be thought of as the "Merchant's" or "Business's" Hierarchy of Preferences. The general idea is that there exist various preferences for any product and once a sufficient number of preferences are fulfilled, then there is an exchange of money for the product.

An MVP works well at finding what those minimum preferences are that need to be fulfilled in order to elicit a sale. Is the convenience of online shoe shopping a high enough preference that people are willing to risk the hassle of a return, wait several days, and pay a premium for delivery? The MVP discovered the answer.

The DoorDash team found out that helping restaurants take online orders and arrange for delivery was fulfilling a strong enough need to earn a merchant's business. MVP products are about getting to market quickly, knowing that their solution, despite being hastily implemented, is good enough to start to serve the market.

In contrast, **an MPP is about revealing unknown consumer preferences**. It's about creating something people didn't know they wanted. Whether it is Apple's iPhone, iPad, or AirPods, Dyson's vacuum cleaner or Airwrap, Ford's Model T, or Amazon's AWS, these products were all created as very polished versions of the idea they represented. This is because they had to show the consumer that these were products they wanted. **In contrast to an MVP where a customer has an imagination of what the product could become (and can share so with feedback), the MPP**

must instill that imagination in the consumer, getting them to envision why they need the product.



Ford's Model T was the best made mass produced car at an affordable price, which convinced people who never considered themselves potential vehicle owners to purchase the car. The Dyson AirWrap was so much better than existing hair products, and worked so well that it revealed to consumers that that device was something they wanted.

There is of course a bit of blurred line looking retrospectively because over time these businesses continue to iterate on their products, so their initial launch looks like an MVP and not MPP. The iPhone 1, the original Dyson, and the Model T are all worse in every way than their modern counterparts, but these products were all near the best they could have been at the time. And most critically *they all revealed consumer preferences that were unknown to exist prior to their launch*. People didn't know they wanted a car before Henry Ford popularized it and the cloud wasn't on anyone's mind before AWS.

Just think of the quote commonly attributed to Henry Ford: "If you were to ask a customer what they wanted, they say faster horses."

While we can be glib about this statement, it actually has an incredible amount of insight in it—and it is not for the reason that people typically think.

It seems intuitive to us that prior to the advent of cars, the typical person wouldn't have thought of a car as something they wanted because it didn't exist! An MVP is designed to give people something they would have already wanted (a faster horse) and couldn't have successfully been used to launch a car. This is because to convince someone to try something totally new, their new

experience with it can't be garbage. How much would you have loved your first iPhone if it was very buggy, crashed all the time, and had the battery life of 75 minutes? An "MVP iPhone" could have turned people off from iPhones all together. Similarly, an MVP car that broke down every few miles would be a similarly poor experience.

The MPP is about convincing consumers or businesses that they need something they never thought they did and so inherent to that is making it a good enough product to dispel doubts.

An MPP can also be a late comer to the market. This is because while they are serving an existing market, they are also fulfilling preferences that are not currently met by the existing market. There existed plenty of vacuums before Dyson's, but no product that was as well engineered with no loss of suction, a bagless design, a sturdy feel, and that looked nice aesthetically. Legacy vacuum companies didn't know these things mattered, it turned out they did.

An MVP is about *discovering* preferences, whereas an MPP is about *proving* that consumers had an unrevealed preference.

There was initially much skepticism around Amazon's web services business. In contrast, when Google started investing heavily in their public cloud service it was generally applauded despite their distant market position because it was a proven product by then.

Conclusion.

Science is a processes of testing hypotheses. You create a hypothesis and test it. But there is no way to know if a hypothesis is worth testing before testing it. Similar to mining for Bitcoin, you cannot know the solution to the SHA-256 hash function without actually computing it—there is no way to know the answer to the algorithm before calculating it.

Innovation is very similar.

You can create hypotheses about what preferences consumers have and create a product that tries to fulfill those, but your won't know until you actually create that product.

If *you* are unsure if a consumer preference exists, then the MVP is like running a low-cost scientific experiment to probe to see if it does. You are answering the question, "what does the customer want?".

If you know that a consumer preference exists, but the consumer doesn't, then an MPP can prove to the consumer this unrevealed preference. You are answering a question that the consumer didn't even know to ask.

What is a Great Business?

A Framework for Building a Deep Understanding of Business.

What is a Great Business?

If we were to put the question to you, “what is a great business?”, how would you answer?

Would you hone in on financial characteristics like high cash flow conversion and recurring revenue, or would you point to a competitive advantage that creates a “moat” or a very savvy manager? Do great businesses exist where there is still keyman risk? Or does the very fact that a single person is critical to the business suggest the business isn’t “great”?

If every business in an industry like credit ratings or salvage vehicle auctions has a high ROIC, does that mean the industry is great and not the companies? If an oil company owns a prodigious well, you’d be more prone to say they have a great asset and not necessarily a great company. However, if a company owns incredible IP, like Nintendo, would you say it’s a great company even if monetization of that IP was historically underutilized? Can a great company have no reinvestment opportunities?

What is a great business?

Inverting into a Platitude.

If we were to work backwards, we would be looking for companies that we expect to exist far out into the future and can consistently earn high returns on their invested capital, with some sort of factor that leads someone to reasonably believe they will continue to earn these high returns.

A high and sustainable ROIC that can't be easily competed away is the sort of cliché answer any investor would give when they say why a company is great. But this is more a byproduct of great businesses and not a causative factor. You couldn't set about making a great businesses by saying you were going to only focus on high ROIC opportunities—that's a bit like the efficient market theorists who study Berkshire's stock picks and think they can replicate Buffett's record by buying low beta stocks and using leverage (yes, I was actually taught this in a finance class).

Rather, what we see with most great businesses is they are **doing something for someone that somebody else couldn't do.** The best businesses have a service or product that cannot be replaced in a cost-effective manner. Whether that be Floor & Décor selling the widest selection of in-stock flooring at the best money-for-value or Hermes selling $30k Birkin Bags, *neither have a direct competitor* ***across all aspects*** *of their value prop.*

Competition exists in the flooring market and in the luxury handbag market, but only if the consumer has preferences that are substitutable or forgoable. If they want a Birkin—not just a "luxury handbag"—they do not have alternatives. Similarly, if they want to shop at a flooring store with the most selection of in-stock inventory at the best prices, they do not have alternatives. They may go to other stores that sell flooring, but none will have as many SKUs or as many items in inventory—the consumer would have to decide they don't care about that if they choose to shop elsewhere.

The Consumer's Hierarchy of Preferences.

To elaborate, think of the Consumer's Hierarchy of Preferences (a similar hierarchy of preferences could exist for a business). From our first memo on the Consumer's Hierarchy of Preferences:

> *The Consumer's Hierarchy of Preferences is the idea that consumers have an internal "weighting" of desires, and once a desire is filled to a certain degree, addressing their next order desire becomes more important. When a company addresses a sufficient number of a consumer's desires, they make a sale.*

As a company continues to fulfill more and more consumer desires, they start to build "goodwill" or "surplus". This means that the business is fulfilling more desires than is necessary for the consumer to transact. Surplus isn't just a theoretical concept though; it is critical to the sustainability of a great business and can clearly be observed by a simple raising of prices.

If Starbucks can increase the price of their lattes to $6.50 without a consumer revolt, then clearly those consumers value the drink, the convenience of Starbucks, and the atmosphere at least that much. However, if volumes dip, as we have recently seen in response to Starbucks price increases, that suggests Starbucks was not fulfilling enough preferences to warrant that price increase.

Of course this is only in aggregate, and certain consumers may value one preference more than another. It is easy to imagine someone who solely goes to Starbucks for the convenience and $1 more isn't worth them having to make their own coffee or drive further to a different coffee shop. But at some price, they would.

The existence of pricing power is the easiest way to measure whether there is a consumer surplus or goodwill. Creating a product or service to satisfy a customer (or business) is a necessary condition of being a great company. (That doesn't necessarily mean the customer has to be "happy" about the transaction… more on this later.)

Don't Mediocre Companies Also Fulfill Preferences?

Now the difference between a mediocre and a great company is how many preferences they fulfill *that consumers* ***care about*** *that a competitor* ***couldn't fulfill***. Even the most mediocre businesses are differentiated across some factor, but the problem for them is it is a factor that the consumer is generally indifferent about.

Think of two gas stations at opposite corners. There is nothing different about their product, but by virtue of sitting on different corners they have some minimal level of differentiation. A consumer will have some preference for the gas station that is on the same side of the street as them, but having to make an extra turn is hardly a notable differentiator. This is a very low order preference to the consumer where a 10 cent higher price per gallon could lead to the loss of that consumer's business.

Mediocre companies serve consumer preferences that are easily forgone or substitutable. Or they wastefully release the consumer surplus they may have had otherwise through mismanagement including poor service and inconsistent experience. When investors say they want a business so great a ham sandwich could run it, what they are alluding to is the fact that the product is so good and creates so much surplus that the management could hypothetically waste a lot of it and the business would still be fine.

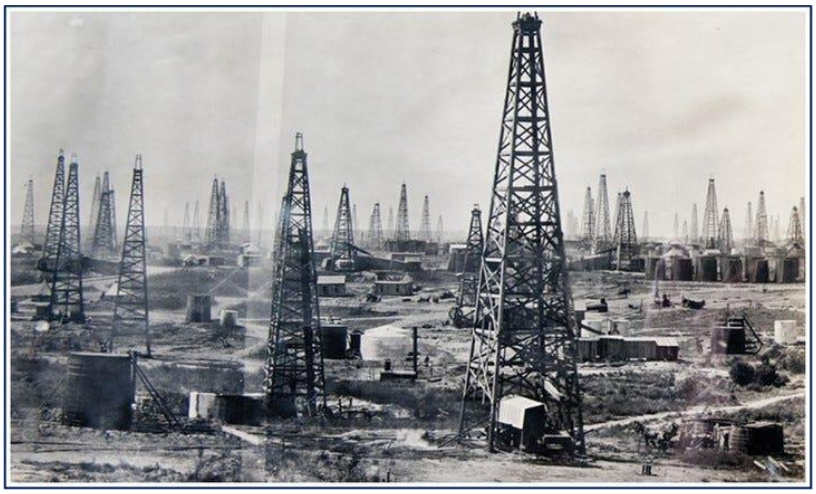
Great companies serve consumer preferences that are highly valued by them and hard, or impossible, to substitute. The more preferences a company serves beyond what was necessary to elicit a transaction, the more goodwill or consumer surplus they build.

The Goodwill Pressure Cooker.

The goodwill a business creates is like pressure building up in a pressure cooker where the point is to create as much pressure as possible, while releasing it in the most sustained and deliberate manner.

This analogy can be extended more literally to the oil business. An oil reservoir is pressurized from millions of years of carbonization. When extracting oil from a reservoir, you can easily make a

mistake by letting out too much pressure and lose forever the ability to recover some of the oil. An oil operator wants to use the natural pressures that have built up to extract the most oil from the reservoir. There are methods to inject more pressure into the reservoir, but they are costly and often still cannot make up for the loss of natural pressures.



An excess number of oil pumps trying to extract oil in the Dad Joiner Oil fields of East Texas led to much less oil being extractable. The more wells drilled, the more pressure wastefully released, and thus the less oil that is ultimately recoverable. A typical oil field may have only 30-35% of its oil recovered without secondary recovery methods, where they inject pressure into the reservoir.

A business is like the oil reservoir or pressure cooker that has pressure that must not be erroneously let out. The more a business does to serve its customers with additional preferences, the more pressure they are building. A scandal, product defects, or bad customer service (the risk of all of which increase with poor management) all expel pressure from the business, but with no gain in return. The proper means of expelling pressure is price.

Price is the mechanism of the pressure cooker's release, but the transfer can equally be thought of as a transfer of "value". When we trade with one another we quote it in dollars, but the dollars are merely our best attempt of assigning the value we see in the item. That is why it is common to say a company is charging more than something is "worth". Serve a decent tasting hamburger for $4 and almost no one would complain, but charge $25 for that same burger and many will be disappointed.

The trick businesses face is a continual and sustained release of the pressure, while simultaneously refilling it at the same time.

Great Companies De- and Re- Pressurize.

Great companies methodically build their surplus and slowly release it overtime. They do not mistakenly let it out through poor business practices.[1] (That is much like an oil operator drilling too many pumps on the same reservoir which depressurizes the reservoir at the cost of total recoverability). The only way these great companies ever reduce their surplus is through taking price—and they leave enough surplus so that competitors do not come close.

The easy (if not hackneyed) example of consumer surplus is Costco. They operate with just a 2.5-3% EBIT margin and could very likely raise prices 3% across the board tomorrow with a very limited impact to volumes. With little skepticism, such a price increase would result in a large net increase in profits. However, what they would erode is the consumer surplus. The more they increase prices, the less distance between themselves and competitors. (Additionally, since their model relies on massive scales of economy, unit volume losses could lead to secondary impacts of less preferable pricing. However, that seems unlikely in our 3% price increase scenario).[2]

In contrast, a company could lose surplus or goodwill without any financial benefit. Southwest canceling 50% of their flights around Christmas time was a great way for them to frustrate a lot of customers. At the point that someone has a cancelled flight on Christmas, their willingness to pay would have likely been hundreds, if not thousands of dollars, to get out of the airport and see their loved ones on Christmas. Those customers' willingness to pay at that desperate point is a fair equivalent to how much goodwill Southwest lost. There are many customers who simply will never forgive Southwest for those cancelled flights.

Live casino supplier, Evolution, has commission rates that can range to twice as high as the competition. The gaming operators who buy Evolution hate how expensive they are and resent their lack of leverage in the relationship… but it doesn't matter. As long as Evolution continues to have the best games that players want to play they do not need to leave any goodwill with operators. They can continue to push the line to extract as much value from them as possible. Some may think this is at odds with the Amazon ethos of customer satisfaction, but it is not: how much goodwill does Amazon leave with their merchants?

Evolution gaming lobby.

CoStar's core product is a real estate data and analytics platform whose customers tend to dislike them because of their aggressive pricing and heavy policing of account usage that occasionally turns litigious. Sure, CoStar could cut their prices 30% and stop monitoring logins so more people like them, but that wouldn't improve their business. They already have virtually all of the top real estate brokers and 98% retention rates on customers who have been on the service for 5 years. Such a move would impair the exchange of value they could receive over the lifetime of the business. Great businesses do not leave goodwill just because. They do it because it makes it harder for competitors to catch up and increases the longevity of their business.

Think of the LTV calculation. To simplify, it has two variables: **1)** lifetime of the customer and **2)** profit per period. A great company is trying to maximize for both, and is willing to forgo profit in a given period for a longer lifetime because that will maximize the value it receives over the long-term.

Inside versus Outside Basis.

A great business should not be confused for a great investment. When you are an investor investing in a business, you are doing so on an Outside Basis. When a business makes an investment, it is doing so on an Inside Basis. The differences in return profile can be stark. On an inside basis, a business may be able to open up stores with a <3 year payback, whereas on an outside basis the investor is buying into the business at a 3% earnings yield (which with 7% annual growth implies a payback period of ~18 years).

The need for reinvestment opportunity is the function of the price an investor pays; it is not necessary for a company to be considered great. In fact, the prototypical great business is one that can gush cash without any need to reinvest into the core. If you owned a highly trafficked toll bridge, the need to invest your profits somewhere else does not make that bridge any less of a great business.

Reinvestment is not a necessary condition for a company to be considered great, but it does make an investment much more price dependent. If you pay a high multiple for a business, you need the retained earnings to continue to be reinvested at high rates of return in order for the investment to work. On a long enough time horizon, the premium you pay gets amortized away and the investors' return converges to the business's ROIC.

Reinvestment is ultimately a problem of the investors and the price they pay. While of course the business will have to do something with their excess cash, giving it back via buybacks or dividends is a perfectly acceptable answer.

The exception is if management does something foolish with the capital instead because in the long-term that incremental investment would grow large enough to impact the entire ROIC of the business. In 5 years time, the management of a company earning a 20% ROIC would have allocated roughly half of the company's capital.

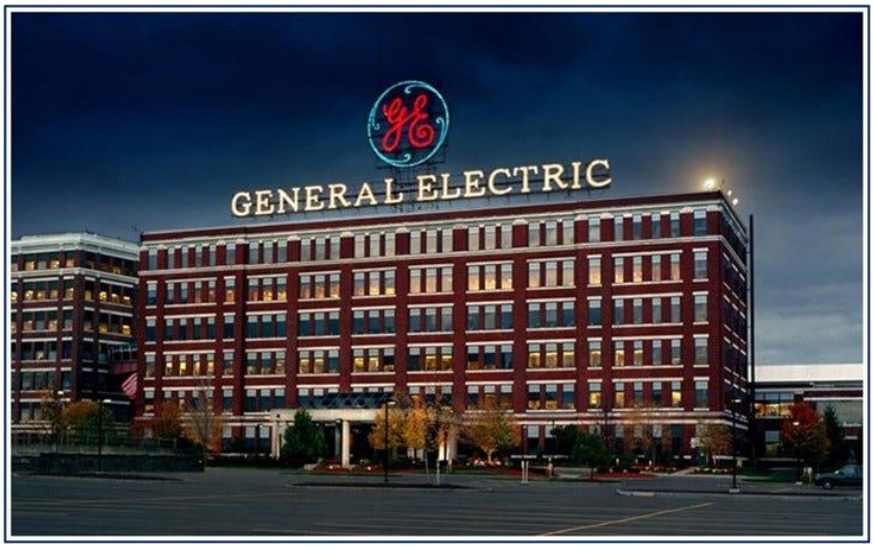
Moody's may enjoy a very high ROIC on their core credit agency business, but they have a very limited ability to reinvest their profits back into the core. In fact, most great businesses are similar, which is in part why they are a great business in the first place: they don't require much recurring investment.

Many great companies do tend to trade at higher than market average multiples, so the reinvestment question becomes key to the investors' success, but the problem of an ever greater amount of excess cash certainly cannot be a mark against a great company.

There are No Prescriptions.

While there are commonalities that great businesses share, ultimately though no list is as good as cultivating your own understanding. (They can certainly be helpful to help point an investor on the right path though). The Munger-type of investing differs from Graham in that it is more of a craft and not a rote formula. What that means is it doesn't require perfunctorily crunching formulas, but the ability to critically think about novel situations.

We started this piece with many questions. But the point was never to give clean answers to them because the understanding that yields the answer is much more valuable than the answer itself.



Walker & Dunlop CEO Willy Walker made the point that his business has no real moats and yet he still 100x'ed the value of the business. GE was thought to be very well managed for a long time, until some of the very management tactics that brought their success were criticized for being too short-term oriented and ultimately were attributed to their unraveling.

Consumer electronics companies were thought to all be undifferentiated boxes of circuits that primarily compete on specs and price. How would you have understood Apple from this perspective? How long would it have taken for you to realize that there was something special about the company? Would it be after the iMac, iPod, iPhone, iPad, AirPods, or never?

Amazon *still* gets the criticism that they will never earn an adequate ROIC in their retail segment on their infrastructure investments. And you know what? If Amazon had their way they never would… at least in GAAP accounting terms because every dollar of profit would be reinvested back into the business.

A prescription would have likely had you miss many great companies right up until the point it was nearly consensus they are great. That is not to say their rise was preordained, but rather that giving answers to a question instead of an understanding on how to answer that question would all but destine an investor to miss the next great company that doesn't look like the last one.

The only way to be able to interpret novel environments is to have a deep understanding of what makes a great business, and much like becoming a great basketball player, it doesn't just come from watching the tape. It's in the practice.

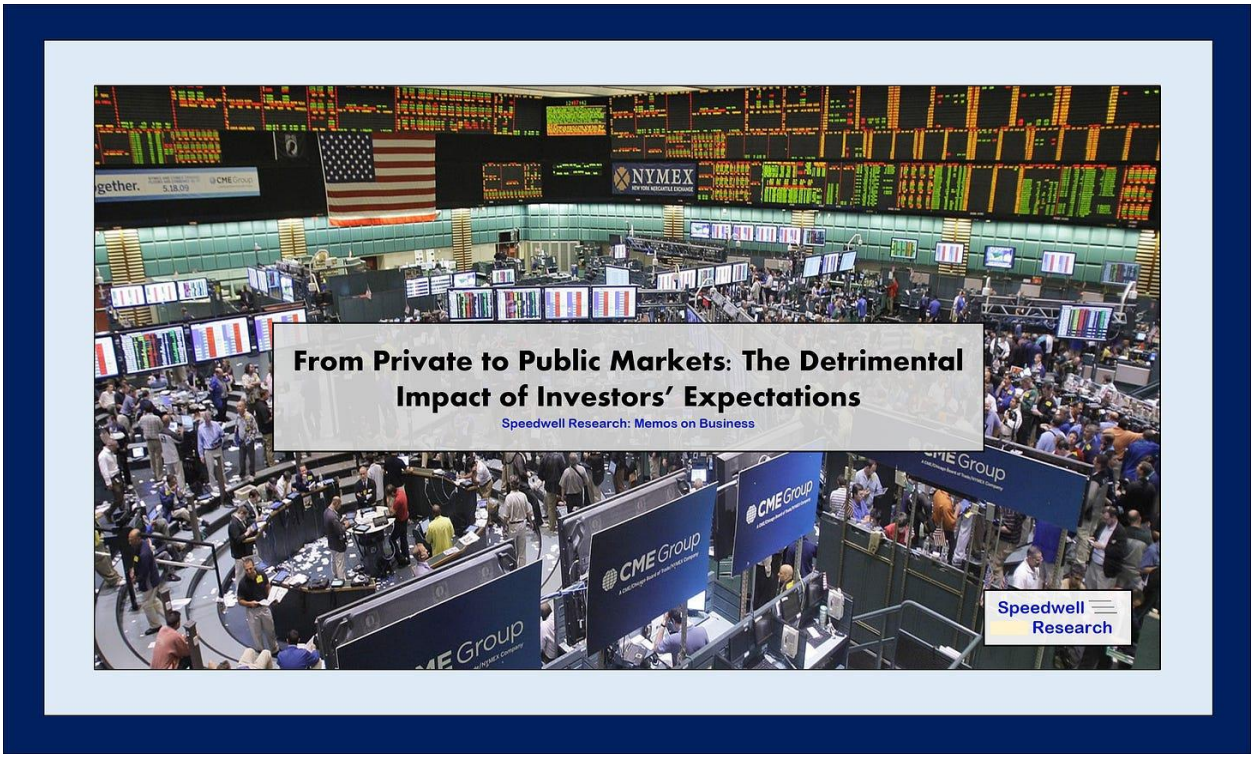
Appendix

[1] A competitor or new technology could erode a company's surplus as well. Yellow books and Newspaper had much pricing power before Google and the Internet. Apple's iPhone quickly made the Blackberry look obsolete and the Model 3 showed EVs didn't need to compromise on speed and looks (think SmartCar and BMW's i3).

[2] There is also a tertiary risk that it impacts the culture, which is a more worrisome adverse effect. The multiple impacts from one decision is similar to the idea of decision clusters and the Piton Network we went over in this piece.

From Private to Public Markets: The Detrimental Impact of Investors' Expectations

How to Inoculate Your Business Against the Whims of the Crowd



This piece was originally written for an audience of founders and entrepreneurs, but there are lessons for investors as well. (Forgive us for generalizing at several points in the piece for brevity.)

Your Reality, My Rounding Error.

In theory, there should be nothing different for a company between being private and public beyond new compliance standards and disclosures. You could be forgiven for thinking that having your shares traded by anonymous parties in a stock exchange transaction would have a limited bearing on your business, but in reality, it can drive your business.

Let's start from the beginning.

Your company was born as an idea. When you went to raise money, you sold that idea to an angel investor or venture capitalist. In their minds, while they might have believed you'd really achieve your dreams, you were nothing more than a *bet* for them.

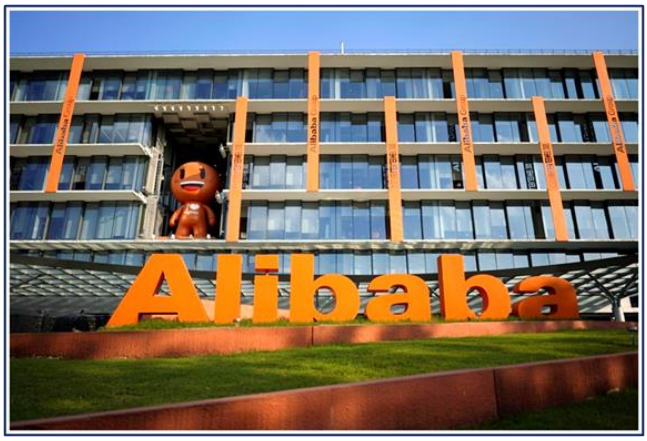
Almost by nature, a "venture investment" implies a risk of impairment of capital.

Two Extremes.

If we were to exaggerate, great venture investors look at how everything can go right, whereas prudent public market investors look at how everything can go wrong. Softbank's Masayoshi Son (Masa) once invested $20mn in a one-year-old company led by an English teacher with no tech background who was working out of an apartment. That doesn't happen if you are thinking about how you can lose your money. On the flip side, Warren Buffett passed on an opportunity to invest in Google at a reasonable valuation for years despite learning that Berkshire's subsidiary, GEICO, was spending tens of millions of dollars on Google search ads, which he knew firsthand to be highly effective. Buffett would later call this a big mistake of omission, but why he ultimately missed the opportunity was because he couldn't assure himself how the internet search market would look in a decade out. He was looking at his downside risk if things went wrong.

That single Masa investment we all know today as Alibaba almost defines his entire career in VC investing. They sold their original 30% stake in many tranches, so it's hard to pinpoint their exact profits, but it's been estimated to be around $50bn, or a 2,500x. While Masa focuses on huge successes, Buffett focuses on avoiding huge losses. Buffett talks about his two rules of investing: Rule #1 don't lose money, Rule #2 don't forget Rule #1.

Masa invests based on a vision of *what the future could be* for a company, whereas Buffett invests only when he is convinced *a very different future for the company won't be*.



Either, Or.

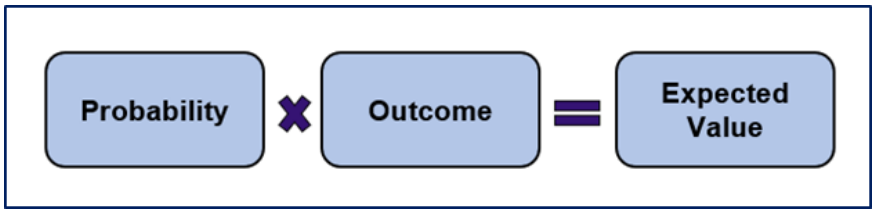
Now, these are two extremes, but there is much truth to them.

When you started your company and went to raise money, you were one of many of your angel or VC investors' investments. You painted a picture of a massive TAM and an ambitious plan on how you would attack it. While they might have believed you'd really execute, you were still nothing more than a *bet* for them.

This means two things: **(1)** you need to think big to get them excited because they need the relatively small amount they are investing in you to not only yield material profits, but also potentially make up for the losses their other bets will incur. It is usually just one single investment that is responsible for the bulk of a VC funds returns, whether that be Facebook, Snowflake, eBay, WhatsApp, or Spotify. **(2)** The second implication is that it's their base rate expectation you fail.

Look at the expected value formula below. There are two variables: probability and outcome. VCs are most concerned with opportunities where that outcome is as large as possible. Large positive outcomes tend to come alongside tiny probabilities, but multiplied together, the results can be meaningful: a 5% chance of a 100x is still an expected value of 5x. If they make 20 of such bets then they can reasonably expect to return 5x on their entire fund, even if every other investment besides the 100x one is written off to zero. This would be a 20-25% annual return over a 7-9 year period, or more than twice the historic average public stock market return.

In short, VC's trade-off lower probabilities for higher outcomes.



We will pick back up here after a quick digression.

Myths.

There is an idea called "inter-subjective myths". These are "stories" that we basically all believe so they become true. Examples are "law" and "money", which only really "exist" because we all agree and act as they do. There is nothing in our world that you could point to where a law truly exists—just books, texts, ornate halls with people in robes, jails, and old documents, but none of these are what a law truly is.

The same way certain concepts supersede their material representations, a great company will try to do the same thing. Amazon prides itself on customer obsession, but how that manifests in Amazon is beyond the customer service department and grading systems they have—they have imbued in the minds of every manager and employee that they will never trade off customer satisfaction for short-term financial gains. Apple employees don't make electronic devices for the consumer market, but rather magical and intuitive products that "just work". In both cases, these inter-subjective myths can be traced back to their founders.

It is the role of the founder (or founding team) to create and instill a set of values that grows with the company. For Amazon, what started as a focus on customer experience becomes not only a set of

behaviors employees mimic, but over time, it changes their thinking too. It essentially changes the weightings of their internal decision making to heavily weigh customer experience over everything else. And incredibly, over time, these myths extend out to consumers too. Almost everyone has very different expectations for a Dell product versus Apple. There is much more we could say about the intersection of these founding myths, company culture, and consumer expectations, but we are bringing this up to make a different point.

For a company's entire history as a private company, the founder(s) have an *essentially dominant control over its narrative*. When a company goes public, there is a new loud voice that commandeers the narrative: the stock market.

An Apple ad with the tagline "It just works".

Mr. Market.

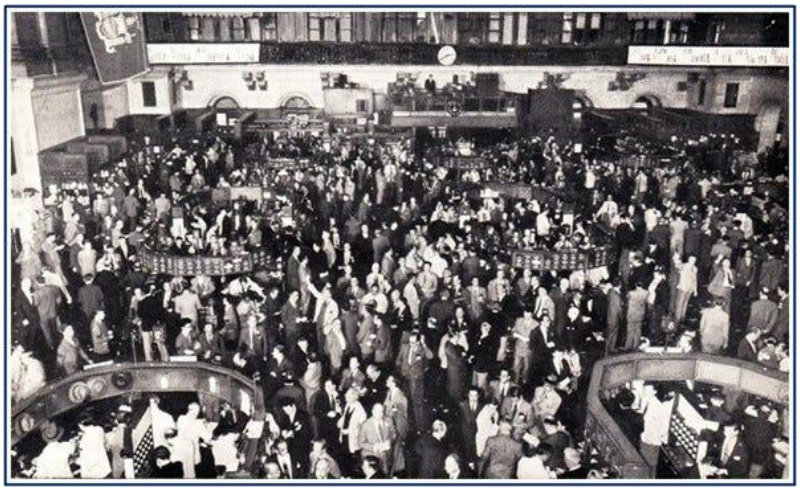
An obsessive customer focus is just as easily touted as poor cost management. A focus on only putting out quality products can also be seen as problematically slow product cycles, issues internally innovating or delays with production.

Every analyst who has never run a business nor has any idea about what it truly entails can now regularly push different stories about how your company is on a path to imminent demise. Naysayers may be nothing new, but they now have a power they didn't before: they can impact your company's stock price.

In 1949, The Intelligent Investor, one of the canonical books on investing was published by Benjamin Graham, Warren Buffett's Mentor. In it, he described Mr. Market, a fictious character who, with his business partner, owned a private business. Mr. Market would some days feel elated and offer his partner shares at irrationally high prices. Other days, Mr. Market would feel very depressed and think the world was going to end, and would reflect that by offering to buy his partner's shares at silly cheap prices. The vicissitudes of Mr. Market's exultation and pessimism should not be taken as indicators of the business itself, but rather just the mood of Mr. Market. This analogy is meant to be extended to the stock market as a whole, with the prices it places on the businesses on a given day having little to do with the businesses themselves on that day, but rather just the "mood" of the market.

While this is a great framework from a public stock market investor's perspective, for a public company manager, it is not entirely true. While the stock price in theory is merely a reflection of a group of investors' opinions about your current prospects, in practice, *the price itself impacts your business*. George Soros calls this reflexivity. Reflexivity is when a participant's expectations

influence the outcome. The stock price will now influence the day-to-day work of your business through impacting employee mood, recruiting, press, and potentially supplier relationships and ability to execute in financial transactions.



The New York Stock Exchange Circa 1940.

As much as people *should* understand the stock price as nothing more than the whims of Mr. Market, they will instead interpret it as a report card. Employees, who are heavily incentivized in stock-based comp, especially in technology and venture-backed companies, will look at a moribund stock price as potentially being indicative of a struggling business. They may understand day-to-day that stock prices are largely random, but will they be as understanding if their stock options evaporate 3 years later? If you just watched $1mn of RSUs shrink to $100k, how understanding are you going to be that just the market value changed, but not intrinsic value? How many employees have an understanding of how much cash flow the company will ultimately produce and how to value that?

The affect heuristic, which is when current emotions influence your decisions, is omnipresent.

When the stock market is strong like in 2021, employees feel elated at their exploding paper net worth. Managers will greenlight lofty and unrealistic projects "feeling" great about their prospects. Others will wonder why they are working for someone else, or at all, with such new wealth and will leave.

When the market crashes, like in 2022, companies will look at the slew of expensive and likely unworkable initiatives they are pursuing and axe them. In the minds of most employees, the stock they own is only as good as the price they can currently sell it at. And if they just watched their paper net worth melt away, they are incentivized to change jobs and get a new equity incentive package. To get employees to stay, the company may have to issue new comp packages which dilute existing equity holders, driving the stock price down more. The best employees are likely to have other options, leading to talent drain.

In theory, a business should have an easier time recruiting when the stock price is lower because the amount of ownership an employee would receive is higher, but in reality, most take the weak stock price to be indicative of a weak business.

In more cases than not though, a large drop in stock prices is not symbolic of the business prospects changing for the worse, but rather a *recognition* that the businesses prospects were always overinflated.

The inflated business expectations now come not from enthusiastic founders, but the investors. These public market investors no longer just contribute to your narrative, but directly drive its valuation higher, which in turn looks like evidence of the extremely rosy narrative being true.

Investor's Reflexivity in Investment Theses.

The same way employees' and managements' emotions may follow the stock price, investors just as easily fall prey to the belief that a stock price movement holds information that they lack. In ebullient markets, investors start looking to increasing stock prices as evidence that their investment theses are too conservative. They increase their growth rates and terminal assumptions of market share.

No longer are investors buying companies on tempered expectations, they start giving value to unlikely outcomes. If they cannot justify the valuation off the markets a company is currently in, then they will start to assign value to moonshot ideas. When Grab IPOed at a ~$40bn valuation, you didn't just need to assume ridehail and food delivery dominance, but that they would be a leading financial service app as well. Investors didn't just assume Sea would be the leading ecommerce player in Southeast Asia, but gave them a valuation as if it already happened.

As investors place ever higher valuations on companies, management starts to play along by entering new markets, new businesses, and resetting expectations higher. Klarna and Affirm aren't just BNPL apps, but potential leading ecommerce marketplaces. Shopify isn't just a SaaS platform, but also will be a leading logistics provider with their own fulfillment network. Zillow and Redfin wouldn't just be real estate marketplaces, but would buy and sell houses directly with iBuying. Uber and many financial services will now reconceive themselves as Superapps with no limit to the services they could eventually offer. Many start-ups and SPACs are starting to be priced as if they already are well on their way to dominating their markets, if not already dominating them. The return an investor would receive for their success is increasingly dropping. Instead of getting a 100x or even 10x for a nascent company achieving incredible levels of success, investors' implied returns are dropping to a mid-single digit annualized return—just a thin premium over the risk free rate.

Whereas typically public market investors focus on opportunities that are likely to yield a moderate return, but with a high probability of success, they now have dropped their caution. Public market investors start investing like VCs, but without the associated return for home runs.

Simply pull up the market cap of any "growth" stock from 2021 and try to pencil out how much in revenue they would need to trade at a 17-19x earnings multiple. This is the stock markets historical average multiple for a company of average quality with average growth prospects. Perhaps you thought these companies were special, so you increased the multiple to 25x or 30x. Then keep in mind such a valuation would only justify their *current market price.* If you wanted to make a return on the company after that, you needed more earnings growth or a higher multiple.[1]

Illustration: Rationalizing a $100bn Market Cap			
Metric		**Label**	**Formula**
Market Cap.	$100bn	(A)	
Assumed Valuation Multiple	25x	(B)	
Earnings Required to Rationalize *Current* Valuation	**$4bn**	**(C)**	**(A) / (B)**
Assumed Mature Margin	30%	(D)	
Tax Rate	*21%*	(E)	
Revenue Required to Rationalize *Current* Valuation	**$17bn**	**(F)**	**[C / (1 - E)] / D**

In this illustration we see $17bn in revenues would be needed to support a company with a $100bn market cap and these financial characteristics. You can then compare to current revenues to see how much growth is already "priced in".

Such miniscule returns for colossal assumptions tend to be the result of investors not critically thinking about what cash flows a business must generate and how they will do that. Investors will start saying they found the next "Amazon" and since no one could have saw AWS coming out of Amazon in 2000, basing your expectations off of what you can conceive of is foolish since a great company will just continue to outperform all expectations. Such logic is fallacious.

While it is true that truly great companies tend to outperform expectations, this doesn't mean that you should expect the unexpected. **Doing this creates risk, as an investor is no longer guided by their own sense of judgement, but rather relies on good luck to rationalize a valuation. When you lose your ability to tie a valuation to various plausible scenarios that you are okay paying for, you are no longer investing.**

To clarify, it is worth "something" that great companies tend to outperform, but there is a difference between paying a premium for quality and willingness to pay anything because you blithely assume that after whatever scenario you can come up with, the company will do better. Such specious reasoning will drive stock prices during especially ebullient markets, and they will attempt to hijack companies' narratives in the process, only to then question management's competence when they cannot live up to the investors' fairytale.

Tempered Expectations are the Only Inoculation.

Valuation will always be a simple formula. No matter how much "disruption" a company may cause or how revolutionary a product is, the true value of a company is always dictated by the sum of all future cash flows, discounted back to today. Now, we can have a vibrant discussion around what that "discount rate" should be, but what is not up for debate is that a company must earn cash flow *eventually* in order to be worth anything at all. (As a founder, you may profit by selling your company to another company before ever generating cash flow, but the acquirer still expects it to bring them a return through reduced R&D costs, product churn reduction, less competition, monetizing it directly, etc.).

Now, in a company's nascency, investors may appear to value a company on price to revenue, price to gross profit, or some other metric that does not encompass all of a company's costs. When this is done in earnest though, these metrics are used as barometers of future cash flow. A company trading at 10x revenue could also be thought to be trading at ~31x "mature" earnings (see the table below for math).

Illustrative Valuation: Price to Revenue as a Proxy of Future Earnings			
Metric		**Label**	**Formula**
Revenue	$1,000	(A)	
Market Value	$10,000	(B)	
Price/ Revenue:	**10x**	**(C)**	**(B) / (A)**
Expected Future Operating Margins	40%	(D)	
Tax Rate	20%	(E)	
Expected Future Profit	**$320**	**(F)**	(A) x (D) x (1-(E))
Expected Future Profit	**31x**	**(G)**	**(B) / (F)**

In super bull markets, when Keynes' "Animal spirits" are stampeding, investors become more willing to entertain paying up for non-existent businesses and assume ludicrous levels of risk for paltry returns. But this will not last. It never does. As a public company, you have less control over your valuation, which will drive your narrative.

While in reality private companies also tend to raise the highest valued round they can, they do have more control over what they price the round at. It would be advisable to not let your private valuation reach a unjustifiable level, even if investors are willing to pay for it at the moment. Too much of anything can be a bad thing. Too often a very high valuation is succeeded by down rounds, demotivated employees, and upset investors.

Public companies are supposed to be more mature companies than private companies and not in need of on-going capital raises in order to build their businesses. If you are in need of subsequent capital raises, then going public early risks giving the whims of the public markets a lot of control over your company's destiny.

The point is that a misvalued company, whether drastically over or undervalued, is of virtue to no one. Many may think a higher valuation is good, but it can disrupt the very business you are trying to build. Tie everything back to plausible cash flows to keep for sober expectations. Don't enter new businesses just increase the TAM or entertain public market investors' fairy tales to justify your valuation. Public investor feedback can be much more fickle and more self-serving than private investor feedback.

La Sagrada Familia, Barcelona. This Church in Spain has been under construction since 1882 and is expected to be completed until 2026. A lack of steady funds was a principle reason for the delays.

Full Circle.

We started with the idea that there are two ways to invest at the extremes. When you are a young company, you want to attract the Masas who will give you credit and money for ideas that are nonexistent. However, you do not want the Masa-type investor as a public company[2], as they will push you to be ever more ambitious, often to the detriment of the company. When you go public, you want the Buffetts as your investors. They will let you patiently build what you are trying to build. They won't push you to partake in risky business expansions and they won't blow up your valuation to the impairment of your business later on.

Putting out tempered expectations, which are rooted in realistic cash flow metrics, is the best way to attract the investors who will be with you as your businesses grows instead of just as your valuation grows.

Appendix

[1] Your return then only comes from the multiple staying flat or increasing, or earnings growing high enough to handle a multiple contraction. Remember, a multiple is a short hand for a DCF. Mathematically, the DCF must either assume high growth for a long period of time to support the valuation, or a lower discount rate. So, a high multiple on a business where growth slows to "average" levels implies a low discount rate, or in other words, a small return to the investor. This is just a fancy way of saying assuming too much growth will often lead to sub-par performance because the growth doesn't last long enough to support an adequate return, or the growth investor is willingly accepting a negligible risk premium.

[2] This is a bit of a hyperbole as Masa has been very patient with Alibaba and other holdings.

Meta-Optimizations: Knowing When a Business is Operating from Strength or Weakness

Netflix's advantage in 2009, How Square beat Amazon, Why Ford needed a standalone EV Business, and where Gopuff beats DoorDash.

The same path will always lead to the same destination.

Preamble.

If you grant us the patience to commandeer some words and create a metaphor, we hope in return we can give you a new framework. In the words of Psychiatrist and Neuroscience Researcher, Iain McGilchrist:

> *Metaphor is not just a reflection of what has been however, but the means whereby the truly new, rather than just novel, may come about. When a metaphor actually lives in the mind it can generate new thoughts or understanding—it is cognitively real and active, not just a dead historical remnant of a once live Metaphor, a cliché.*

Intro.

A successful business must **1) create** value, **2) capture** a portion of that value, and **3) protect** the portion of value it's capturing. The idea of protecting your returns is usually spoken of in terms of competitive advantages or moats and absent of them, we expect a company's ROIC to fall to the industry average.

However, there is another source of advantage that is not exactly a moat or competitive advantage, as it is something anyone can technically replicate, but in practice no one does. This concept will

also help an analyst or investor understand what competitive threats they shouldn't fear, in addition to when a business's new initiatives are likely to fail.

When Pitons Enable a Business.

Rewind to 2007 when Netflix decided to start video streaming. At that time, they had no expertise in video streaming, no exclusive streaming content, and no streaming customers. However, even if Disney, Paramount, or Universal decided at that time that streaming would be the future, they would have had a hard time competing with Netflix. The reason for this is simple: Disney would have never licensed their content to a Universal or Paramount platform. Additionally, if Universal or Paramount went all in on streaming, it is very likely Disney would have thought they needed to as well. Netflix's advantage was in its weakness. Having no owned content and primarily seen as a DVD rental business, they weren't considered a competitor, but rather a partner who can potentially help the big studios monetize their content more.

Netflix's early streaming initiatives emphasis game consoles and laptops as venues to stream.

In this piece we introduced our Piton framework. A Piton is a metal spike that a mountain climber uses to anchor themselves into the mountain. They tie a rope to the Piton, which both supports their weight and limits their movement. We use the word Piton as a metaphor for:

> *A decision that simultaneously supports and limits the future decision space.*

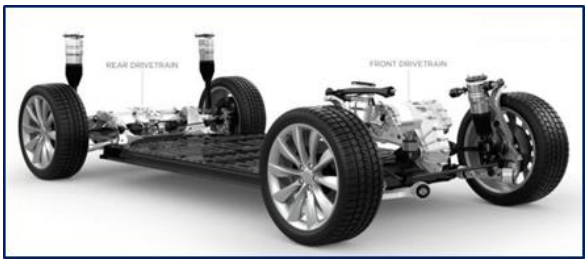
In our first piece we gave the following example:

> *If an entrepreneur decides to open a restaurant and leases out a space that has very little customer seating, they have just placed a Piton down. That Piton will constrain them from making many decisions: their lack of seating means they are unlikely to be a "full service" restaurant with waiters taking orders, since they would not be able to accommodate more than a couple guests at once. However, the restaurant's smaller footprint also means they are paying less in rent, which together with no waiters could enable them to charge less for food. In that one decision, the entrepreneur has limited what sort of restaurant he can build, as well as what sort of restaurant he would have an advantage with.*

The important point is that while *anyone* could have copied what Netflix was attempting with video streaming, the *existing studios couldn't*. This is because their ample content library and production capabilities were a Piton: they were necessary for their core business of making and selling content, but limited them in respect to becoming a distribution pipe without a studio affiliation. (Of course, Netflix later created a studio and their own content, but this was only after they had already gained notable scale. And to the point, studios then *did* pull content from Netflix).

When Pitons Sub-optimize a Business.

There are many examples of businesses trying to serve a market or create a product that their Pitons do not support. Think of delivery groceries from a supermarket footprint that requires workers to traverse aisles filled with shoppers versus dark grocery markets that are configured for picking and packing. Or think of traditional internal combustion engine (ICE) vehicle manufacturers trying to enter the electric vehicle (EV) market with their existing supply chain of thousands of vendors entirely geared towards ICE vehicles. The powertrain for an ICE vehicle has thousands of parts whereas an EV has parts in the low hundreds, with almost none of them the same. (If you are doubting whether there is no benefit for an ICE manufacturer to also manufacture EVs, just ask whether you think Tesla would be a more efficient EV manufacturer if they also made ICE vehicles or if they bought a scaled ICE manufacturer like GM). If you wanted to optimize for the quickest grocery delivery possible you would need dark supermarkets, and if you wanted to create the best electric vehicle manufacturer you would need to separate out the EV business from the ICE business.



A Tesla Powertrain. Producing an EV has very limited overlap with producing an ICE Vehicle.

The physical supermarket footprint and legacy ICE businesses are Pitons that do not allow the grocery delivery and EV businesses to be fully optimized. This isn't unfounded conjecture. GoPuff was founded with this idea in mind. They use dark stores as local micro-fulfillment centers that have orders ready without the delivery person having to find parking, traverse the aisles of a large store with non-uniform item placement, and stand in a check-out line. Grab in Southeast Asia has a leading food delivery platform, but also still felt it necessary to open dark stores in order to deliver items even quicker. Now, whether this is a good business is a different question; we are simply making the point that if you want to optimize for the fastest grocery delivery, you can't use standard stores. And in regards to the ICE business holding back the EV business, Ford did recently split their EV business from their legacy ICE manufacturer, noting it was necessary to "strengthen operations" in order to compete against new EV competitors.

A GoPuff Micro Fulfillment center.

The key here is that ***a business can only fully optimize for one outcome***, whether that be the primary video streaming platform, fastest grocery deliverer, or most efficient EV manufacturer. No doubt you can deliver groceries relatively effectively by sending people to pick items from Whole Foods aisles, but that will never be the *fastest*. To be the fastest, you need different physical infrastructure. The idea that you need to change variables in a business in order to best optimize for a given outcome we call a "Meta-optimization". ***A Meta-optimization is when you optimize for an outcome with the optimal variables instead of your current variables.***

> *If you were a baker, it is the difference between making the best cake and making the best cake using the ingredients you happen to have laying around on your shelf. You are optimizing for the variables you have versus the optimal variables to optimize for.*
>
> *- From our first Piton Network piece.*

A Piton is a decision that both enables and limits an aspect of the business. The Piton Network is all of the Pitons that support and limit a business. How an organization is optimized today is based off of their existing network of Pitons. A Meta-optimization is when the business moves the Pitons around to best optimize their Piton Network for their value prop.

Ford's Production Line.

Interlocking Pitons.

As mentioned in the intro, there is a category of competitive advantages that is not exactly a moat but can deflect competitors all the same. Managers of specialty hard surface flooring realtor, Floor & Decor, have wondered why no one has tried to copy their model so far. Competitors[1] are aware of their success and tried to copy aspects of their model, but one tried to copy their exact model in its entirety. They would copy aspects like directly sourcing more products or keeping more inventory in stock, but these were feeble attempts to mimic Floor & Decor's core value prop of having the most in-stock inventory and selection at the lowest price.

Everything Floor & Decor does is to optimize for this value prop. The warehouse store allows more selection and on-hand inventory while lack of fixtures keeps the store costs low. They usually are 30-45 minutes away from most customers, which may be inconvenient, but allows them to have large warehouse locations at tenable costs. In order to use a direct sourcing model while also having high levels of in-stock inventory, they must carry a lot of inventory at their distribution centers and in their stores to account for the long lead times of ordering from overseas, which increases how much capital is tied up in inventory. Despite selling way more flooring at each of their stores than any single competitor, they actually have a much lower inventory turnover than even poorly run competitors.

All of these elements from the warehouse to the direct sourcing to carrying a lot of inventory all go together to optimize their Piton Network for having the most in-stock inventory and broadest selection at the lowest price. The interlocking nature of these elements means that a competitor cannot copy just one element and mimic Floor & Decor's value prop, but rather must *copy everything*. It is for this reason that there is yet to be a copycat competitor: no one is willing to shed almost all of their existing assets in order to copy Floor & Decor.

Why are Startups Considered More Flexible?

It is for a similar reason why startups are considered more flexible and nimbler than legacy companies. In fact, a key reason why Ford broke their EV division off from the rest of the company was in order to "organize Ford to deliver… with the focus and speed of a startup". The startup's advantage is they don't have legacy Pitons tying them down.

Thinking of our mountain climbing metaphor, the more Pitons a company stakes into the mountain, the more constrained they are in their movement[2]. If reaching the peak of the mountain was their original aim, the longer they've been progressing up the mountain, the harder it is to get back down and shoot for a different mountain peak.

Startups are like climbers at the beginning of their mountain climbing journey. They can pick any mountain to climb and start from any place on the mountain's base without any Pitons constraining their movement. They can pick a path that they feel is best optimized to get them to the top. A mature company going after a new market in contrast is like a company half-way up the mountain deciding mid climb to trek a different mountain peak.

One of the conclusions on why businesses miss innovation that seems obviously within their wheelhouse is that the Pitons constrained them. Startups repeatedly outfox better resourced businesses because they start from a fresh slate with nothing tying them down. They can build their Piton Network to optimize for the new job they are trying to go after.

When a business is mature and becomes bureaucratic, there are many Pitons that have already been placed. These Pitons will dictate the direction of the organization, even if no one is consciously pushing it there. It is because of the inertia that has been built up from all of these different decisions in the past. They are each like Pitons staked into the mountain that limit the space to maneuver and make the path forward for a company essentially pre-ordained.

This all means that in order for a flooring competitor like LL Flooring to match Floor & Decor's value prop, they have to basically start all over.

Startups Can Strike Their Own Path.

In 2014, Amazon went after Square's market with a product very similar to Square's credit card reader, but Amazon also added live support (which Square lacked) and undercut Square's 2.75% fee at an introductory rate of 1.75%. Amazon also had a large marketing budget and could reach out to all existing Amazon merchants. Square was terrified that this spelled the end of their high growth, or perhaps their entire business. In response to one the world's largest and most competent tech companies going directly after their business, they decided to do… nothing.

Amazon's credit card reader was called "Local Register".

While Square Co-founder Jim McKelvey has his own idea on why this made sense, which he explains in his brilliant book *The Innovation Stack,* we think this is an instance of a larger concept.

McKelvey noticed that when creating a new business, there are typically multiple problems that must be solved, each of which tends to build off the previous one. For Square, that meant since they decided to have free sign-up, they needed a cheap piece of hardware to avoid large equipment costs with each sign up, so they designed it themselves. To keep costs low, they opted for "online-only" sign-up. This meant the sign-up flow would have to be simple and straightforward to use to avoid confusion since they couldn't afford to build out live customer support to answer questions. Users usually expect anything online to be done very quickly, so they couldn't rely on traditional fraud models which were slow, and since they utilized a FICO score, also expensive. So instead, they created their own fraud models. However, banks wouldn't accept their unproven underwriting standards, so Square had to become the underwriter for each small business. In order to best appeal to small businesses, many of whom have never accepted credit cards before, they needed a simple fee structure, which was originally just 2.75%. To build trust, they would remit funds to sellers daily, a decision that is easier to make once they already bit the bullet of underwriting all of their merchants. Since they needed to design the credit card reader themselves, they had the opportunity to design it however they wanted. The design they picked was iconic and served as product awareness and helped them grow before they could afford a sales force or any advertising.

What we see is that all of these pieces came together in order to serve their small merchants with a strong value prop. The way each of these pieces builds off of the one that follows, Jim McKelvey calls an "Innovation Stack". Edwin Land, Founder of Polaroid, noticed something similar, saying:

"True creativity is characterized by a succession of acts, each dependent on the one before and suggesting the one after".

We want to point out though that it isn't just with new businesses that this concept exists. It's just as true for any company. *The Innovation Stack* describes the instance when all of the elements are invented, or have to be used in a new way. But the larger idea we want to hammer is that for any business, elements in that business either are, or are not, fully optimized for their value prop. Whether everything had to be invented or not, it still holds true that in order to optimize for the value prop of enabling SMBs to take digital payments, you would have to make the same key decisions Square made[34]

A legacy merchant acquirer couldn't easily go after these small merchants because of Pitons they had previously placed. Their POS Terminals were too costly to enable them to give them away for free, but even if a merchant would pay up for it, it was still too complex to set up and the small

volumes were unlikely to make it profitable for the merchant acquirer under their existing cost structure. Without ripping out several Pitons in their business model, from the cost of their POS terminal and the simplicity of signing up new customers to a new credit risk model and daily settlement, the legacy merchant acquirers couldn't optimize for SMB merchants' needs as well as Square. Preventing the legacy merchant acquirers from pulling Pitons out is the fact that it would disrupt their existing business and require them to build competencies they did not previously have.

A traditional POS terminal is too expensive to give away for free.

If the Piton Network is Optimized, Competitive Responses are Unnecessary.

Now let's go back to 2014, when Amazon went after Square with a similar product that also had live support and lower fees, which seemingly made it clearly superior to Square's product. As mentioned, Square did nothing different in response. They were already working on live support but couldn't accelerate their efforts, and cutting their fee rate would plunge them further into losses and make future profitability unlikely. McKelvey writes in *The Innovation Stack*:

> *"Each Square director was given the opportunity to suggest potential countermoves, and after the last idea was considered, we reached a remarkable conclusion. In response to an attack from the most deadly company on the planet we would do nothing. Precisely nothing."*

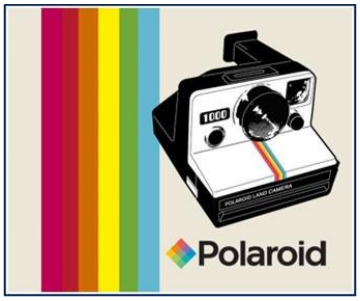
Perhaps this isn't so odd though. Amazon itself talks about how they do not focus much on competition and instead are "customer-focused". Many great companies similarly focus on serving their customers rather than responding to competition. ***If you are serving your customers, then you have nothing you need to optimize for differently. All your Pitons are placed appropriately.***

It may seem that Amazon was working from a superior position, but that is not necessarily so. The fact that Amazon was also one of the largest retailers made small businesses reticent to share purchase data with them. Similar to Netflix, Square was agnostic whereas Amazon was often their largest retailing competitor. There is also the fact that since Square was a startup and Amazon a more established company, the employees at Square were very invested in the mission, whereas it was unlikely Amazon's best engineers were tasked on this initiative, as it was a small "bet" for Amazon with minimal downside should they fail. Being a startup, Square could experiment with the design more than Amazon who created a utilitarian-looking device, and McKelvey even thinks there was an aspect that since their Square readers didn't work well until you learned how to use them properly, it created a sort of habit and pride in merchants. It would be hard to imagine an Amazon Product Manger explaining how a glitchy device is actually a virtue that builds loyalty. Whether

these are the most important reasons, or if there was another reason that is not easy to discern as an outside analyst, the point still stands that Square was already fully optimized for their SMB merchants and Amazon had many other prerogatives that had nothing to do with being the #1 enabler of small businesses to take electronic payment.

This shows that you do not need to respond to a competitor if your "Piton Network" is already optimized to serve your existing customers. Amazon could have improved their positioning with merchants by not having a first party ecommerce operation, but of course ditching that to optimize for their POS service would be a silly trade off. But this also goes to show why you should look at the Piton Network when evaluating competition.

This is most apparent when companies try to copy their competitors because there is usually something in the structure of their business that prevents them from fully optimizing their value prop as well as a more focused competitor. When a company really wants to do the absolute best it can to serve a single market, they usually have to stop doing something else. For an example, we can go back to Netflix.



Pulling Pitons out to Optimize for a Market.

When there is something new that is somewhat related, but not entirely to a business's core activity, very seldom is it the incumbent who has an opportunity to take advantage of it. This is because the incumbent company usually has aspects of their business that are both supporting their current cash generating ability while simultaneously constricting their ability to make the changes necessary to address the new opportunity.

Again, a Piton simultaneously supports and constrains a business, and a Piton Network may be sub-optimized for the business the company is trying to build. When we see companies that usually fall prey to disruption, it seldom is simply arrogance, but rather because there is some aspect of the business model that *must* be jettisoned for the business to move where it needs to; however, doing so would destroy part of the company in the process.

Netflix essentially cannibalized their mail order business to transition the business to streaming. Around 2011, Netflix was nearing the point that they could no longer support both streaming and DVDs under the same plan. They didn't want the DVD business to constrain the streaming business, and so they broke the subscriptions apart and created two separate businesses for streaming and mail order DVDs. Before, a $7.99 streaming plan was available with unlimited DVDs tacked on for just $2 a month extra. Under this arrangement, the cheap DVD plan was effectively subsidizing the streaming plan. This was great to reduce churn and help DVD users build familiarity with streaming, but in order to benefit from the virtues of the streaming model with virtually unlimited scalability and a worldwide presence, they had to untie the mail order DVD business from it. The DVD business required real world operations, millions of physical disks, and is just generally a different financial model than licensing content.

As Reed Hastings notes in this interview:

> *"Overtime, DVD and streaming were becoming more and more different and we can do a better job for both services if we separated them... over the long term streaming and DVD are going to get more and more different. Streaming has incredible television shows. Streaming is instant. Streaming is fairly global. Streaming has many things that make it different from DVD, and overtime, both streaming and DVD will be much better because they are separate."*

While Reed Hastings didn't say this out loud, they thought DVDs would eventually disappear and it didn't make sense to keep investing into a dying business when they had a streaming business that required all of their capital and attention. Lastly, it was just too costly to service the DVD plans for just an incremental $2 a month. Part of splitting the subscriptions up came with a substantial price hike, one that likely pushed users who consumed both streaming and DVDs to pick one.

Users who signed up for unlimited DVDs and unlimited streaming for $9.99 a month would now be forced to choose between unlimited streaming *or* unlimited DVDs for $7.99 a month each (getting both would be $15.98 a month with no discount). The separate subscriptions, with no bundling, would allow each organization to optimize for their value prop individually. Netflix subscribers who originally signed up primarily for DVDs would be forced to pay for those DVDs separately. While critics reacted poorly to this decision (and especially the decision to rename the DVD operation Qwikster, a decision that was later reversed), it made sense in theory and now we can say it was a prescient decision.


NETFLIX MEDIA CENTER

12 July 2011

Netflix to Offer New Unlimited DVD Plans and Will Separate Streaming and DVD Plans in the U.S.

New Unlimited DVD-Only Plan at $7.99 is the Lowest-Ever Price Offered; Unlimited Streaming Remains $7.99

At that time though, in 2011, Netflix had to endure a brutal and public customer backlash, including losing net 300k subs quarter over quarter[5], which is more alarming than it sounds since the past year they added an average of ~2.5mn subs per quarter. Operating income plummeted from $376mn in 2011 to $50mn in 2012 as they started to ramp up streaming and marketing investments. Their stock price was cut 80%. If their DVD Rental business was a Piton, they pulled it right out and fell far down. But they had a second Piton—the streaming business—that would support them from then on, and they would no longer be constrained by their DVD mail rental operation.

Eventually the whole episode would be history, and, in hindsight, we can say that it was a brilliant move, if perhaps not executed with as much grace as it could have been. However, jettisoning a core aspect of your business is never going to be easy.

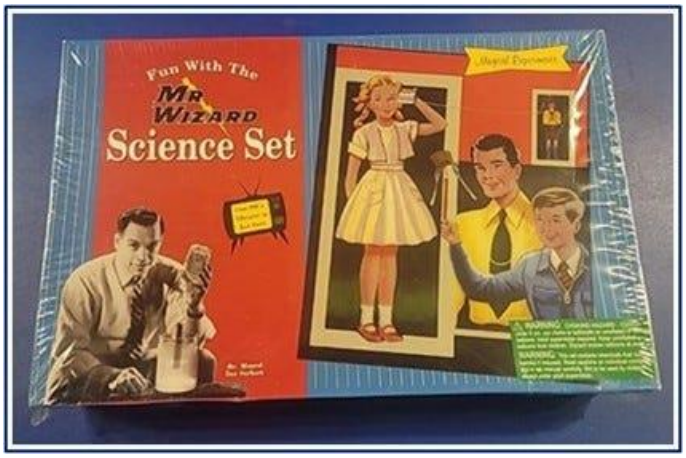
How the Piton Network can Predict Failure.

The Piton Network isn't just about the Pitons a company places, but how they all interlock with each other. A mountaineer can only proceed on one path at a time, and with each Piton they strike into the mountain side, they are making a decision to move in a specific direction. The Piton Network is the sum of all of those decisions, each with certain trade-offs that together create a path, a path that is directed at only one goal. That goal is what the Piton Network is optimized for.

A Piton Network is optimized for a particular aim, and changing that aim requires going back and pulling out Pitons. Of course, Pitons both enable and constrain you, so you cannot change what the companies goals are without essentially ripping apart the business. Look at Netflix's transition from DVD rental company to streamer, or RH going from gimmicky mall retailer to luxury lifestyle brand; these are companies that changed what their businesses were optimized for but went through immense pain to do so. Saying Google should lean more into AI at the cost of cannibalizing their sponsored link business isn't a triviality, it requires reworking the entire business model and will likely come with a similar transition of financial pain as Netflix experienced.

From our first piece:

> *The Piton Network is what an organization is currently optimized for based off their existing Pitons. Too often organizations are optimizing for their current Pitons, rather than moving the Pitons into the optimal position to best serve their value prop.*



Restoration Hardware used to sell dog shaped cookie cutters and board games before jettisoning the "tchotchke" Piton in order to climb the "luxury mountain".

Conclusion.

At the core of the idea is almost a sense of humility. Almost always, a business can only do one thing well[6]. The idea equally applies to your own life: how many things in your life can you truly optimize for at once?

In cellular biology there is a concept called pluripotency. A pluripotent cell is one that has full capacity to differentiate into *any* sort of cell, but they must become only *one* type of cell. Cells that are only partially differentiated are usually referred to as "cancer". Similarly, a company that tries to become too many different things at once is serving nothing well and may as well be cancerous.

Appendix

[1] Lowe's ran an experiment to copy Floor & Décor, but they never fully committed to having a full warehouse store dedicated just to flooring. As such, their attempts to copy them were relatively feeble from the outset. Home Depot in contrast did have a flooring only store and their decision to abandon it likely had less to do with it being unsuccessful and more their need to conserve resources in the midst of the great recession. It is unclear why they never revisited this idea though.

[2] We are aware that we are stretching the metaphor, and a climber would not be attached to multiple Pitons at once. We are trying to convey an understanding and are happy to trade-off an accurate description of how climbers actually climb mountains in order to get there.

[3] In the first piece we referred to “load-bearing Pitons” as those that a business must build off of in order to fully optimize for their value prop. Floor & Decor’s load-bearing Pitons are the warehouse model and directly sourcing.

[4] The Innovation Stack describes the instance when a company has no Pitons and can create a business that is perfectly optimized for their value prop. Since most startups are doing something new, they end up needing to create many elements in order to best optimize for their value prop. By virtue of the startup having no elements or Pitons means they can focus on just optimizing for their value prop whereas a legacy competitor would have to try to serve that value prop from their existing Piton Network, which almost always is a sub-optimization.

[5] From the quarter ending June 30th 2011 to Sep. 30th 2011 total unique subscribers fell ~300k

[6] While there are some exceptions like Amazon with AWS, even in that case Bezos was clear that AWS should be treated as its own standalone unit without any special integrations or APIs. The retail business didn’t support AWS and in fact they weren’t even their original customer as it took them a long time to port everything over to AWS.

Investing Memos

What is a Fair Investment Assumption?

Information Theory, Falsification, and why the Independent Investor has every advantage.

Intro.

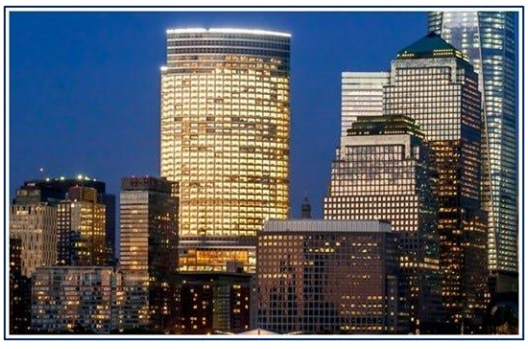
What is a good assumption?

If you are an investment banker, the answer is the one that gets you the deal done.

If you are a sell-side analyst, the answer is the one that matches a company's quarterly earnings or is in consensus.

If you are a buy-side analyst, the answer is the one that makes money or can be explained away if it doesn't.

But what about for the intellectually honest, independent investor who doesn't care about "career risk" and is most concerned with producing strong long-term investment gains, while limiting their downside?



Hypothesis Generation.

Much like a scientist, it is your job to generate hypotheses. Instead of exploring the world of physicality's though, you are exploring the world of possibilities.

Your hypothesis is typically called a thesis, and it involves an idea of 1) why the company can be successful, 2) why they can keep up that success, and 3) why an investor would be successful partnering with that company.

Or, in other worlds, 1) how they create and capture value, 2) how they protect that value, and 3) how you price that value.

This thesis isn't a law though, it is a suggestion based off of the existing evidence and your digestion of the facts. As time passes you receive new evidence that will either confirm or disconfirm your thesis.

Investors commonly remark that they must avoid "thesis shift". This is when the new evidence that is generated disconfirms your existing thesis, but instead of abandoning it, you decide to reformulate your thesis to incorporate the new evidence.

It turns out though, a modified thesis has a higher probability of being wrong. To understand why, we will start with first principles: what is information?

Information.

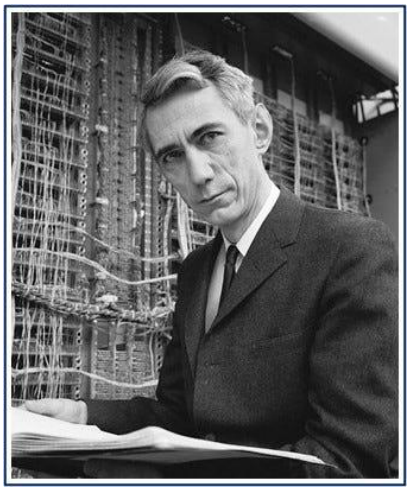
Let us turn to Claude Shannon's Information Theory. When you receive information it is not strictly about the meaning you can glean from the message, but rather the number of alternative meanings that are eliminated. This makes sense if we consider many messages can have multiple meanings, but not infinite meanings.

For example, if a waitress asks you "was your meal okay?" and you respond "yeah, no, it was great!". Think of how if you were given that message in three parts, how the meaning would change three times.

> First hearing "yeah" the waitress would think the meal was okay.
>
> With hearing "no" it would be unclear what was thought of the meal.
>
> Then hearing "it was great" the waitress would think the customer liked the meal.

However, with just the first response it greatly reduced the probability that the message was that the meal never came. This exemplifies how information reduces alternative meanings without necessarily arriving at a singular, clear interpretation.

Shannon speaks of the amount of uncertainty or unpredictability in a message. The more a message can reduce this uncertainty, the more information it carries.



Claude Shannon.

Said in other words, the more specific you are and the more detail you provide, the less the likelihood of being misinterpreted.

In the context of an investment thesis, we actually *want* uncertainty. That is because the more uncertainty in the thesis, the more ways you can be correct. For example, say a hedge fund analyst said this retailer was going to post a really strong year and beat annual sales expectations of $125mn. In contrast, a long-only investor thought the retailer would make at least $100mn in sales this year, which would be reasonable for the valuation they paid.

Since the long-only investor would be right if the company made $102mn, $109mn, $115mn, $140mn, etc., the long-only investor has more uncertainty in their thesis. In contrast, the hedge fund analyst has fewer possibilities to be correct and thus comparatively has a thesis with more certainty. In this example, the hedge fund analyst has more informational content in their thesis and the long-only investor has less.

For an investment thesis to have the highest probability of being correct, we actually want it to have the least informational content possible, while still being meaningful. ***Where the threshold of "meaningful" is struck, is dictated by the investors' required rate of return.***

Let's say a company is valued at $1bn, has no growth prospects, and pays out 100% of profits annually. If an investor wants to earn at least a 5% return on purchasing that company, they will have to assume that the business earns at least $50mn a year. If they want to earn 10% a year, then they will need that business to earn at least $100mn a year.

> On a slight digression, we can see here how it is the investor's desire for a return, which is dictating the assumptions they use. This is very important to notice because it is often

this *desire* for a higher return which will then lead them to use loftier assumptions. This is an incorrect way to invest. Your desire to make a lot of money will have no bearing on how much money the investment makes, but it will influence what you consider to be a reasonable assumption, and thus, open you to more risk. The thing to keep in mind is no investment has a guaranteed return and most investments have a very wide band of outcomes. Like a Rorschach Test though, the more you focus on your desires, the more that is all you see.

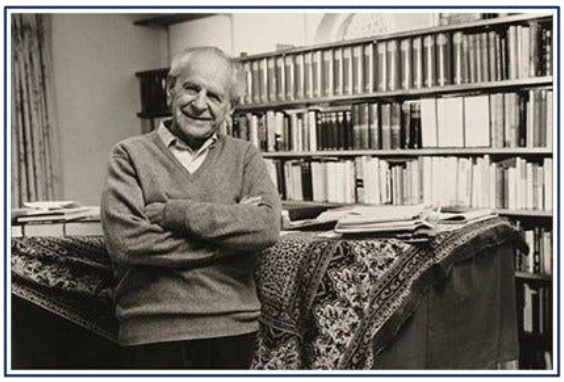
A sober investor will never base their assumptions on non-investment prerogatives (like an endowment's 7% return mandate or their desire to own a beach house).

Now to better understand why we are looking for investment theses that have the maximum uncertainty and thus the lowest information content, we turn to Popper.

Falsifiability.

Philosopher Karl Popper is best known for his theory of falsifiability, which is most famously illustrated by the example of the existence of a single black swan disproving the claim that all swans are white. In terms of testing hypotheses, Falsification is the idea that for a hypothesis to be considered "scientific", it must be able to be tested in a way that could prove it is false. If it is untestable, it isn't in the realm of science.

However, some things are easier to falsify than others. For Popper, information meant an increased number of ways a statement could be false. And thus, *the information content of an assumption is inversely proportional to its probability*. The more information in a statement, the more likely it isn't true.



Karl Popper.

For example, take these two statements:

1. There will be a car accident today.
2. Your friend will back up his car into a blue Rolls Royce in a CVS parking lot at 1:15pm today.

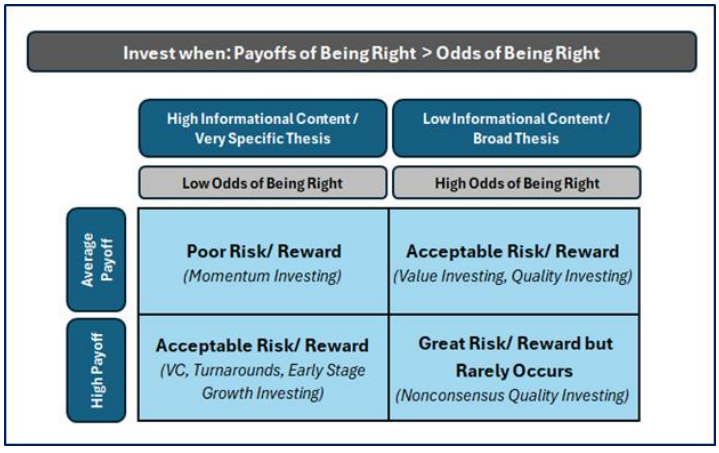
The first statement has very little information, but with near certainty will prove to be accurate. The second statement has more information, and thus, since we aren't fortune tellers, is highly unlikely to turn out to be true.

The key is that a high informational content statement has a much lower probability of being correct, but whether an investor wants to focus on "high informational content theses" (which means a low probability of being correct) or "low informational content theses" (which means a high probabilitity of being correct) is based off: **1)** their investing style, and **2)** the payoffs associated with such statements.

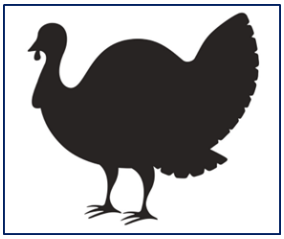
Winning roulette requires being correct on a high informational content thesis since you have only a 1 in 38 chance of guessing correct. But if Roulette paid out at a rate higher than 38:1, you could reasonably expect to make money by playing a large number of rounds (of course casinos set the odds lower than this, so they are the ones that always make money).

However, in investing, it is the market participants that prices the odds and the returns associated with any investment are inextricably linked to the price paid.

As an investor, you want to find the opportunities where you can be compensated disproportionately for the informational content of your thesis. ***You want your payoffs to be higher than your chance of being correct. That is all investing is.***



If you have a 1 in 4 chance of being correct, you just need the payoff to be greater than 4 to 1 and you are statistically ensured to make money if you can make that bet enough times. Reducing the information content required in your thesis is synonymous with increasing your chances of making money.



A Caveat: The Turkey Problem.

Similar to Hume's problems with induction (drawing on past data to make a conclusion on the future), the turkey problem is an extreme incidence where the past data doesn't just not provide information about the future, but rather provides misleading information about the future. Nassim Taleb illustrates it with a turkey who is fed every day and so then believes the subsequent day it will be fed again. Instead, one day it is slaughtered.

Shannon's information theory suggests that incremental information decreases the probability of alternative messages being true, but you have to be extremely careful in interpreting your data. The Turkey problem is an issue with misunderstanding what data means. As David Deutsche notes, "We never know any data before interpreting it through theories". He would argue that data doesn't create understanding, but rather we impute the understanding to the data.

The turkey in this instance, had a theory of what being fed meant (I will be cared for and continued to be fed), but that theory wasn't in the observation of being fed; the turkey created it to understand what food showing up meant.

An investor similarly makes up theories to fit the facts they gather. Does a company posting quarter after quarter of revenue increases mean the product is highly desired? Or does it mean that they are raising prices too quickly, which will create a vacuum for a lower priced competitor to enter the industry and steal share. How many quarters of revenue increases would you have considered as supporting your growth thesis only to—in hindsight—quickly realize it was only evidence of overearning?

The turkey problem is essentially to erroneously conclude the elimination of alternative interpretations of the data.

The Independent Investor.

We started this journey asking why does a modified thesis have a higher probability of being wrong? But by exploring that question, we hoped to show why there is an easier and harder way to invest.

But first, one reason why investment thesis shift is so pernicious is it is quite easy to reframe the data you see into a new thesis since the data itself doesn't come packaged with "meaning". It is on the investor to digest the new data and interpret it. When you are reinterpreting not just new data, but prior data in new ways, you are increasing the information content in your thesis. The more informational content in your thesis, the less likely it will be correct.

At the same time, you have eliminated one possibility from being true (your original thesis), which means that there is less uncertainty in outcomes (remember uncertainty from this perspective is the same as saying there are fewer ways you can be right). Lastly, there is also all of the psychological biases that are outside the realm of this memo.

This is why a modified these is more likely to be wrong. But how do you increase your chances of being right?

This is the key take-away and the reason why independent investors often have it far easier than traders, sell-side analysts, and investors that operate under mandates or in bureaucracies. An independent investor has the luxury of making their thesis as general and broad as they are comfortable with. This is not only far easier to do, but it increases the chances they will be correct.

An investor looking at Meta could have written off their Virtual and Augmented Reality efforts entirely and just had to be comfortable that the most dominant social media platform would continue to be dominant and serve targeted ads, as they had done their whole history. The independent investor didn't need to assume any user growth or success from WhatsApp and could include $20bn in annual losses from the Reality Labs segment.

While of course the payoff of such an investment will be set by the price, the independent investor can formulate their thesis with as little information content as they are comfortable with, increasing the odds that they are right.

The more research an investor does, the easier it is to distill down the investment thesis into key assumptions, and have more confidence in those assumptions. This means they can have a lower informational content thesis with high conviction.

Most people can't invest this way because of institutional mandates, careerism, or lack of emotional discipline. Let them create obstacles for themselves. Your job is to make this as simple as possible.

As Buffett says:

> *"I don't look to jump over 7-foot hurdles, I look for a 1-foot hurdle that I can jump step over".*

The game is simple: find situations where the payoffs of being right are higher than the odds of being right.

Make your assumptions as modest as possible to increase your chances of being correct.

And if you are unsure… pass.

Investing is Just Answering a Series of Questions: Explaining the Reverse DCF

How to use a Reverse DCF

Intro.

All of investing is just asking a series of questions.

A valuation is a means by which you whittle down those questions to the most relevant and then attempt to answer them.

Despite what you might recall from an academic textbook, there is ultimately only one valuation framework.

> "The intrinsic value of any business, if you could foresee the future perfectly, is the present value of all cash that will be ever distributed for that business between now and judgment day.
>
> And we're not perfect at estimating that, obviously. But that's what an investment or a business is all about. You put money in, and you take money out."
>
> - Warren Buffett

Now there is different implementations of how to value a business, but all true valuation methods come back to that same idea that Buffett espoused above: A business's intrinsic value is the sum of all cash flows discounted back to today.

The most common valuation methodology is a multiple-based approach. While it is easy to price stocks with a multiple, it is much harder to value them using a multiple.

This is because when you use a multiple-based valuation approach, the questions you are asking, and the answers you are getting, are much more opaque.

A DCF makes explicit what is implicit in a multiple-based approach. This allows much more clarity on the assumptions that an investor is making.

However, the DCF has problems too. That pesky discount rate, which despite what academics suggest, *cannot be calculated*... well it can be calculated just not in a way that makes sense.[1] (More on cost of equity in this piece).

"The learned fool writes his nonsense in better language than the unlearned; but still 'tis nonsense."

– Ben Franklin

Our solution at Speedwell Research is to use the Reverse DCF. But first we will touch on some common issues with a regular DCF.

What is a DCF?

The DCF is the vehicle by which an investor can formulize the answers to their questions and calculate what their associated return will be.

With a DCF, an investor can answer what they think the business's **1)** growth will be and for how long, **2)** what mature profitability will look like and when they'll get there, and **3)** how long the business's reinvestment run way will be and when cash will be returned to investors.

There are many different ways an investor can set up a DCF, but in the end it will always distill down to a series of cash flows. In the example below we see that the investor was asking the following three questions:

1) what will revenue growth be in each period?

2) what will normalized cash flow margin be in each period?

3) what will growth capex be as a % of revenue for each period?

The investor could have asked different questions if they wished, but since they set their DCF up this way, these are the questions *they must* produce answers to.

We usually call these answers *assumptions*. That is because the investor will readily admit that they do not know precise answers to the questions they are asking.

We can think of each assumption (the red numbers below) as existing on a probabilistic distribution. While the investor inputted revenue growth of 8% for next year, the real range of figures is wider.

A conservative investor will want *to pick the highest number that they have high confidence in*. In contrast, a growth investor may pick *the highest number that they think is plausible.* It is on each investor to use their judgement for what they want to assume, and it should be in line with their overall portfolio management strategy. (More on this idea here).

The point is not to pick a figure that you are 100% confident is correct, but rather an assumption you are very comfortable making. **Reasonable people may disagree on what constitutes a fair assumption and your ability to get this correct overtime is essentially what will dictate whether you will become a great investor or not**.

DCF: Questions an Investor Must Answer						
Period	**Y1**	**Y2**	**Y3**	**Y4**	**Y5**	**Y6**
Revenue	**100**	**108**	**116**	**122**	**129**	**134**
revenue growth		*8%*	*7%*	*6%*	*5%*	*4%*
Cash Flow	15	16	20	22	24	27
cash flow margin	*15%*	*15%*	*17%*	*18%*	*19%*	*20%*
Capex	10	11	12	12	13	13
as a % of revenue	*10%*	*10%*	*10%*	*10%*	*10%*	*10%*
Free Cash Flow	**5**	**5**	**8**	**10**	**12**	**13**

**All numbers in red are assumptions*

Up until now is usually the part that investors are okay with. Their trepidation stems from having to continue to project out far into the future where they feel they have less and less basis to make a prediction.

Usually, an investor will solve for this inhibition with a "terminal value". This will allow an investor to only project a handful of years into the future explicitly and then slap down a formula to fill in the rest of the value.

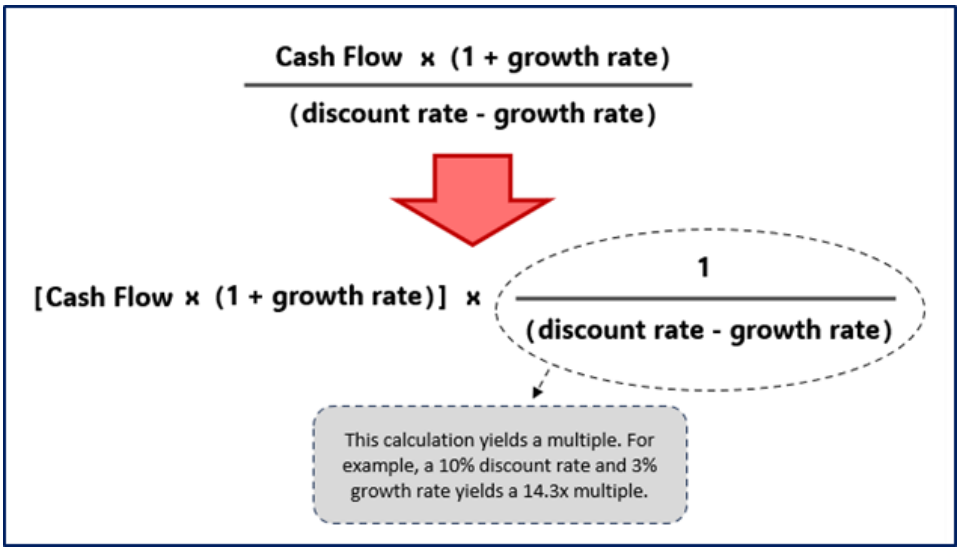
They are commonly employed when an investor feels they can no longer defend their far-out assumptions, so they opt for a formula that *appears* to hide future assumptions. Make no mistake though, it doesn't change what needs to happen with the business in order for you to get an adequate return.

Terminal values are simply themselves a shorthand for a DCF. Instead of modeling individual years of cash flows, they simply assume that cash flows are steady *indefinitely*. If you were queasy about modeling year 60 cash flows for a business, how do you feel about assuming it will be around forever?

It is somewhat ironic that the fear of projecting earnings many decades out culminates instead with investors essentially treating each business as a perpetual annuity. It would actually be more conservative to explicitly model each year of cash flow to year 60 than using a terminal value. This

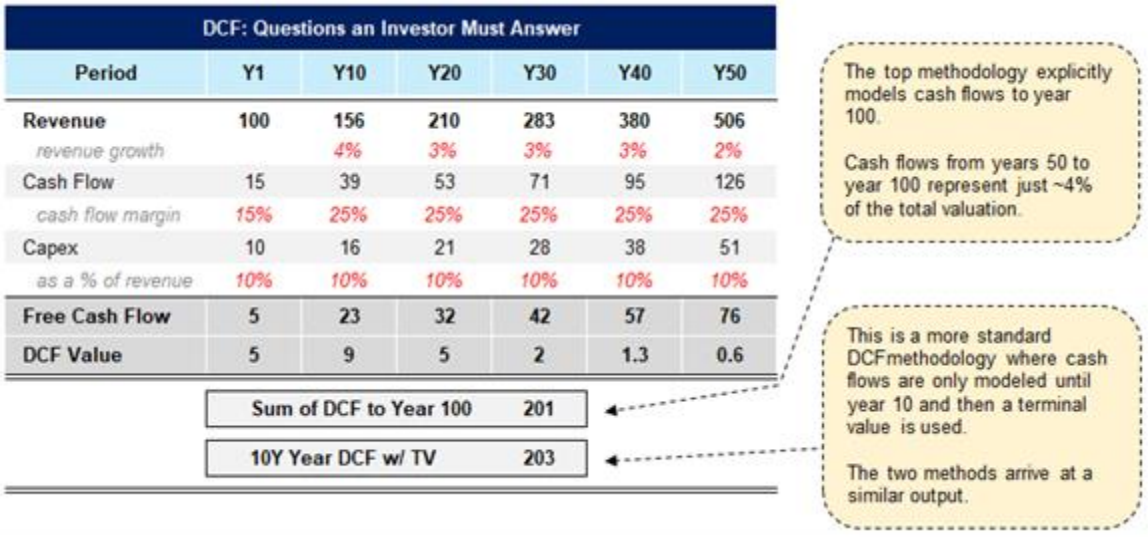
is because you can continue to adjust your assumptions down to make them more conservative in the out years and assume no cash flows after a certain period all together.

A multiple based approach has the same issues as a terminal value. In fact, a terminal value calculation is essentially a multiple approach as 1/ (r-g) yields a multiple of cash flow.



Now this doesn't mean every multiple assumes cash flows continue indefinitely into the future, but rather you don't know what it means! The same multiple can be justified by higher growth, higher profitability, or longer cash flow duration, but the investor typically has no idea what assumptions are embedded in the multiple. (We will write about this more in a future memo soon).

Below we make the point that you shouldn't be scared of estimating cash flows far out into the future, because that is what you are doing anyway with a terminal value. The outputs might be similar in many cases, but isn't it better to know your assumptions than not know?



In short, the only difference between different valuation methodologies is how explicit you make your assumptions. The desire to avoid making an assumption on year 35 cash flows

doesn't mean you actually avoid doing so, you just avoid becoming aware of what your assumption is.

We can sympathize with how baseless out year assumptions seem to be. However, instead of hiding our assumptions, we prefer to see how we will be rewarded for making various assumptions.

This is essentially what the reverse DCF does.

Paisupok Lake in Indonessia is so clear you can easily see what lies below.

The Reverse DCF.

Remember, investing is just asking a series of questions and seeing what the associated payoffs are if that scenario materializes.

This is the beauty of a Reverse DCF. Instead of us picking specific growth rates and a discount rate that spits out a stock price value, we invert the process. We start with the current stock price and then sensitize around a range of assumptions (like revenue growth and margin for example). The output of the Reverse DCF is the discount rate that sets our DCF model equal to the current market value (or enterprise value).

This effectively allows us to see what return an investor can expect for making different assumptions. We want to know that if we assume a very high growth rate (which should be considered riskier) that the return we calculate is compensatory for that scenario. Conversely, if we use very conservative assumptions, we may want to see that we are at least clearing the risk-free rate.

The way Speedwell utilizes the Reverse DCF is to hone-in on usually two variables that we think are key drivers to the business. For Coupang we picked GMV and EBIT as a % of GMV, for Evolution we used revenue growth and EBIT margin, and for Constellation Software we picked reinvestment rate and ROIC of incremental capital deployed. This allows us to see what the return is for various assumptions and gives more clarity to the range of returns an investor can expect over the long term. (Speedwell Members have access to all our valuations and Members Plus can access the excels).

The Meta Reverse DCF.

To better understand how we use a Reverse DCF, we will use the actual DCF we ran for our Meta report, which was released in January 2023.

From our Meta report:

> Our approach to valuation is to invert the question. Instead of asking what a business is worth today, we estimate what is the implied business return at today's market price. We do this through a reverse DCF, where we make various assumptions on a company's future cash flows and then figure out what discount rate would make the sum of future discounted cash flows equal to the current market price.
>
> The output of this analysis is a range of "discount rates" which can be thought of as your return on the purchase of business at today's market price if you were to directly receive the excess cash flows (and the assumptions held). When we think of a company as under or overvalued, it is mathematically the same as saying the implied discount rate for the risk inherent in the business is too high (business is cheap) or too low (business is overpriced).
>
> In our opinion, framing the opportunity in terms of discount rates makes it easier to conceptualize the investment opportunity and answer the question of if the return adequately compensates for the risk. (It can also keep an investor from making mistakes with multiples. *In theory, a multiple is shorthand for a DCF, but it is commonly used out of convenience, leading to investors being blithely unaware of the assumptions that their multiple implies. Most commonly, the multiple makes implicit assumptions investors would be uncomfortable with were they to be explicit. The Reverse DCF avoids this by making all assumptions explicit*).

For Meta, there were many different scenarios that we wanted to sensitize around. However, the two critical variables were revenue growth and capex.

Below is the table that shows our revenue growth assumptions. In each growth scenario, we change the growth rates for Y1-5, Y6-10, Y11-20 and Y20+. There are 6 scenarios, and each scenario is labeled for the growth rate assumption in Y1-Y5.

Reverse DCF Assumptions					
Revenue Growth Assumptions per Period					
	Period	Y1-Y5	Y6-Y10	Y11-Y20	After Y20
Scenario Label	-5%	-5%	-5%	-7%	-10%
	0%	0%	0%	0%	0%
	3%	3%	3%	3%	3%
	5%	5%	5%	4%	3%
	8%	8%	7%	5%	3%
	10%	10%	7%	6%	3%

This whole scenario is referred to as "-5%" in subsequent exhibits and the respective Y1-After Y20 assumptions are fed into the DCF for this scenario.

These are revenue growth assumptions for years 1 to 5 from today.

The EBIT margin assumptions are below. The figures may seem a little random without full context as to why they were picked, but it is based off of various historical business performance coupled with some assumptions.

Assumptions Informing EBIT Margin	
EBIT Margin	Assumptions
24%	LTM EBITDA with 25%* Capex
31%	2021 EBITDA with 25% Capex
35%	2021 EBITDA with 21% Capex
38%	2021 EBITDA with 18%** Capex
43%	Est. High EBITDA with 18% Capex

** % refers to capex as a % of revenue.*
***18% capex was the historical average since 2013.*

Below was Meta's valuation at the time we ran our reverse DCF.

Meta Market Valuation			
NASDAQ: META			
Stock Price	**$130**	Cash	$42bn
S/O	2,718mn	Debt	$25bn
Market Cap.	**$353bn**	**Enterprise Value**	**$336bn**

We put in each scenarios' assumptions and then set the DCF equal to the current market cap to get the implied discount rate, or the business return.

Reverse DCF Outputs							
Implied Returns Based off of Current Market Price							
Revenue Scenario		-5%	0%	3%	5%	8%	10%
EBIT Margin	24%	-2.0%	5.6%	8.6%	9.9%	11.7%	12.7%
	31%	0.0%	7.2%	10.5%	12.0%	14.0%	15.1%
	35%	0.9%	8.1%	11.4%	12.9%	15.0%	16.2%
	38%	1.6%	8.7%	12.0%	13.6%	15.8%	17.0%
	43%	2.8%	9.9%	13.3%	15.0%	17.3%	18.6%

These returns are what an investor could expect to earn if they owned Meta outright and all excess cashflows were returned to them over the *life of the entire* business. You can see that even with very conservative assumptions, the investor could have expected an above historical average stock market return. This analysis also fully burdens cash flows with $15bn of Reality Labs losses for 5 years and attributed zero value creation the Reality Labs segment.

Qualitatively Understanding the Reverse DCF.

As a research service that doesn't give stock recommendations, we try to never be too explicit with our opinions, but that doesn't mean we are unbiased. The below text is from our report (bolded text in the original report as well).

> Interestingly, assuming 0% growth and a moderate margin scenario yields a ~9% return, which is about what equity markets have returned historically. While you would want an equity risk premium for an individual stock, we can see that **the market is currently roughly implying that Meta is done growing forever.** For context, this is a stock that has never grown less than 20% annually for its entire decade-long public history, prior to last year.

Looking now at our assumptions you may want to criticize them as being too conservative, but we don't see it that way. At that point in Meta's history and given the large stock drawdown, it allowed an investor to be very conservative and still see a sizeable premium above the historical stock market average return. The object isn't to get the most accurate business performance on a short-term or even intermediate-term basis, but rather to figure out *what assumptions can you have reasonably high confidence in*.

We are not sell-side analysts concerned with accuracy of estimates. Instead, we are concerned with helping improve quality of decisions. The more unambitious the assumptions, the easier it is to have confidence in them. In practice this means that erring on conservatism means taking action becomes easier.

Naturally, because markets and stocks have volatility, knowledge is a great asset to have. Knowledge brings confidence, and confidence is what keeps people in stocks that are undergoing price pressures yet continue to have great growth in earnings.

Confidence is what helps successful investors to buy more shares when prices dip, while investors who do not know what they own become emotional and sell out of fear and lack of knowledge.

-Frederick Kobrick, The Big Money

Most investors were considering Meta's business to be at existential risk at the time. So showing more conservative (if not draconian) assumptions helped frame to an investor how even uninspiring business performance could return decently.

It is the aim of a conservative investor to get comfortable with the lower range of potential outcomes and not worry themselves if things could be better. Of course, once Meta started showing stronger growth and incredible operating leverage, you could have conservatively increased your base assumptions, as you had more evidence to do so. *(For those who would like to explore expectations in investing more in-depth, we would recommend checking out Michael Mauboussin's book Expectations Investing as well as his many research reports.)*

Conclusion.

Do not forget your best advantage as an investor.

If you were betting on a basketball game, what is an easier bet to get correct?

Bet A: Guessing the exact total score at the end of the basketball game?

Bet B: Guessing at least how many points will be scored?

If the second bet seems too easy to get right, then great. We are not looking for fair fights here.

As an investor you are free to adjust your assumptions down until you are comfortable with them. Your reverse DCF will tell you what returns you can earn for various assumptions. Then you simply wait until an opportunity you like presents itself.

You may not commonly find scenarios that compensate you the way you wish but be patient. Overtime things you don't expect to happen tend to happen.

(Now what you should set your hurdle at so you don't miss too many opportunities is covered in this piece.)

Appendix

[1] Aswath Damodaran's idea of calculating a company's beta on their revenue or earnings volatility instead of stock price is a big improvement, but still lead to problems. Just think of Meta's earnings from 2021 to 2024. You would have seen a huge swing in cash flows as they invested more through that period and cannibalized their own revenues with lower monetizing Reels versus other surfaces. The beta formula would suggest doing so made the company riskier, but would have not responding to the TikTok threat and forgoing capitalizing on the AI opportunity made them less risky of a company?

The Risk Circle: Deciding What Risks Matter and When

Solar Flares, Aswath Damodaran, 75bps 2022 Fed Funds, The Pentagon Papers, Buffett's Washington Post Investment

Willful Blindness.

All investments require making many assumptions. It is usually an investor's job to distill the investment thesis down to just a few assumptions. However, that does not change the fact that there are hundreds of hidden assumptions in every thesis.

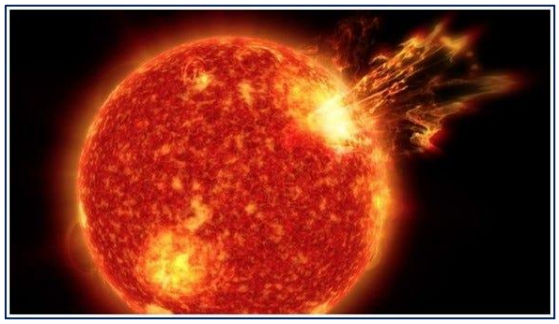
These assumptions span from the highly probable, such as the United States will continue to be a sovereign nation capable of protecting property rights of business, to the highly improbable, such as the magnetic poles will reverse again for the 180th odd time, making North South and South North and causing all sorts of unknowable havoc on every electric and magnetic system in the world simultaneously. However, you would never expect an analyst to list "magnetic poles flipping" as a risk on their investment.

What if the previously calculated risk of an X-class solar flare (the strongest) is three times what we previously thought? Do we adjust the equity-risk premium? If aliens visited us tomorrow, how much should the risk-free rate move? These questions are meant to be ridiculous, but they are ridiculous because we all have a deep-seeded belief that a certain category of risks should be excluded when investing.

While in the scenarios above most people would not argue that the discount rate should be adjusted, there are risks that reasonable people may disagree on whether they should be included or excluded from *The Risk Circle, that is the list of risks you demand to be compensated for*. Should we dismiss someone who worries about the increasing likelihood that the US dollar is no longer the

reserve currency and not think through the potential adverse impacts? How much of the "American Economic Miracle" was a byproduct of this one factor? Our $33tn in federal debt and $1tn+ annual deficit is certainly a luxury no other country in the history of the world has been able to afford without being the dominant currency. At what point does this become worrisome, if ever? How do we decide what risks to ignore?

Instead, we all create a sort of mental circle of "prosaic" risks and only focus on those. We usually just ignore the millions of very remote probability things that could render an investment worthless. Buffett is explicit about part his circle when he notes that you do not bet against America. He basically does not consider any risk in his investments that the United States capitalistic system stops working so well. Fair enough, as the United States has not only created one of the greatest growth periods in standard of living and innovation the world has ever seen, but has also survived several periods where anti-capitalistic ideologies like socialism gained prominence. Almost all of his investment success is predicated on the "American Miracle", which itself was reliant on a myriad of conditions to occur. But he doesn't spend all of his time (or any?) worrying about what could bring about the rise of socialism in the United States.



Pictured here is a solar flare on our sun.

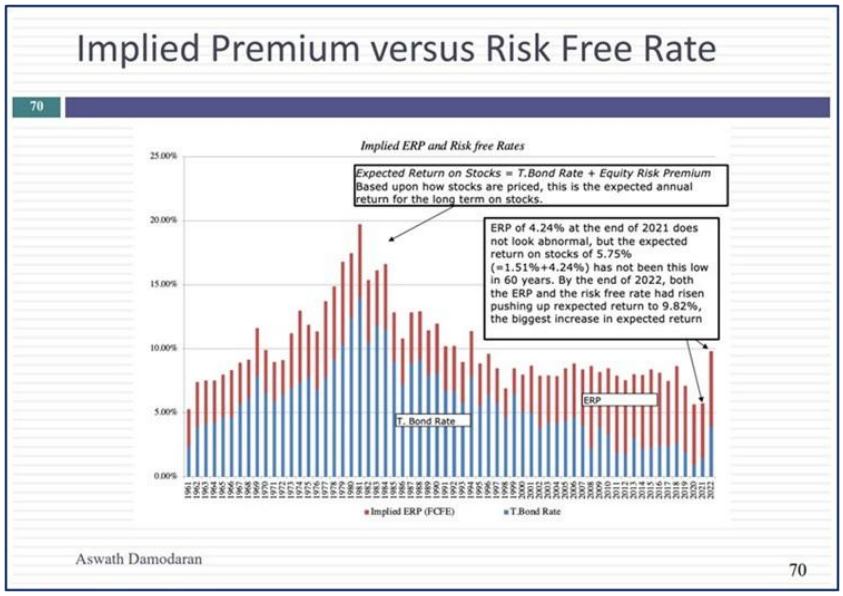
Quicksand Used to Just be Sand.

We are all going to die. This is a biological fact[1], and yet most people spend little to no time thinking about it. In fact, if you spend too much time thinking about it, then people would say there is something wrong with you (thanatophobia). There is a category of risks that are the equivalent of this. But there is a small spot where risks move from being out of The Circle to entering it. When this happens, markets can react violently. While the risk of the Chinese government pushing private enterprises to make decisions that weren't in shareholders' best interests was ever present, over the course of just a few months, the market started to weigh this risk much more seriously (MSCI China is down ~60% from peak… still). If this risk was always being priced accurately, then there likely wouldn't have been such a violent repricing (of course, everything is multifactorial).

The risk of inflation, and the higher interest rates it could bring, was also initially ignored. In November 2021, the WSJ published an article titled "Inflation Data Fuels Climb in Short-Term Treasury Yields", and despite the core CPI at 4.6% and increasing, the market arguably ignored the risk that inflation would cause interest rates to hike. At the time, the futures market was only pricing the chances of two rate increases by the end of 2022 at 80% and the chance of 3 rate increases at 49%. The stock market wouldn't peak for nearly two months after this article was published.

While it made sense given most investors' experiences with inflation over the past three decades (none) that they would not typically include inflation risk in their Risk Circle, even when evidence started mounting, by and large they still continued to price stocks as if the Fed Funds rate would stay near zero indefinitely.

NYU Professor Aswath Damodaran pointed out in his valuation course that the expected return on stocks was the lowest it had been in 60 years at 5.75% at the end of 2021. (This figure is essentially a reverse DCF that solves for the discount rate that would make analyst-forecasted cash flows equal to the current market price. In short, this figure was not low because of an abnormally low equity risk premium, but rather because of an abnormally low risk-free rate.)



Slide from Aswath Damodaran's NYU Course.

Investors were hardly pricing in a 25-100bps Fed Funds rate by the end of 2022. Instead, the Fed would hike seven times in 2022, raising the Fed Funds target rate to 4.25-4.5% by year end. There will always be risks that investors do not or cannot directly account for, except when conditions start to change. However, they must be quick to incorporate these new risks[2] into their Risk Circle.

Shenzhen, also known as China's Tech Hub.

Set the Premium.

As an investor, you must gauge risks and make sure you are adequately compensated for them, similar to an insurance adjustor. You must set the odds of specific risks and decide what matters and what doesn't.

The quote an insurance adjuster gives a homeowner is like the price an investor is willing to pay for an investment. The perceived risk informs the insurance premium and sets the ceiling on the return. The riskier something is perceived, the more the insurer would stand to make.

Common stock investing is essentially the inverse of insurance. In any given year, an insurer cannot make more than their insurance premium but can lose much more. A common stock investor cannot lose more than their purchase price but can earn much more. However, the importance of pricing risk is the same.

Now, it is an investor's job to gauge whether a perceived "risk" is worthy of entering their Risk Circle or not. Here is Warren Buffett commenting on his Washington Post investment years later:

> *I have never been able to figure out why it's riskier to buy $400 million worth of properties for $40 million than $80 million. And, as a matter of fact, if you buy a group of such securities and you know anything at all about business valuation, there is essentially no risk in buying $400 million for $80 million, particularly if you do it by buying ten $40 million piles of $8 million each.*

We could poke fun at market inefficiencies here, but some investors may have had valid concerns at the time. We couldn't find any investor commentary published in the period, but we can see the Washington Post's newspaper and broadcasting earnings were essentially flat from 1972 to 1973, and that is on the back of their (and perhaps any newspaper's) biggest story ever with the Watergate scandal. It wouldn't have been crazy to think a lot of subscribers were mainly interested in that coverage, and thereafter would be a higher churn risk. In a Charlie Rose interview[3] Buffett also notes that the Television licenses were under challenge by a friend of Nixon's.


The Washington Post
FINAL
Says Lull Move
U.S. Court Bars Future Vietnam Articles in Post
Times Case Judgment Due Today
Reverses Lower Court Decision
Congressmen Move to Get War History
Senate Gets
The New York Times
Vietnam Archive: Pentagon Study Traces 3 Decades of Growing U. S. Involvement
Vast Review of War Took a Year

The Pentagon Papers were thousands of pages of documents detailing analysis of the Vietnam War and were classified as Top Secret.

And more to the point, the legality of publishing the highly classified Pentagon Papers was ambiguous enough to warrant a Supreme Court ruling, which was so contentious that six Supreme Court Justices wrote their own opinions on the case. And critical to our point, "the court did not prevent the Nixon Justice Department from seeking to prosecute the Times, The Post, and their controlling owners… under the Espionage Act".[4] Would it have been crazy for an investor to wonder whether there was some off chance risk that the Justice Department went after the Washington Post, which even if unsuccessful, could have distracted management and made them more risk averse in future investigative reporting?

Lines of Business

The Washington Post Company and its subsidiaries are principally engaged in publishing newspapers (The Washington Post and the Trenton Times and Sunday Times-Advertiser) and magazines and books (Newsweek magazine and Newsweek Books) and the ownership and operation of television and radio broadcasting stations.

Operating revenues and operating profit of each of the three divisions of the Company are shown below. For comparative purposes income from operations of the magazine division has been restated for 1970 to give effect retroactively to a change in accounting method made in 1971. The effect of the retroactive change was to increase operating income by $409,000 in 1970.

	1974	1973	1972	1971	1970
		(in thousands)			
REVENUES					
Newspaper publishing	$125,731	$111,997	$ 99,796	$ 85,892	$ 79,267
Magazine and books	123,121	107,617	93,790	86,044	79,985
Broadcasting	38,727	27,335	24,258	20,813	18,779
Total	287,579	246,949	217,844	192,749	178,031
INCOME FROM OPERATIONS					
Newspaper publishing	10,746	10,535	10,222	8,706	8,883
Magazine and books	10,202	9,161	5,660	2,738	2,584
Broadcasting	7,192	5,996	5,924	3,750	2,458
Total	$ 28,140	$ 25,692	$ 21,806	$ 15,194	$ 13,925

The Washington Post 1974 Annual Report.

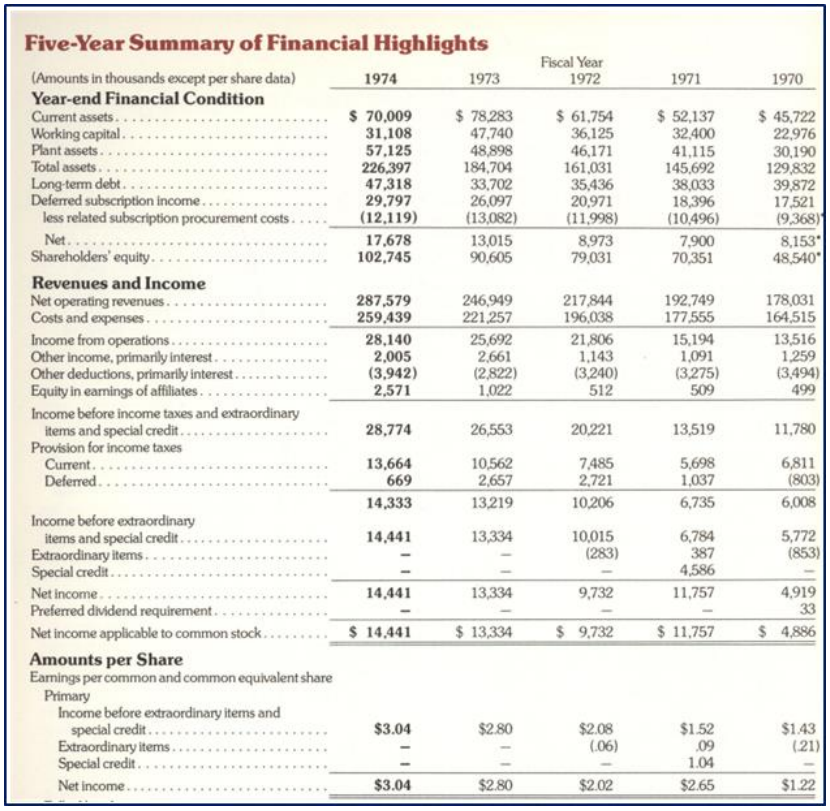
Keep in mind, though, that this is one of Buffett's greatest investments. One that he parades around as an example of market mispricing. And yet, there still was *some* existential risk to the investment, despite the bargain price.

Regardless of how little you pay, when you are investing there are always these remote adverse events that can impact your investment. According to Todd Combs, he and Buffett talk about:

"How many [companies] are going to earn more in five years (using a 90% confidence interval), and how many will compound at 7% (using a 50% confidence interval)?"

The key words here are "90% confidence interval", not 100%. Since he is talking about earnings increasing and not contracting, we'd expect an even higher confidence interval for earnings to at least be stable. Either way, the idea is there is always going to be some lingering risk in investing, and dwelling too much on the high impact yet implausible ones will likely lead to you overweighing that probability (i.e. saliency bias) and miss many good opportunities.

Buffett purchased his Washington Post stake at a steep discount to intrinsic value, which may have allowed him to still make a strong return in scenarios where earnings were flat or slightly contracted, but no price reduction can adequately protect an investor against worst-case scenarios. There is a limit to how much price reductions can compensate for risk because no reduction in price can save an investor from the business being worth zero. There are certain existential risks an investor must simply decide whether or not to accept.



Five-Year Summary of Financial Highlights

(Amounts in thousands except per share data)	Fiscal Year 1974	1973	1972	1971	1970
Year-end Financial Condition					
Current assets	$ 70,009	$ 78,283	$ 61,754	$ 52,137	$ 45,722
Working capital	31,108	47,740	36,125	32,400	22,976
Plant assets	57,125	48,898	46,171	41,115	30,190
Total assets	226,397	184,704	161,031	145,692	129,832
Long-term debt	47,318	33,702	35,436	38,033	39,872
Deferred subscription income	29,797	26,097	20,971	18,396	17,521
less related subscription procurement costs	(12,119)	(13,082)	(11,998)	(10,496)	(9,368)*
Net	17,678	13,015	8,973	7,900	8,153*
Shareholders' equity	102,745	90,605	79,031	70,351	48,540*
Revenues and Income					
Net operating revenues	287,579	246,949	217,844	192,749	178,031
Costs and expenses	259,439	221,257	196,038	177,555	164,515
Income from operations	28,140	25,692	21,806	15,194	13,516
Other income, primarily interest	2,005	2,661	1,143	1,091	1,259
Other deductions, primarily interest	(3,942)	(2,822)	(3,240)	(3,275)	(3,494)
Equity in earnings of affiliates	2,571	1,022	512	509	499
Income before income taxes and extraordinary items and special credit	28,774	26,553	20,221	13,519	11,780
Provision for income taxes					
Current	13,664	10,562	7,485	5,698	6,811
Deferred	669	2,657	2,721	1,037	(803)
	14,333	13,219	10,206	6,735	6,008
Income before extraordinary items and special credit	14,441	13,334	10,015	6,784	5,772
Extraordinary items	–	–	(283)	387	(853)
Special credit	–	–	–	4,586	–
Net income	14,441	13,334	9,732	11,757	4,919
Preferred dividend requirement	–	–	–	–	33
Net income applicable to common stock	$ 14,441	$ 13,334	$ 9,732	$ 11,757	$ 4,886
Amounts per Share					
Earnings per common and common equivalent share					
Primary					
Income before extraordinary items and special credit	$3.04	$2.80	$2.08	$1.52	$1.43
Extraordinary items	–	–	(.06)	.09	(.21)
Special credit	–	–	–	1.04	–
Net income	$3.04	$2.80	$2.02	$2.65	$1.22

The Washington Post 1974 Annual Report.

There is a whole category of risks when investing that you cannot explicitly be compensated for because no compensation would be high enough, so you are stuck making a judgement on whether you can live with such a risk. The reason for this is simple: while you can always lower the price you are willing to pay, whatever price you pay can still drop 100%. In this interview, Damodaran echoed a similar sentiment:

> *We capture that risk in two variables. One is a discount rate... The second variable is something people forget, which is for your business to have all of this potential and deliver value, it's got to survive. Companies sometimes fail. A young growth company, it could have the most incredible potential on the face of the earth, but if it doesn't make it through the next three years, you're never going to see that potential. So, to me the two risk variables are, one is the discount rate and second is some measure of failure risk.*

It was interesting to hear Damodaran, who comes from an academic background, talk about risk outside of what can be accounted for in the discount rate. But it aligns with the idea of the Risk Circle.

The Risk Circle is the list of risks you demand to be compensated for. All other risks outside The Circle are either **1)** existential risks you can live with, **2)** ignored because they are too systemic (i.e., ice ages, meteors, or global nuclear wars), or **3)** deemed unacceptable, which means you pass on that investment.

There is one other aspect to dealing with existential or highly improbable but high-impact risks: position sizing.

Positioning.

How much would you invest in something that with 90% probability will yield you a 10x return with a 10% chance of going to zero?

Your expected return would be 900%, which is very high in any context. But you can't put all of your money in it without risking going totally broke, which for most people would be an untenable risk.

The Kelly Criterion is a formula from probability theory designed to specifically answer this question. If you plug these assumptions into to the equation, you get the answer to invest 89% of your money.

However, in reality, you won't have clean probabilities to punch into a formula, and you would worry about whether there is something you missed. You also may not get a second chance to "bet" if you lose 100% on your investment, so there would be reason to be even more conservative. Ideally, you would be able to find many similar opportunities so if you are unlucky and one investment loses 100%, it is more than made up by the other investments that are profitable**.** But most investors won't even be lucky enough to find even one such positively-skewed asymmetric opportunity, let alone multiple.

There is no easy answer to this question, but the purpose of asking it in the first place wasn't to answer it. Rather, it was to make the point that the only way to truly account for existential investment risk is in position sizing. **The only way to avoid losing all of your money on an investment that loses all of your money is to not have all of your money in it.**

Having a positively skewed investment opportunity may be a necessary condition to invest in the first place, but it does not inform you how much you should invest in that opportunity: the adverse tail-events do.

An investor should not take a risk they cannot afford to. There is no precise answer here, but Buffett again provides some guidance:

"Never risk what you have and need for what you don't have and don't need."

The risks that you can't account for with a discount rate, you must account for with your position sizing.[5]

Appendix

[1] Caveating that some claim death is a "disease that be cured"... either way, the likelihood you eventually die from something seems inevitable.

[2] We are not suggesting that inflation or higher interest rates should lead you to sell good companies because the prices could drop. Rather 1) there can be adverse financial impact to some companies from higher interest rates, like banks with long duration securities books, or inflation for companies with fixed price contracts and unhedged material costs. If you are a relative investor though, then you needed to be aware that the risk-free rate had a high chance of increasing.

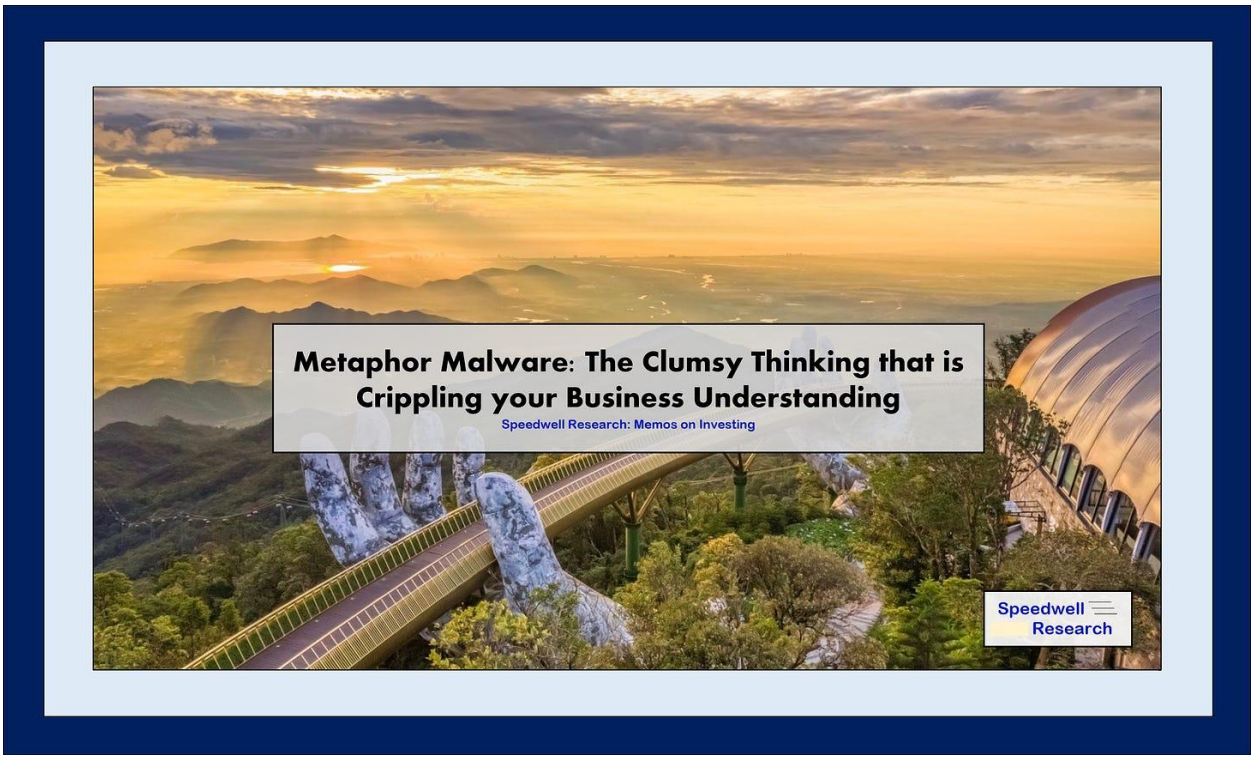
[3] Page 4611 of the Buffett Compilation

[4] Washington Post Article

[5] This also helps give support to the idea of "max" position sizing and why you may not always want to cost average down on a stock, even if nothing is changed—it is okay to limit the total dollars you want to invest in a single opportunity, even if that opportunity gets more attractive.

Metaphor Malware: The Clumsy Thinking That Is Crippling Your Business Understanding

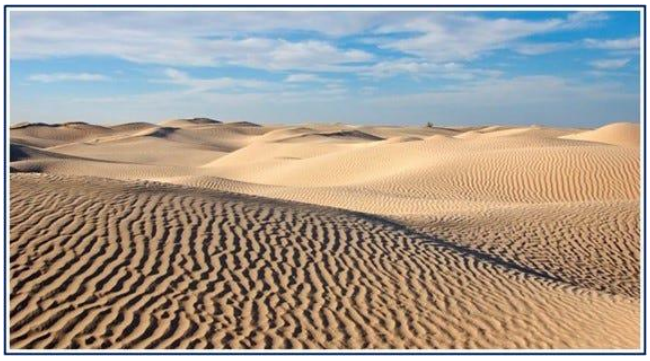
Why you should fire your analyst who keeps calling everything "the Uber of _____"



How Metaphors Disable your Mind.

How many times has an idea been pitched as the “Uber of” something, or as an “arms dealer”, or as “the next Amazon”? Such regurgitations may seem innocuous enough, but the truth is they are debilitating your ability to understand an investment opportunity clearly.

Metaphors and analogies are used to create a quick understanding when none is present. Like drawing a bridge to an unknown cliff, a metaphor connects two ideas that previously had no relationship. In doing so, novel areas may be explored, and a new understanding formed.



This isn’t a novel idea. The great Charlie Munger was adamant that you must read regularly and broadly in order to build up your lattice work of metal models. Key to the “lattice” part is being able to draw connections between disparate fields. Munger was a big fan of psychology and his talk,

"psychology of human misjudgment", is riddled with examples on how psychological principles explain business problems, whether that be the Super Response Tendency and Xerox's failure to sell their original machine or the Deprival-Super Reaction Tendency driving Munger to miss a $5.4mn gain in Belridge oil stock. Buffett too commonly draws on metaphors to understand business concepts, the most famous of which is of course the very idea of a "moat".

A metaphor is a relationship, but also a short story. Stories aid our understanding, but can just as easily push us to get subsumed in an untrue narrative. In using a metaphor that doesn't fit, or worse, a cliché, you are circumventing critical thinking all together. Your desire for a pithy understanding comes at the cost of the understanding itself.

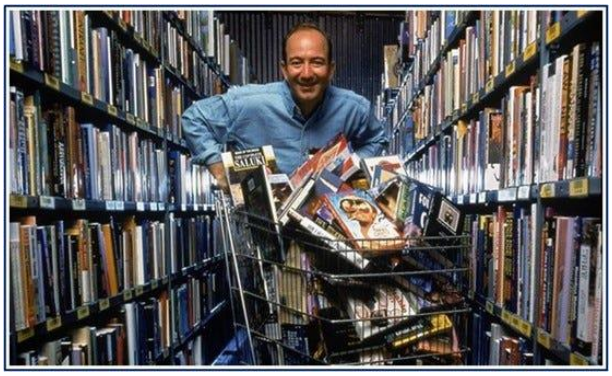
Neuroscience Researcher Iain McGilchrist notes in the quote below not only on the importance of metaphor, but also how once something becomes a "cliché" there is no active thinking going on. (Interestingly, the part of the brain the deals with new concepts and generalizations is only activated with new metaphors. Once a metaphor becomes familiar, it bypasses that part of the brain).

> *"Metaphor is not just a reflection of what has been however, but the means whereby the truly new, rather than just novel, may come about. When a metaphor actually lives in the mind it can generate new thoughts or understanding. —it is cognitively real and active, not just a dead historical remnant of a once live Metaphor, a cliché"*

Narrative Fallacy.

We want to make sense of the world, but the world isn't easy to make sense of. We have a set of limited observations and facts which we weave into a narrative to placate our minds since we are

ever uncomfortable with the idea that we can't truly know something. If we ran a simulation 1,000 times with Jeff Bezos founding Amazon again in 1994, how many end with Amazon being the success it is today? Bezos talks about how he started with books because there was more items in the category than could ever be fit in a single bookstore and they were hard to damage in shipping. Was starting with books really that essential?



Jeff Bezos in an early Amazon warehouse when they only sold books.

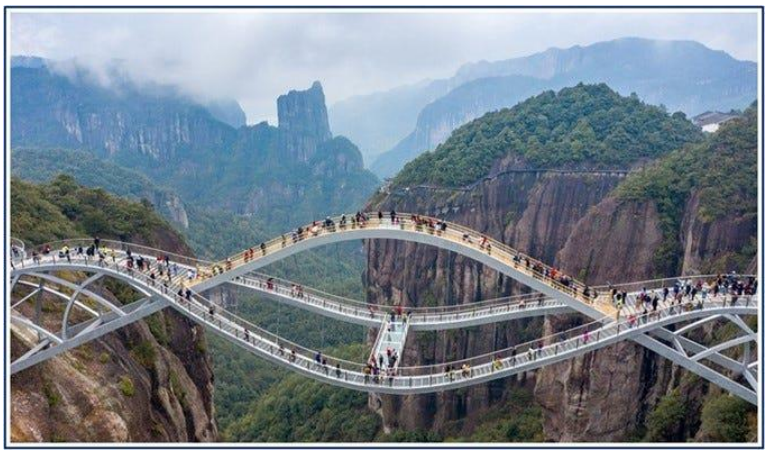
Marc Lore picked baby products since the period after a couple has a baby is a time where most of their habits change. Their core product was Diapers, which were regularly purchased by new parents, giving them ample opportunity to cross-sell other baby items. Overseas, Forrest Li who founded Sea Limited (which is nearing $100bn in annual GMV) spoke of starting with women's fashion since young women tend to be "taste-makers". Importantly though, apparel also was very light weight, making shipping cheaper, and the hard-to-break nature of clothing, with a ton of different selection, made it a category Sea focused on early. Richard Liu founded JD.com in China by first focusing on the so called "3Cs", computers, communication, and consumer electronics device. His reasoning was that there were *few* relevant brands making it easier to fully stock everything a customer could want and the high ASPs made it easier for customers to accept paying for shipping. Notably though, this category is fairly delicate compared to books or blouses.

JD.com started out as a small kiosk that sold hard drives and CDs and was called JD Multimedia. JD originally stood out for its authentic products, which later helped them transition to online sales easier since trust issues were common.

While of course with different countries, cultures, and points in time, different initial ecommerce categories may have made sense. Our point is that nowhere else where we see a successful ecommerce company was books the first category they focused on. It doesn't prove books wasn't the best category for Amazon to have started with in 1994, nor does it prove books was the best category. In fact, we can draw precisely nothing! And that is the point.

The "books are the best category to launch an ecommerce company with" hypothesis cannot be tested because we can only run one experiment once. But key to our point, no matter what the outcome of that experiment, we will start to concoct stories on the outcomes inevitability.

Whether we properly understand why Amazon was so successful or not isn't the real issue. **The issue is when we import fallacious reasoning to novel situations and try to contextualize them with old (and often irrelevant) understandings.** Can you imagine an investor lecturing Marc Lore, Richard Liu, or Forrest Li on how mistaken they are to start their ecommerce company with their respective categories because "books" is clearly the best one? We can.



The Wrong Take-away.

In order to grasp the depth of the problem, you need to understand that your brain has a tendency to group together gaps in knowledge, made-up stories, and absolute confidence—a lethal combination. These so-called confabulations are haphazardly created by the mind, and then "you" actually believe them, thinking there is some sort of inner genius coming from this thought exhaust.

Ian McGilchrist again:

> ***The brain, not being able to recall something, rather than admit to a gap in its understanding, makes up something plausible, that appears consistent, to fill it****. Thus, for example, in the presence of a right-sided lesion, the brain loses the contextual information that would help it make sense of experience; the left hemisphere, nothing loath****, makes up a story, and, lacking insight, appears completely convinced by it****. Even in the absence of amnesia, the left hemisphere exhibits a strong tendency to confabulate: it thinks it knows something, recognizes something, which it doesn't, a tendency that may be linked to its lack of ability to discriminate unique cases from the generalized categories into which*

it places them. The left hemisphere is the equivalent of the sort of person who, when asked for directions, prefers to make something up rather than admit to not knowing.

While these findings are most extreme with split-brain patients, a person with a fully functioning brain still exhibits a common thread of such behavior. Ask anyone how Tesla, Google, or Apple succeeded, and you will get an answer. Of course, any such answer, even if not incorrect, will only note a couple variables of perhaps thousands that needed to come together in order for the observed outcome to have taken place.

Compounding Fiction.

This problem of never truly knowing all of the variables that created an outcome is then compounded by applying the wrong frameworks to the wrong situations. This is most commonly done through a metaphor.

A metaphor is a prepackaged thought that doesn't require exerting any incremental intellectual exertion to come up with. Calling something the "Uber of X", disengages the part of your mind that critically thinks in anomalous situations. Rather than understand the nuance of how short-haul trucking, dog walking, or car sales are not like Uber, the mind is left with a familiar mental model that provides the investor comfort… that is at least until reality hits them that their investment has little to do with Uber.

What you want to do instead is to conceptualize the industry, competitive dynamics, and product before bringing in a "pre-processed" understanding on what the outcome of that analysis should yield. If you hear someone describe their product as "the next Airbnb", they are already trying to commandeer control of your ability to critical think. Don't let them.

If You Don't Know What Game You're Playing, You've Already Lost

How Long-term Investors Lie to Themselves

Intro.

It is often the case that the less specific the timeline, the easier a prediction is to make. We can predict that over some amount of time the tectonic plate that undergird Los Angeles will travel so far as to be north of San Francisco, but in any given year the distance each plate moves can vary. The Eiffel tower, owing to metal fatigue from micro movements from the wind, weather, and sun rays, will inevitably degrade without upkeep. But how much the tower is damaged in any given week is near impossible to measure within a meaningful band of confidence.

Similarly, the weather of any single day in a given New York summer is hard to predict, but we can generalize that summer is on average hotter than winter. And of course, no one can tell you what will happen any single day, month, or year in the stock market, but many would readily accept that the market will be much higher in a few decades. That is not because it is an indisputable law of physics, but rather that the factors that lead to value creation over the long-term are much more predictable than what happens in any shorter period. The more specific of a prediction you make, the larger the room for error. This is most evident with stock movements on quarterly earnings.

When Short-termism is Long-Term.

When a stock moves after a quarterly earnings report, it may seem that it is an example of short-termism, as investors use an incremental 3 months of financial information to make long-term investment decisions. A stock selling off on earnings that are just a few pennies below EPS expectations is taken as evidence of such short-termism. However, the error these investors are typically making doesn't have to do with having a short-term mindset, but rather overextrapolation.

As we all know, a stock is simply partial ownership in a business and a business is simply worth the sum of all future cash flows discounted back to today. In theory, if no other assumptions in an investors "DCF" changed, then a 3 cent miss would only reduce the value of each share by 3 cents.

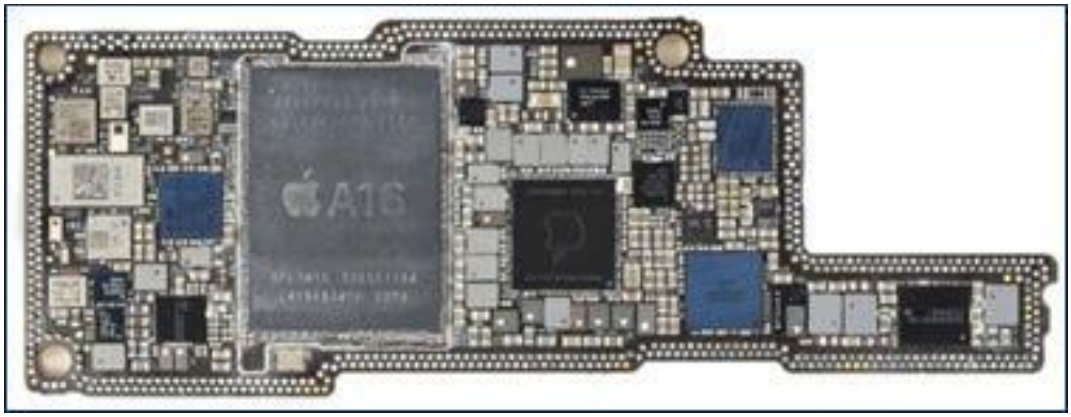
When we see a stock down 8% on a slight earnings miss, what investors are actually doing (if we are generous) is extrapolating out this incremental data point from earnings and compounding its implications across the entire future of the company. Of course, when you compound anything long enough, even small changes can have large impacts.

This is why a small change in earnings expectations can result in a large change in the company's market value. The change in value is driven by long-term predictions, but the assumptions are susceptible to noise.

Thus, the problem isn't the magnitude of the re-valuation, but rather the rationale. Any single quarter is only ~13 weeks of business activity and if there is just 1 atypical week for any variety of reasons, that represents an impact to ~7% of the quarter's earnings. The market then compounds this abnormality indefinitely, leading to a huge swing in value.

Now it's not that the incremental data point never has any long-term ramification, but rather that the data set is typically too small to reliably draw anything intelligent. Said simply, there is too much noise in a single quarter's results.

However, string together a few quarters of similarly poor results and you may be able to see a pattern, which an investor considers significant enough to draw a conclusion from (i.e. signal). These large swings of market price could be an opportunity for a long-term investor who can parse out the difference between the signal and noise.



Every smartphone has Radio Frequency Filters to distill the accepted frequencies down to a smaller portion of the radio spectrum, effectively filtering out "noise".

3-D Chess.

Unfortunately, though, it does get more complicated. There are a variety of truly short-term players that will "bet" on what others expect to happen and buy a stock with the express belief that others are over or underestimating what earnings will be for that quarter. These players are playing among themselves in a sense. Trading stock between those that think the number will be under and others that think it will be over. They hope to find a thread of data that other market participants missed, which can inform a better estimate. What a long-term investor would consider "noise", they consider "signal", given their shorten timeframe.

A long-term investor will neither try to predict these short-term factors, nor care much about them since they will always be a trivial portion of the company's long-term value. But, as these short-term players, often referred to as "event-driven investors", engage in this guessing game, a third game develops whereby other participants will bet on what others expect others to expect and so on… Now the game moves from reality to another degree, where the entire practice is predicated on expectations with a tenuous link to the real world. It would be the equivalent of instead of betting on the outcome of a basketball game, you are betting on what you think others think the betting line will be. Confused yet?

Neither the event-driven nor long-term investor is exactly wrong though: The event-driven investor focuses on *perceived value* whereas the long-term investor focuses on *intrinsic value*. The event-driven traders will not distinguish between long-term signal and short-term noise simply because that is not the game they are playing.

The Museum at Prairiefire in Kansas uses dichroic glass, which displays different colors depending on lighting conditions. The same panel of glass can appear differently to different people at different points in time.

Playing the Wrong Game.

These event-driven players understand they are playing a different game, but much investment malpractice lies when a self-professed long-term investor starts doing the same as the event-driven investor, becoming more concerned with perceived value rather than intrinsic value.

It usually happens unintentionally or when considering career risk, whereby the investor needs an easily presentable "valuation" that they can simply and respectably conveyed in investment committees. This is how it happens.

Starting with the rationale that the future is inherently unknowable, they fall prey to a pernicious presupposition: they think **that focusing on only what is easier to predict will allow them to ignore what they cannot predict easily**. An investment professional, thinking they are eluding unpredictability, will value a company using next year's earnings by taking an estimate and putting a multiple on it.

While the practice of using a multiple of earnings is well-founded, it has become so perfunctory that many investors forget it is a short-cut to a discounted cash flow model. Succumbing to the fear of not wanting to make an explicit forecast of far-out future cash flows, they instead hide such forecasts implicitly with the multiple method. (Since most businesses that are a going-concern will derive the majority of their value from earnings after ~10 years out, paying a valuation that assumes there is a decade plus lifetime is inherently making assumptions on the future).[1]

Essentially what these investors are saying is that they do not want to take an opinion of what the future will hold, so they will just assume every year is the same as this year, blithely missing that that in itself is a prediction! However, it gets worse! Often it is their concern with *perceived value* of the business that drives them to pick a given multiple and move their earnings estimates closer to what others think. This is in part driven by groupthink and the comfort consensus creates. Such an exercise turns a valuation into a guess at how others value it, or in another words a "pricing".

Worlds Collide.

This becomes especially problematic at points of market gloom or fervor as these "long-term" investors over extrapolate in both directions. When times are full of fear, they reduce their estimates and multiples on the rationale that the adverse economic conditions call for higher prospective returns and more conservative assumptions, but in reality, it is in response to a change in perceived valued—that is what they think other will pay today and what they feel comfortable defending in an investment committee. This process is quickly reversed in better times as ebullient markets propel them to jack back up their estimates and multiples.

Much like the event-driven trader, they wind up making the same buy and sell decisions as them, but profess that it was dictated by their valuation process and not the short-term factors. As we have seen though, their valuation process often mirrors the same shortened timeline of the event-driven traders, and their lack of independence turns it into an exercise in pricing. Thus, these "long-term" investors make the grievous errors of not knowing what game they are playing, and thus they lose in both.

Four Takeaways.

There are four ideas here.

1. A prediction is easier to make with a longer or undefined time horizon.
2. It is usually foolish to change long-term estimates in response to short-term data owing to it being mostly noise.
3. Many market participants will buy and sell stock purposely or inadvertently looking at short-term factors.
4. All of these short-term participants can create opportunity for a true long-term investor, but especially in times of fervor or turmoil.

Since the factors that lead to value creation over the long-term are much more predictable than what happens in any shorter period, all the long-term investor has to do is identify attractive long-term opportunities and wait.

While the stock price may move wildly in the short-term for a myriad of reasons, the long-term value of a business is far steadier. When a long-term investor invests in a stock, they are looking to the long-term prospects of the underlying business, not the beliefs of other market participants as to what they expect the stock to trade at. They are looking to make money by buying a stake in a business and holding it as it becomes more valuable, not by selling the stake to another market participant at a higher price.

It is true that any single quarter's earnings is an inconsequential portion of a company's value and the fact that there are so many market participants that act as if otherwise, tends to exacerbate short-term market movements. The conflicting incentives and perverse effect of career risk can create an opportunity for long-term investors as many market participants are acting as if they are short-term investors, trying to profit from changes in *perceived value* rather than changes in *intrinsic value*.

The Antidote.

There is one last conundrum we would like to cover before concluding. How can you have confidence in the future when it is inherently unknowable, especially when short-term data points may be at odds with your long-term business assumptions?

An investor is in a privileged position for two reasons: **1)** they do not have to invest in anything they do not have high confidence in, and **2)** they only have to be certain of the lower range of their estimate's confidence interval. Whenever you are thinking about a company's future cash flows you do not need to know exactly how much the company will make, but rather can simply take the lowest estimate that you feel confident in.

In contrast, sell-side research and event-driven traders have to come up with totally accurate estimates. If consensus thinks a company will earn $22.75 next quarter and they estimated it out to be $22.60, they have failed. However, a long-term investor can simply say they think that the company will consistently earn over $20.00 and not be held to precision.

Investors cannot avoid making predictions, they can only avoid their awareness of the predictions they make.

Appendix

[1] In fact, if you bought a company for 20x earnings that is growing EPS 5%, it would take you ~15 years to get your money back, and 60 years to make a 10% return if you didn't want to assign "terminal value". Even with a conservative terminal value, you still are looking at an implied business lifetime of 40-50 years.

What You Don't Know About Sell-side Analyst Price Targets

Five Pernicious Influences to Price Targets

Intro.

Investing is easy.

Just buy the stocks that the sell-side analyst says to buy and sell the ones that they say to sell.

They even offer this service for free and tell you the exact price the stock will increase to!

Now, most people aren't so naïve to trust a sell-sider's price target on a stock and many are aware of their woeful track records of being correct, but you could be forgiven for not knowing the extreme extent to which those price targets deceive.

In fact, a price target not only has little to do with the valuation of a stock, but the factors that go into creating it are marred by many non-investment related prerogatives from career risk and marketing to financial incentives and corporate access. We identify five key factors below, the last of which is virtually never spoken of.

1. Career risk
2. Losing Corporate Access
3. Marketing / Building Reputation with an Out-of-Consensus Call
4. Influence from Compensation from Clients
5. Coverage Universe Constraints

But first, a story.

When a sell-side analyst changes their stock's price target, it tends to be a good opportunity to market themselves and their firm. Here an analyst explains their new price target on CNBC.

An Extreme: The Tech Bubble Era Analyst.

During the Dot Com bubble, equity research had fewer rules and most of the chicanery was still hidden. While we can cede that there were many regulatory grey areas and pernicious incentives that put Sell-side analysts in tough positions, they nevertheless did not act particularly admirably.

They were supposed to be independent thinkers that could analyze a business and take an opinion on the business model without any outside influence. In practice though, they effectively became marketing tools for the investment bankers.

Web portal Excite IPOed in 1996, raising around $17mn. During the Dot Com bubble internet service provider @Home would acquire Excite for $6.7bn. Such deals were only possible because of their expensive stock, which was supported by positive analyst commentary. As one Deutsche Bank analyst noted at the time, "we're going to have an oligopoly structure… one of the survivors will be the @Home camp, and this makes it all the more likely".

The reason for this was simple, an investment bank could rake in tens of millions of fees from an IPO and from the many potential subsequent transactions like follow on offerings, debt issuances, or acquisitions. However, the bank's equity research division made no money directly. Sure they also supported the bank's trading operation, and if an analyst creates an interesting report they might be able to spur some trading, but that is a relative pittance compared to the investment banking fees in a good time.

Yahoo was one of the tech bubble era's "internet darlings", which usually meant ringing sell-side analyst endorsements. Their many acquisitions, two of which were multi-billion dollar acquisitions created a lot of fees for investment banks.

Furthermore, large investment banking fees would reliably translate into bigger bonuses for anyone who worked on the deals—equity research analyst included. In contrast, a star equity research analyst that recommended a stock that resulted in a large stock trade would generate just a fraction of the fees. On top of that it would be fairly circuitous to show that star analyst's impact on the decision-making of that asset manager, making it near impossible to attribute the trading revenue to the analyst's recommendation.

Now imagine you are a sell-side analyst. You make millions more helping the investment banking team and all you have to do is help investors understand the positive attributes of the company and ignore the negative factors. If you think you wouldn't sell yourself out, remember that if you don't play along your bonus could get "zeroed" and you may be managed out into a different role, or the company all together, while your less scrupulous colleagues play along and collects those fatter fees.

> 39. On the same day coverage was initiated, an institutional client e-mailed Blodget to ask, "What's so interesting about Goto except banking fees????" Blodget replied, "nothin."

From a SEC complaint against a sell-side analyst's behavior during the dot com boom.

It gets even worse though.

What if you did want to be honest and say that you believe some of the tech companies that were IPOing in 1999 were crap. Except no matter how crappy the company, everything seemed to only go up. Now you are stuck trying to make a case that a company is crappy, which will not only piss off your investment banking colleagues trying to IPO the company, but will earn you less money, hurt your career, and most definitely would look wrong in the short-term as the stock price skyrockets.

"If you have a dumb incentive, you get a dumb outcome."

-Charlie Munger

This gets even trickier when you consider that there is considerable leeway in how optimistic or pessimistic an analyst could be on a stock. If you think of Amazon in 1998, you could muster up many reasons as to why they would not be a megalith in internet retailing. Jeff Bezos himself thought they had a 70% chance of failure. Nevertheless, an analyst who believed they would dominate books and music with the potential to add other categories may have richly valued the stock.

Below we see star internet analyst Henry Blodget raise his Amazon price target from $150 to $400 (when it was trading at $240, or on a split-adjusted basis less than $2 per share). He notes that Amazon "is in the early stages of building a global electronic-retailing franchise that could generate $10 billion in revenue".

While he was wrong on the timing (it would take them 8 years to reach that level of sales and earnings wouldn't show up until much later), our general impression reading retrospectively is that he wasn't optimistic enough. Last year Amazon had over half a trillion in sales.

A $400 Target Gives Amazon An Even Bigger Push Skyward

An Interactive Journal News Roundup
Dec. 17, 1998 12:12 am ET

Gift unlocked article

Shares of Amazon.com rocketed Wednesday after CIBC Oppenheimer analyst Henry Blodget lifted his long-term price target on the stock to $400 from $150, spurring a rally in the already-euphoric Internet-retail sector.

Mr. Blodget, who continues to rate the stock a "buy," said in a research note that Amazon's shares recently passed his price target of $150.

In trading on the Nasdaq Stock Market Wednesday, shares of Amazon rose 46 1/4, or 19%, to 289 in heavy volume. Meanwhile, the Nasdaq Composite Index slipped 3.24 to 2009.36, while Morgan Stanley's high-tech 35 index eased 1.48 at 775.42.

Mr. Blodget said early Wednesday that he believes Amazon "is in the early stages of building a global electronic-retailing franchise that could generate $10 billion in revenue and earnings-per-share of $10 within five years."

A sell-side analyst is trying to judge a business on its future prospects, which in the case of early-stage internet companies could be decades out, yet are stuck expressing that view in a 12-month price target. This isn't just a hard task, it's nonsensical.

The stock price Amazon traded at a year later has only the most tenuous connection to their earnings power. This is an easy argument to make: their stock price dropped over 90% from 1999 to 2001 and yet net sales continued to rapidly grow from $600mn to $3.1bn.

We hope we can build some sympathy for the sell-side analyst and the impossibility of the task they are faced with. Even the best traders are hardly right more often than they are wrong, and among the most successful traders, like Stanley Druckenmiller and George Soros, they self-confess to be much worse with equity predictions than other asset classes. How could we possibly expect the average sell-sider to just magically produce reliable stock price predictions?

Well, we can't. And this is a misunderstanding of what price targets actually are.

An analyst gets interviewed after increasing their price target.

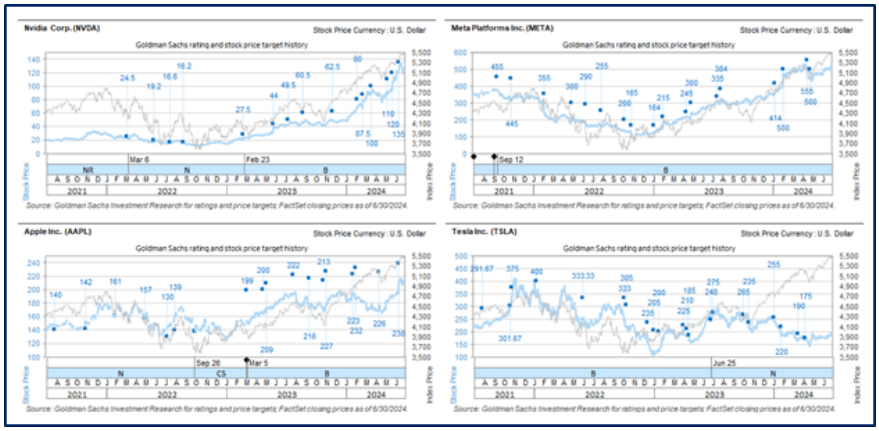
What is a Price Target?

A price target is the price an analyst thinks a stock will trade at in 12 months. There are two key pieces to that statement: **1)** *trade at*, and **2)** *12 months*. The first phrase means that it is what the analyst's thinks the stock will *be priced at*; it is not a valuation. While they may use a valuation methodology like a P/E or EV/EBITDA multiple to assert that price, it fundamentally is not a valuation, but rather what valuation *they think other investors would be willing to pay for it,* which is a pricing.

This is very important to understand as the price target they put out, is not a fair value for the business that a rationale and sober investor would value it at, but a byproduct of the investor behavior they observe in the market.

As soon as everything AI started to become much more popular, a sell-side analyst could reasonably conclude the marketability of any AI stock has increased and thus it warrants a higher multiple. Of course, they won't say it that way. Again though, this is a pricing factor and has no bearing on how "Graham's intelligent investor" would value a business.

Look below at the history of price targets from four Goldman Sachs analysts. The price targets are the dark blue squares and the related stock's price is the light blue line. You can see that the price target generally is matched to the stock's price, with it usually being a bit higher.



From Goldman Sachs Disclosures, which can be found here. These are price target charts for NVDA, META, TSLA, and AAPL (going clockwise starting with the top left).

If the analyst wants to have a "buy" recommendation on the stock, then they must show some upside. But if the stock moves above their price target, then they are stuck with either downgrading the stock or raising their price target. Stock downgrades usually require a longer research report and means they have to deal with the ire of management. As a sell-side analyst, one of your value adds to investors is access to corporate management. Do you think that relationship will be as strong if you decide to downgrade their stock?

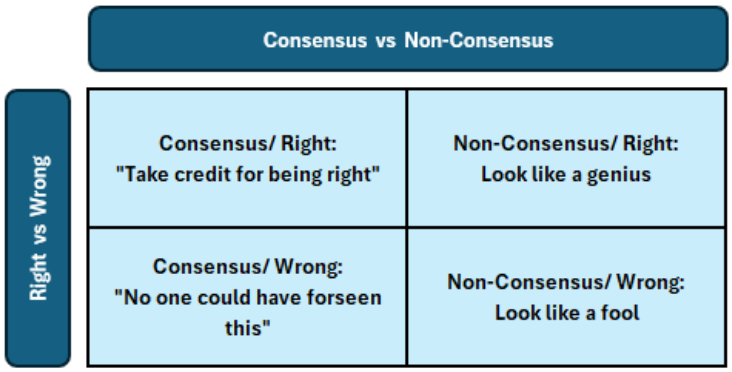
Additionally, just because a stock is expensive, there is no reason it doesn't stay expensive or gets more expensive. Do you really want to stick your neck out and say that a very popular stock is overvalued just for it to continue to be overvalued for years?

While sometimes an analyst will want to take a bold stance on a specific stock and that can help them earn mindshare with investors, like Adam Jonas who was bullish on Tesla for over a decade, it also is a risky proposition.

> That's not to mention other factors impinging on Tesla: the falling price of oil, for instance, which diminishes demand for electric cars, or the fact that a number of traditional luxury auto brands are poised to get into the electric vehicle game. It's not hard to make a case that, at around $250 a share, Tesla is as insanely overvalued as any Internet stock in the late 1990s.
>
> And guess what? Just like the Internet stocks of yore, Tesla has its own Wall Street cheerleader: Adam Jonas, Morgan Stanley's auto analyst. Jonas could not be less interested in mundane factors like earnings per share; indeed, he has had to lower his 2015 earnings estimates several times; he now predicts the company will lose $2.70 a share. But never mind: In the future that he envisions, Tesla will be the most important car company on earth.
>
> Just a few weeks ago, in fact, Jonas raised his share price target for Tesla from $280 to $465, which would make Tesla more valuable than General Motors or Ford. Had anything fundamental changed for Tesla? Of course not!

From a 2015 New York Times article titled "The Tesla Cheerleader".

The New York Times opinion article above is from 2015 and chastises Adam Jonas for his bullish views. While this may be entertaining to read in retrospect given their success since, at the time, Adam Jonas was risking being seen as a fool for his non-consensus views.



Consensus is technically what all sell-side analysts forecast in aggregate. Those earnings estimates that are commonly quoted are an average of analysts' published estimates. Analysts can see the consensus figures just as investors can and they are very aware when they will be making an "out of consensus" call. They will only want to do so when they feel very strongly about something. However, even then they may choose to be in consensus instead of risking being wrong.

For very popular stocks that have a lot of "momentum" it could be futile to take an opinion because you could be right about the business prospects being poor, but the stock can rip nevertheless. Additionally, the market has an upward bias overtime so the probability of being right when bearish is lower. For most stocks, analysts will want to stay firmly in consensus because there is little career risk. They will then pick a few circumstances where they take a swing at an out of consensus call.

If they want to take a strong opinion on the stock, then the price target they pick will act as a sort of marketing tool whereby news articles and talking heads will quote that high price, driving more awareness to the analyst and stock. If they turn out to be right and out of consensus they will be lauded, whereas if they are out of consensus and wrong their ridicule will be persistent. (It is not just from the media, but also from clients who will love to remind them how wrong their call was and why they should listen to them ever again).

As a side note, we will get a bit technical in the note below to better explain why price targets are nonsensical. (You may skip this section and still understand the rest of the memo).

> A stock's valuation is the sum of all cash flows discounted at a certain rate. A 12-month price target has an implied 12-month return. If a stock is trading at $90 and the price target on it is $120, that implies the stock will return 33%. However, for the stock to be worth $120 in a year it still must be worth the sum of all future discounted cash flows. Thus, there will be a future discount rate associated with the stock at that point as well, which will be different from the 33% implied return. (Remember your return is equivalent to the rate at which the net present value of future cash flows = the current stock price. That's essentially what a reverse DCF is).

The analyst is effectively saying the risk premium is too high on the stock for the risk they perceive. This is a fair statement to make, but it should be expressed as a *current* price target, not a future price target. If they expressed it as a future price target they are saying the risk premium is too high and *will* be bid down in a year. The first statement is a valuation , but by adding a timeline it becomes a pricing.

For example, they are saying that a stock should be valued at a 10% discount rate, but it currently trades at a 15% discount rate, but they think that it will trade down to a 10% discount rate by the end of the year. That excess risk premium being bid down in 12 months is essentially the investor's "alpha".

If this is what sell-side analysts actually did, then we believe it may be defensible, but in reality, it is the other factors that are driving their price target decisions. And as we showed in the price target graphs of Goldman Sachs analysts, they always want to show upside so they can maintain their ratings, so they are perpetually saying the risk premium needs to be bid down.

With an understanding of what price targets are (and aren't) we will now move to factors that drive the price target.

What Factors Impact the Price Target?

To re-summarize the five main factors that have a pernicious impact to price targets:

1. Career risk
2. Losing Corporate Access
3. Marketing / Building Reputation with an Out-of-Consensus Call
4. Influence from Compensation from Clients
5. Coverage Universe Constraints

The first three we mentioned and the fourth was touched on in terms of investment banking, but it is also true for their hedge fund clients, as we note below. The fifth factor, which is that price targets are "relative", is the one that is most unknown by most investors.

To understand this, we have to first note that each analyst has their own coverage universe. A new analyst may have only a handful of stocks, whereas most senior analyst will cover around 20-30 stocks. The stocks they cover are their "universe".

The analyst has to place ratings on each stock, which are usually either buy (or overweight), neutral, sell (or underweight). These ratings are all relative to the companies *within* their coverage universe. In other words, if you cover only airlines, whether you think Delta or Southwest is a "buy" is relative to all the other airlines you cover. You are essentially just picking the best airline of the group—even if you agree that airlines are generally poor businesses that the average investor doesn't need to own.

If this seems odd, it is largely because of how hedge funds operate. Many hedge funds will put on what are called "pair trades". This is a trade where they pick one stock to go long and another stock to go short, both within the same industry sector. For example, the idea is that by buying the best airline and shorting the worst one you are eliminating a lot of the industry and market specific risk. Thus, if fuel prices spike, which increases flying costs, and both stocks fall, the best airline is thought to fall less or at least no more than the worse airline. This provides the hedge fund a "hedge". They make money not when something that impacts all airlines happens, but when the individual business outperforms the worse business. (Of course, it's not so simple because of expectations and whether or not something is priced in…).

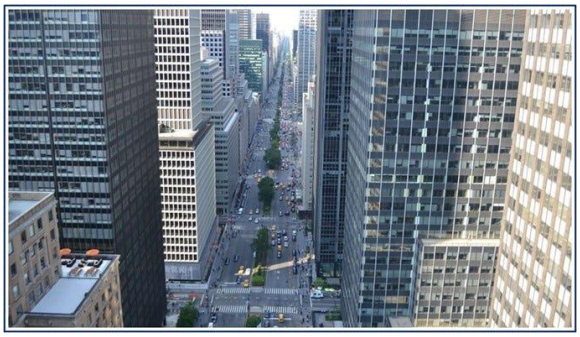
This and similar strategies generated the need for stocks to be long and short. Furthermore, many hedge funds have specialists that only cover one or a few sectors. This set up is thus mirrored on the sell-side where analyst effectively pick stocks to go long (buy recommendations) and short (sell or neutral recommendations). Because a sell-side analyst doesn't want to burn their corporate access relationship, they tend to prefer neutral recommendations to sell recommendations.

Now once an analyst knows the stocks they like most and least, *they have to have the price targets reflect that opinion*. So if an analyst was positive on AAPL, but AAPL moved up 30%, they are forced to either increase their price target so they can continue to show it has upside (and thus is still a "buy") or they must downgrade the stock. This is a tough position to be in as the stock's valuation and the business's fundamentals may commonly move out of step for some period of time. The rest of the analyst's coverage may also just be a bunch of low quality consumer electronics companies. So this analyst is stuck with the choice of either continually increasing their price target as the stock moves up or writing a downgrade note for what is probably the highest quality company they cover, which will also draw the ire of the investors who are long the stock. Then there is the awkward fact that these same funds rank the analysts (the so called "broker votes"), which greatly impact their pay… and employment. On top of that, as mentioned prior, a downgrade is sure to sour relationships with the company's executive team, meaning they get cut out of the information loop.

In short, the analyst usually ends up just continually increasing their price target so they can continue to show upside.

So the price targets you see are a mix of the analyst trying to manage their career, keep corporate access, market themselves, and keep their clients happy to influence their compensation, all while keeping their target prices in line with their relative recommendations.

So maybe there is no free money and it's not as easy as just buying the stocks they tell you too.



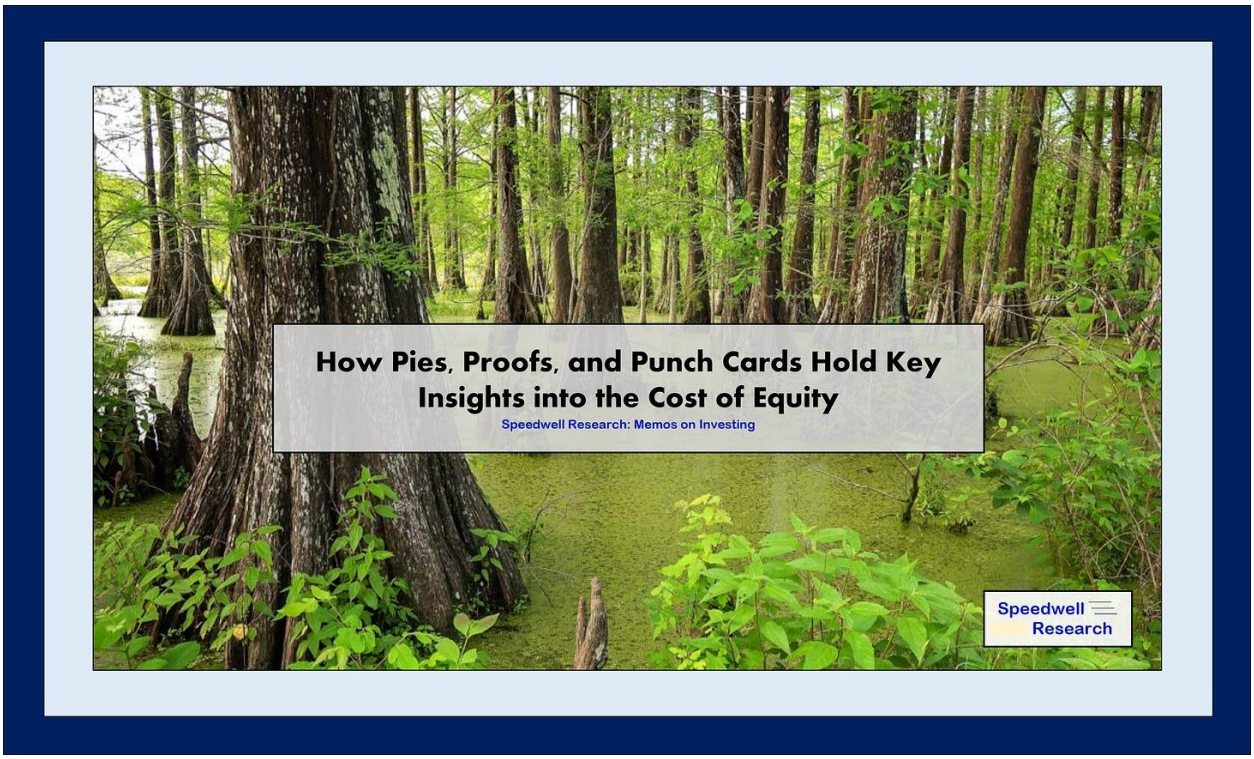
Conclusion.

While we may criticize sell-side analysts, there is no doubt that faced with the realities of their position, they have too many non-investment prerogatives that cloud their ability to offer an untainted recommendation.

Lucky for the investor though you have an easy solution: ignore them.

How Pies, Proofs, and Punch Cards Hold Key Insights into the Cost of Equity

Reading into Commentary from Warren Buffett and Charlie Munger on Hurdle Rates



Intro.

Every truth requires an assumption. The Münchhausen Trilemma, also sometimes referred to as Agrippa's Trilemma, states that it is impossible to assert any proof without appealing to an assumption. Thus, the only three ways to complete a proof are using **1) a circular argument**, **2) a regressive argument**, or **3) a dogmatic argument**. In other words, ask any "why" question long enough and you'll either 1) rephrase the question as an answer, 2) start repeating yourself, or 3) just give an answer that does not logically follow.

Here is a line of questioning on when is it an appropriate time to invest:

Q: When should you invest your money?

A: When you can get a good return.

Q: What is a good return?

A: Anything above your cost of equity.

Q: What is my cost of equity?

A: The rate of return required on your equity investment.

Q: What is the "required return"?

A:

1. **Circular Answer:** it's the rate at which you should invest your money.
2. **Regressive Answer:** it's the return that is required when making an investment.
3. **Dogmatic Answer:** it's 10%, Buffett says so.

When to invest in a stock is perhaps one of the most important questions an investor will ask, but it also does not have a clean answer. In fact, in some very real sense, answering this question is the key job of an investor.

The Münchhausen Trilemma is named after a fictional character, Baron Münchhausen, who pulls himself out of a swamp by pulling on his own braid.

What is the Cost of Equity?

The Cost of Equity is typically defined as "the rate of return required on an equity investment", but the key phrase here is "required". Who is requiring it?

If you are an individual investor, it is yourself. If you are managing money for an endowment, they will set it. If you are managing money for a mutual fund with a mandate to be 100% invested in equities, the mutual fund investors and market are effectively setting it.

There are two distinct ways to assess returns: 1) in absolute terms, and 2) in relative terms.

While virtually every fund is forced to compare their returns to the S&P 500 (or, if you are lucky, the MSCI), most hedge funds are absolute return funds. They typically do not have the mandate to be fully invested in equity, and in fact any return they do achieve is "theoretically" less risky than the market return because they hedge their positions. A hedge fund could be considered to have done a good job even if they underperformed the S&P 500 by, say, 300bps annually, so long as their returns were more consistent.

Most individual investors are absolute return investors too, but for a different reason. That reason is that most individual investors don't care if they beat the S&P 500; they just want to make as much money as they can. If they had the option of beating the S&P 500 by 300bps every year or making a

guaranteed 9% annual return, they'd likely opt for the latter. *This is not because they are doing a calculation of what they expect the S&P 500 to earn in the future, but rather because 9% is good enough.* (Dear reader, you must remember by the very virtue of reading a semi-technical investment writing that you are not the average investor). In fact, most investors have no idea what their portfolio has done versus the S&P 500.

In short, if you gain no solace from knowing an index lost 50% when you only lost 40% of your money, then you are an absolute return investor.

In contrast, most long-only managers (especially mutual funds) are relative investors. They have a mandate to invest all of their capital with little exception. Their aim is to pick the best stocks from all currently available equity options. They usually do not have the luxury of waiting for better opportunities. Thus, they are relative investors because their performance is dictated by doing *relatively* better than an index in a given period. (While slightly off topic, it is worth pointing out that in these relative funds, the upmost important decision of *when* to invest is effectively outsourced to the buyer of the fund who is *not* looking at the current available investment opportunity set, yet is nevertheless effectively requiring they invest all of their funds).

An absolute return investor looks at what would be a good return across time while a relative return investor looks at what is the best return they can get today. This is all to say that if you are a relative return investor, the rest of this memo doesn't apply to you—you have no choice but to invest regardless of whatever the investment opportunity set is.

If you are an absolute investor, the question of what is your cost of equity is of the upmost importance. But it's also the wrong question to ask.

Absolute Return Investors Should Know, There is No Such Thing as Absolute.

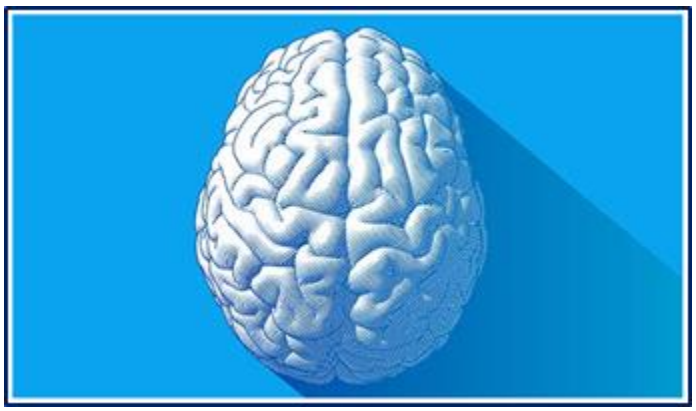
Whenever someone is new to investing, they ask the simple, yet important question: What is considered a good investment return? If you decide not to drown them with theoretical financial jargon, you are going to either **1)** pick a number a few points above the risk-free rate, **2)** pick a number at or above the average historical stock market return, or **3)** say the figure you believe you can generate on your stocks.

Here Psychiatrist and brain researcher Dr. Iain McGilchrist helps give us insight into why there is no clear answer:

> *We tend to think, for example, that there are things and then there are relations between them, some of which we make in our minds. I argue, in fact,* ***relations are absolutely primary****.* ***There is nothing that truly exists that is not a relation****.*

You simply cannot answer the question of what a good return is without understanding the relationship of returns between all investments. An "absolute" does not truly exist. Could you say what makes the best basketball player ever, or only what makes someone the best basketball player *relative* to all who have come before?

Instead of getting lost in the theory around the right "cost of equity" number to use, we prefer a simpler and more practical idea: the punch card.



One of Dr. Iain McGilchrist more well-known books, "The Master and His Emissary", which investigates the two hemispheres of the brain.

The 20-Hole Punch Card.

Buffett has a well-known quote about the 20-hole punch card where the idea is that each hole would represent a single investment, and once you hit 20 you could make no future investments.

> *I could improve your ultimate financial welfare by giving you a ticket with only 20 slots in it so that you had 20 punches—representing all the investments that you got to make in a lifetime. And once you'd punched through the card, you couldn't make any more investments at all.*

Charlie Munger conveyed a similar idea with a pie metaphor in last interview:

> *You only get a few trips to the pie counter. If you take out of Warren Buffett's life the 10 most important trips to the pie counter, his whole record would look like dung. We knew enough to take a good helping when we were offered a trip to the pie counter.*

The common interpretation is that investors should be very patient for the right opportunity and bet big when it comes. The idea also implies that only a few of their investments will represent a majority of their gains. While these are both good insights, we want to explore a different implication.

Scarcity Breeds Competency.

Looking into these remarks we can gain insight into the same question asked differently: when should you deploy capital? What the punch card framework is trying to impose is **artificial scarcity**. When money is more abundant than ideas, there is little stopping an investor from making poor investments with low prospective returns. In fact, most financial bubbles correspond with periods of "easy money policies" when capital is most abundant. When you have the money to do something, most people think they *must* do something. Listen to Munger in his interview with Todd Combs:

> *Todd Combs: Warren talks about the 20-card hole punch.*
>
> *Charlie Munger: Oh, I love that. He said that most people would have better investment results if they got a punch card early in life that you're very limited in investments. You're going to get 20 investments in life and then you quit and put all of your money in cash.*

The 20-hole punch card idea is about thinking beyond your current investment options to think about your opportunity costs across time. When good ideas are scarce and there is no competition for your capital, errors in judgement are likely to increase.

There is another idea in here though: your real "cost of equity" is all of your investment opportunities across time. Rather than calculating a theoretical cost of equity, an investor should think about what the investments they are likely to *actually* come across in their life are and whether it makes sense to keep cash on hand for that or utilize it for an investment opportunity that is currently present.

In Berkshire's 2002 Annual Meeting, Buffett remarked on how his ideas would compete for his capital when he was more money constrained than idea constrained.

> We generally sell – we would sell if we needed money for something else – but that has not been the problem the last 10 or 15 years. Forty years ago my sales were all because I found something that I liked even better. I hated to sell what I sold, but I also didn't want to borrow money, so I would reluctantly sell something that I thought was terribly cheap to buy something that was even cheaper. Those were the times when I had more ideas than money. Now I've got more money than ideas, and that's a different equation.
>
> - Warren Buffett, *Berkshire Hathaway 2002 Annual Meeting*

The "different equation" Buffett is alluding to is essentially that he now must pay more attention to his opportunity set across time rather than just his current opportunity set. This wasn't exactly a new sentiment in 2002 though, as early as 1985, he was noting that they would look for a short-term opportunity if they couldn't deploy all their capital.

> We sometimes enter the arbitrage field when we have more money than ideas, but only to participate in announced mergers and sales. We would be a lot happier if the funds currently employed on this short-term basis found a long-term home.
>
> *- Berkshire Hathaway 1985 Annual Letter*

But how does an investor compare current opportunities to unknown future opportunities?

A Starbucks Punch Card where the customer gets a free coffee after 10 "punches".

Setting Standards.

Buffett has said in the past that they set their absolute minimum return threshold at 10% before tax. Otherwise, they will stay uninvested, which usually means holding short-term treasury bills. He expands on this thinking a bit below in Berkshire's 2002 Shareholder letter.

> The aversion to equities that Charlie and I exhibit today is far from congenital. We love owning common stocks - if they can be purchased at attractive prices. In my 61 years of investing, 50 or so years have offered that kind of opportunity. There will be years like that again. Unless, however, we see a very high probability of at least 10% pre-tax returns (which translate to 6½-7% after corporate tax), we will sit on the sidelines. With short-term money returning less than 1% after-tax, sitting it out is no fun. But occasionally successful investing requires inactivity.
>
> *- Berkshire Hathaway 2002 Shareholder Letter*

The 10% pre-tax is Buffett setting a floor on Berkshire's required rate of return. A year later, at the 2003 annual meeting, Charlie Munger further elaborated on this idea.

> Everything we do comes back to opportunity cost. But it, to some extent – in fact, to some considerable extent – we are guessing at our future opportunity cost. Warren is basically saying that he's guessing that he'll have opportunities in due course to put out money at pretty attractive rates of return, and therefore, he's not going to waste a lot of firepower now at lower returns. But that's an opportunity cost calculation.
>
> - Charlie Munger, *Berkshire Hathaway 2003 Annual Meeting*

A key insight is when Munger noted they are *guessing at their future opportunity cost*. Munger continued:

> And if interest rates were to more or less permanently settle at 1 percent or something like that, and Warren were to reappraise his notions of future opportunity cost, he would change the numbers.
>
> It's like Keynes said, "What do you do when you change your view of the facts? Well, you change your conduct." But so far at least, we have hurdles in our mind which are basically – well, they involve, implicitly, future opportunity cost.
>
> - Charlie Munger, *Berkshire Hathaway 2003 Annual Meeting*

It is interesting because we usually think of required returns as an "absolute" return. That is a return that does not rely on comparison to alternatives to dictate whether it is good or not. However, where we set the threshold of a "good" absolute return is itself decided by comparison.

Aesop's Fable is a simple story of whether someone should drop their "bird in hand" for a potential two unseen birds in the bush. As the saying goes "a bird in hand is worth two in the bush". The Punch Card idea is essentially forcing us to remember not all birds are currently within our reach, and we may very well come across more in the bush. An investor should think of their investment opportunity set not just in terms of what they see today, but what they may ever see[1].

There Will Be Periods of Inactivity.

As an individual investor, you have the luxury of not being forced to invest unless you want to be. The byproduct of this is that an investor will have a lot of cash when ideas are scarce. We typically think of cash as a drag on returns, but it is not truly a drag on returns if it enables you to invest at more opportune times.

It also serves a secondary purpose—it acts as an insurance policy and allows you to stay fully invested. Of course, getting insurance is only helpful before you need it. You least need to buy a fire insurance policy the day after your house burned down. Investors may be tempted to invest their cash in stocks with lower total prospective returns if they think they can earn more in the short term, but that is typically a foolish move for the simple reason that raising cash after a crisis is too late.

As Buffet has said, "*Cash is to a business as oxygen is to an individual: never thought about when it is present, the only thing in mind when it is absent*". In *The Psychology of Money*, Morgan Housel nicely sums up the virtues of having cash on hand:

You look and feel conservative holding cash during a bull market, because you become acutely aware of how much return you're giving up by not owning the good stuff. Say cash earns 1% and stocks return 10% a year. That 9% gap will gnaw at you every day.

But if that cash prevents you from having to sell your stocks during a bear market, the actual return you earned on that cash is not 1% a year—it could be many multiple of that, because preventing one desperate, ill-timed stock sale can do more for your lifetime returns than picking dozens of big-time winners.

Banks borrow short and lend long. But if a bank cannot find a good investment, the most foolish thing for them to do is to "reach on duration", which means increase the maturity of their securities to pick up some yield. Such poor balance sheet management led to the downfall of both Silicon Valley Bank and First Republic. Investors, though, commonly do the equivalent when they swap out their cash (short duration) for stocks[2] (long duration) that offer prospective returns below their hurdle rate in order to deploy more capital. These investors are making the same mistake of not demanding enough compensation to lock away their money, and while it may be unlikely to bankrupt them, it is likely to lead to subpar results.

Accepting the lower returns cash brings versus longer duration investments shouldn't be thought of as just a cost, but also a precondition for the opportunity to buy higher returning securities at more opportune times.

Here is Buffett commenting on that exact dynamic:

> Right now, with our 16 billion that's getting 1 1/4 percent pretax, that's $200 million a year. We could very easily buy Governments due in 20 years and get roughly 5 percent. So, we could change that 200 million a year to 800 million a year of income.
>
> And we're making a decision, as Charlie says, that it's better to take 200 million for a while, on the theory that we'll find something that gives us 10 percent or better, than to commit to the 800 million a year and then find that, in a year or thereabouts, when the better opportunities came along, that what we had committed to had a big principal loss in it. But that's – you know that's not – it's not terribly scientific. But it – all I can tell you is, in practice, it seems to work pretty well.
>
> - Warren Buffett, *Berkshire Hathaway 2003 Annual Meeting*

So what is your cost of equity?

It all of your potential investment opportunities across time.

Appendix

[1] Of course you can sell something to buy something else in the future. But the idea is that if you buy something subpar compared to your future options, you are likely making a poor risk/reward decision. When you go to sell that subpar investment to buy a better one, there is a higher risk you impaired capital and thus were better off if you did nothing.

[2] Essentially all stocks have a higher duration than bonds since a stockholder never received its principal back (from the company).