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November 14, 2020

Dear Partners and Friends,

Six months ago, I described how I expected consumer habits to shift and even accelerate, due to the traumatic events of this year (LINK). We're now starting to see that dynamic play out in front of our eyes.

While traditional brick & mortar businesses are still struggling to return to pre-Covid levels, internet-enabled businesses are witnessing record levels of growth. E-ecommerce, food delivery, communications tools, software for remote work, furniture for home offices, etc. are all seeing high-double digit rates of growth – some even triple digits.

Time Period	Hayden (Net)[1]	S&P 500 (SPXTR)	MSCI World (ACWI)
2014[2]	**(4.9%)**	**1.3%**	**(0.9%)**
2015	**17.2%**	**1.4%**	**(2.2%)**
2016	**3.9%**	**12.0%**	**8.4%**
2017	**28.2%**	**21.8%**	**24.4%**
2018	**(15.4%)**	**(4.4%)**	**(9.2%)**
2019	**41.0%**	**31.5%**	**26.6%**
1st Quarter[3]	3.7%	(19.6%)	(21.1%)
2nd Quarter	93.5%	20.5%	18.8%
3rd Quarter	31.6%	8.9%	8.4%
2020	**164.1%**	**5.6%**	**1.7%**
Annualized	**30.0%**	**11.1%**	**7.5%**
Total Return	**367.8%**	**85.8%**	**52.7%**

For some of these companies it's a lucky break and simply being in the right place at the right time. While for others it's a symptom of a flood of new customers suddenly being "forced" to try a new method accomplishing a task (like ordering a used car from the internet), and suddenly realizing they love it and it's a superior experience than the old method. For the former group, they'll have a few months / years of windfall profits before things return to "normal". For the latter group, this is a permanent shift and I expect these new customers to be "lifers" while advocating to friends about their new discovery (can you say "free marketing"?).

[1] Hayden Capital returns are net of actual fees. Individual client performance may differ based on fee schedule and date of funding.

[2] Hayden Capital launched on November 13, 2014. Performance for both Hayden Capital and the indexes reflects performance beginning on this date.

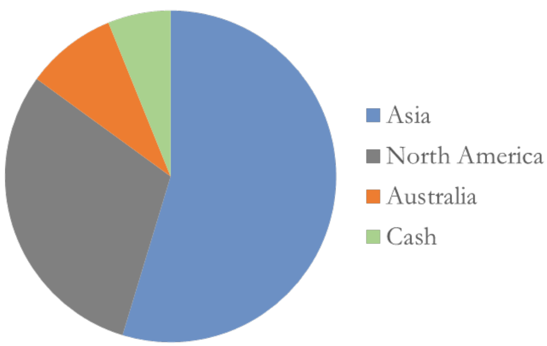
[3] Q1 & Q2 2020 performance figures were restated, which resulted in minor adjustments.

In the third quarter of 2020, with our portfolio invested in companies in the latter camp and experiencing record value creation, our partners experienced similar returns on their capital. We generated +31.6% during the third quarter. This compares to the S&P 500 which returned +8.9% and the MSCI World which returned +8.4%.

So far, we have produced +164.1% for our partners year-to-date, while the S&P 500 returned +5.6% and the MSCI World at +1.7%. This quarter's results bring our annualized returns to +30.0% per year since inception.

Our geographic allocation hasn't materially changed, with a heavy preference for Asian companies. 55% of our portfolio is invested in businesses operating in Asia, 30% in North American businesses, and 9% in a company based in Australia (which also derives a significant amount of revenues from the US, described in detail below). The remainder of the portfolio is comprised of cash.

Geographic Allocation %
As of September 2020



In our Q1 2020 letter I mentioned that studies show it takes ~66 days to form a new habit. With no end in sight for Covid in most of the world (except for China, which has largely eradicated the virus & with life returning back to a mask-less normal), how ingrained do you think habits will be with 660 days (end of 2021) of new consumer behavior?...

"Real World" Options

In the field of decision theory, there's a paradox called the Ellsberg Paradox (named after Daniel Ellsberg). The theory suggests that people prefer to take risk in situations where the odds are known, rather than a scenario where the odds are unknown – even when the latter scenario has a guarantee of a positive outcome (it's just that the magnitude of the outcome is unknown).

Or in other words, people prefer to take risk in situations that have a lower expected value, but where that expected value can be calculated with certainty – rather than where the expected value is guaranteed to be higher, but by how much exactly is unknown. It's often used to illustrate how people have an aversion to ambiguity. (I alluded to this dynamic as it relates to early-stage companies, in our Q1 2019 letter; LINK).

In traditional investing, the most common valuation tool is the DCF model (discounted cash flow model). Under this methodology, investors attempt to accurately model out the discrete financial metrics of a company over a finite period of time, and discount the cash flow generated to determine the appropriate valuation for a company.

The issue is though, that in the real business-world, there are embedded options which have unknown outcomes everywhere. This is especially true among knowledge-based industries (i.e. technology), where often the only way to gauge the outcome is by launching the product and seeing how the market reacts. This is where the concept of launching a "minimum viable product" to generate this feedback comes from, or pursing A/B testing. Given that the outcomes are unknown at the time of investment, how can investors incorporate this into their valuation methodologies? Does it mean since the outcomes are uncertain, we should write-off the investment as "wasted" / zero-value until we have more information and not factor it into our valuations at all?

Additionally, the tool that most investors use – a DCF model – is inherently terrible by design at valuing these investments which have both 1) an uncertain payoff magnitude, and 2) uncertain timing as to when it will occur. This is because a DCF requires you to make a discrete judgement about not just how much it will affect the financials, but also when (since money is worth more today than in the future).

For example, if pharmaceutical company invests in R&D for a new drug, but has an unknown outcome by definition, does that mean that R&D spend doesn't have value today? Or when Sea Ltd launched Shopee Brazil last year (a market it had never entered before and started as a cross-border trial; LINK), does that mean that the capital & manpower spent there was wasted / didn't have value?

DCFs are great at valuing businesses in the optimization phase – they already have a product and new product launches are unlikely to materially affect the trajectory of the company. As such, most of the future value creation comes from optimizing the existing product / service (growing number of customers, raising prices on existing customers, streamlining operations to cut costs and improve margins, etc.). These are linear and gradual changes…

By contrast, knowledge-based industries such as technology derive a significant amount of value in the optionality – creating a new product or service using existing internal capabilities, that if successful, will significantly change the trajectory of the company (for example, Apple launching the iPhone created shareholder value multiples the size of Apple's previous state). And the earlier-stage the company, the larger the embedded real options value drives the valuation of a company, as opposed to the value of current business in its existing form today.

So, what's the solution here? In the financial markets, participants buy financial options all the time. So obviously something with an unknown payoff (but limited downside since the max loss is the premium, or in the case of a company, is the initial capital investment) has financial value.

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I've been thinking about this problem for a while, and I was fortunate that my friend Shai Dardashti of Casulo Group recently forwarded me this paper by the legendary Michael Mauboussin, titled "Get Real: Using Real Options in Security Analysis" (LINK). Amazingly the paper was written over 20 years ago in the midst of the tech bubble (June 1999) – but the lessons inside are just as valuable today, even if the years immediately after publication were painful (which might explain why these ideas didn't get the attention they deserve at the time, and most investors seem to be still learning them – myself included).

In the paper, Mauboussin addresses the exact problems above, and offers the solution of pricing these "real options" the same as one would a financial option (calls or puts), with the Black-Scholes model.

Mauboussin makes the argument that first off, this real options framework is most applicable to businesses that are in "new economy" based industries. This is because DCF's are geared for business strategies that already exist – it's about optimization of the existing "machine". Meanwhile, "new economy" / knowledge-based industries derive their value with strategic *thinking*, which requires intuition and more importantly, creativity. These businesses are creating business strategies for something that didn't exist previously, and while you might know the distribution of outcomes is positive, the exact future is unknown (magnitude or timing of success).

Outside of this, the real options framework is also most applicable to businesses which have 1) Smart managers, 2) are Market Leaders in their field, and 3) Exhibit High Uncertainty / "Volatility".

Real Options Thinking is Most Applicable When You Have…

From Get Real: Using Real Options in Security Analysis (LINK)

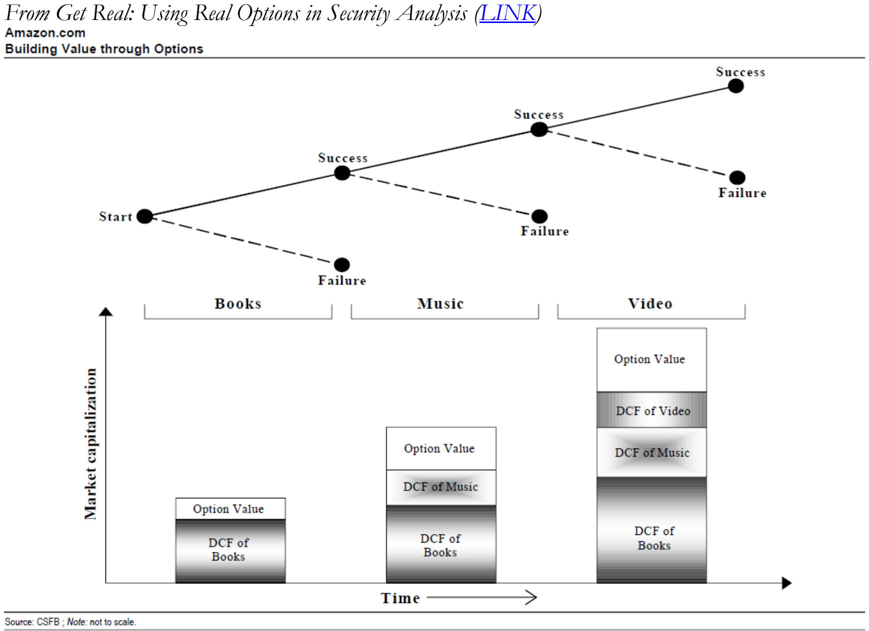
- **Smart Managers**
  - Reputable
  - Access to capital
  - Understand options thinking
  - Clearly identify options
  - Ability to exercise options
- **Market-Leading Businesses**
  - First call
  - Economies of scale
  - Economies of scope
- **Uncertain Markets**
  - Source
  - Trend
  - Evolution

Source: CSFB, *Real Options*, Martha Amram and Nalin Kulatilaka, Harvard Business School Press, 1999.

A smart management team is the first criteria, since the leadership obviously needs to be focused on identifying, creating, and executing on options in the first place (as opposed to management whose goal is to maintain the status quo – a "don't screw it up" mentality).

Amazon Example – Building Value Through Options

From Get Real: Using Real Options in Security Analysis (LINK)



And in order to get the entire organization / other stakeholders onboard, they need to have the credibility to convince others to embark on this uncertain journey with them. In addition, these options with uncertain payoffs need to be financed, which requires access to capital (need forward-thinking shareholders). He gives

Amazon and Jeff Bezos as an example of this (remember this was 1999, when Amazon was only 5 years old and ~$50 per share)[4].

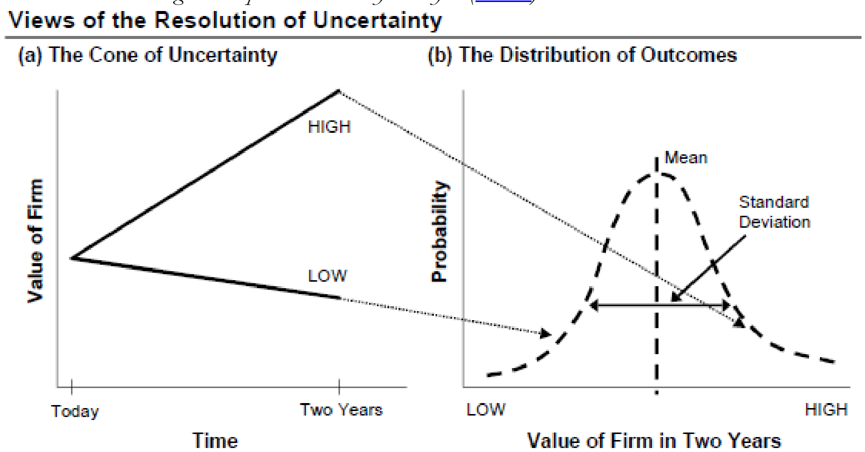
Second, market leading businesses tend to have "first look" at new opportunities, given their resources and position of strength. Market leaders tend to be in more areas and thus collect more information than smaller competitors. Because of this, they have an informational advantage into potentially interesting new fields.

If you combine this with capable management that's thinking in terms of optionality, then the management will be able to recognize an attractive investment / new area they should explore, well before the opportunity is available to competitors. In addition, having more resources than competitors helps them with capital, talent, partnerships, etc. that increase their executional odds of success. Lastly, it also helps that internet-based companies tend to exhibit benefits to scale (lower marginal costs) and also winner-take-most dynamics, which lowers the cost to fund the "real option" investment (can take more "shots on goal" with the same capital budget vs. competitors), while blocking other competitors from entering by moving first.

Lastly, the real options need to be in highly uncertain markets – preferably in a field where others haven't trodden before, so there's no data to act as "guideposts" for what to expect (an "explorer" / "inventor" mentality vs. an "executor" / "optimizer" mentality).

"The Cone of Uncertainty"

From Get Real: Using Real Options in Security Analysis ([LINK])



Source: *Real Options*, Martha Amram and Nalin Kulatilaka, Harvard Business School Press, 1999.

It's ironic that if we remember to the Ellsberg Paradox, that most investors will place a *lower* value on innovative companies investing in markets with uncertain payoffs, even if they're confident that the payoffs will eventually be value-creating. Meanwhile in options theory, high volatility is rewarded with a *higher* valuation, due to the asymmetric payoff of options. You can only lose as much capital as you put in, but your reward could be multiples the original investment – the downside volatility is capped, while upside volatility is unlimited.

For Hayden, most commonly these real options take the form of what Mauboussin calls "Scale Up" and "Scope Up":

"Scale Up: This is where initial investments scale up to future value-creating opportunities. Scale-up options require some prerequisite investments. For example, a distribution company may have valuable scale-up options if the served market grows".

[4] Although, Mauboussin does use Enron as an example as well… but hey, he wasn't covering the company in particular, so that's understandable.

The most common example for our companies, takes the form of increasing capacity (warehouses, logistics, headcount, inventory, etc.) ahead of where their current sales are. Future growth is uncertain, but making these investments upfront give them the ability to execute immediately if the business-line is successful (versus competitors who may not be able to meet demand quickly, and thus lose market share in the meantime).

The ability to scale with demand in real-time, as well as the improved customer experience and building customer trust (I'm sure we've all experienced "out of stock" / shipment delays with some retailers during Covid… I likely won't be ordering with them again…) is usually worth more than the time-value of deploying capital early (losing a customer is very expensive).

"Scope Up: The option values the opportunity to leverage an investment made in one industry into another, related industry. This is also known as link-and-leverage. A company that dominates one sector of e-commerce and leverages that success into a neighboring sector is exercising a scope-up option."

An example of this is how Amazon parlayed its success in books, into expanding into the physical music category. Or how it leveraged its own excess server capacity into AWS (now worth >$600 Billion). Another example is Sea Ltd building a communications app (Beetalk) which helped give the company insight into the nascent Southeast Asia e-commerce market (Beetalk users were using the platform to make purchases through social media). Even though Beetalk eventually failed, the technology got rolled into other aspects of Sea, and led to the creation of a ~$40 Billion business in the form of Shopee.

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Obviously the above insights aren't my own (all the credit goes to Michael Mauboussin), but it is something that I've been thinking about. I found the paper very helpful in formulating my own thinking and I wanted to share it with our partners.

Additionally based on my conversations with allocators and fellow investors over the past year, I've come to realize that most of the public markets investment community still doesn't understand this corner of the investing universe (despite these ideas being 20+ years old). I would encourage those interested to read the whitepaper (and other writings of Mauboussin's) in its entirety (LINK).

As our partners will see below, this framework has already been valuable for our newest investment – which is an investment we made primary due to the company's "real option" in the US market.

We believed the payoff would be highly profitable, despite the timing & ultimate magnitude being uncertain. And the best part, is that the markets handed us this "real option" essentially for *free* earlier this year!

"An expectations-based approach to investing starts with a company's stock price and considers what value driver estimates solve for that price. Using this approach, numerous financial analysts and pundits have concluded that many stocks – especially those that compete in rapidly growing, uncertain markets – are substantially overvalued. We believe that such an analysis is incomplete because it ignores the potentially meaningful value of imbedded real options… stocks of companies that participate in highly uncertain markets are best viewed as a combination of the discounted cash flow value of the current, known businesses plus a portfolio of real options… So as expectations about current businesses shift – by extension affecting the options they support – the market values of real-option-rich companies swing wildly. The resulting high share price volatility speaks more to changes in option value than to current business value."

"In options theory, higher volatility – because of asymmetric payoff schemes – leads to higher option value. In a sense, real options theory allows us to value the unimaginable. This means that industries with high uncertainty – like the Internet – actually have the most valuable options."
- Michael Mauboussin

Portfolio Updates

Afterpay (ASX: APT): Last quarter, I mentioned a new position in an Australia-based company. This company is Afterpay, which trades on the Australian Stock Exchange.

Afterpay is a global leader in the buy-now-pay-later ("BNPL") payments space, and benefits as younger consumers (Millennials & Gen-Z) around the world eschew credit cards in favor of debit / cash payments. Afterpay differentiates itself from competitors by focusing on the Fashion & Beauty categories (although it is leveraging customer's trust to expand into other categories, in its most mature market of Australia).

The company is changing consumer behavior, and merchants who implement it realize +25% larger order sizes, +20% in conversion rates, and +20% in purchase frequency. These are significant figures for retailers, and more than justify Afterpay's higher fees (3 – 6% of total order values).

The company is growing revenues +112% y/y, and I expect it to continue growing 50 – 100% annually over the next 3 years, while also eventually increasing take-rates (as merchant mix shifts from large national retailers to SMEs). The company has already proven to be highly profitable in Australia (~40% margins), and I expect the US will eventually realize the same.

Afterpay is already a verb in its Australian home market ("Why don't you Afterpay it?"). In fact, Afterpay is so dominant, that Afterpay counts ~20% of the total Australian & New Zealand population between the ages of 18 – 65 as customers (3.4M customers out of 17.3M people).

As such, our thesis and investment edge come from the nascent US market, where Afterpay entered two years ago and is already showing rapid adoption (+330% y/y GMV growth in FY 2020). The US market is 10x – 11x the size of the Australian market, and it's just getting started. If Afterpay can follow the Australia blueprint to replicate its success in the US market, the investment has the potential to be a "10-bagger" for our partners (it's almost a ~3-bagger already).

I had resisted talking about this investment publicly last quarter, with the goal to add to our position if the share price decreased. However, given it's already been 7 months since our initial purchase (April 2020), I felt our partners deserve to understand the basis of this investment and the opportunity we see in a timely manner.

I have created a 34-slide presentation to outline our thesis and the opportunity ahead for the company. You can find the presentation here:

Link to Afterpay Presentation (November 2020)

P.S. I also want to thank Pratyush Rastogi, who helped to co-research the company with us. Pratyush is the founder of Farrer Wealth, a financial advisor representing Families and HNW individuals based in Singapore. He did some excellent in-depth work on the company, and our partners can thank him for a portion of our returns this year. For more information, you can find Pratyush here (LINK).

Conclusion

I've always told our partners that given our portfolio structure and highly concentrated portfolio, that our returns would be "lumpy". This year is just turning out to be a bigger "lump" than others…

But whether our return profile is [+15%, -5%, -20%, +70%, +35%] over the next five years, or it's [+15%, +15%, +15%, +15%, +15%], it doesn't matter for to us – it still produces the same +15% annualized return over that period (or ~100% return over 5 years).

The problem most investment firms face, is that their capital partners look-for (and expect) the latter profile, and the managers willingly agree / sell to it (not realizing that by adding "low volatility" as a criteria, they are exponentially increasing the difficulty of outperformance and lowering their overall chance of producing such returns).

The difference we have at Hayden, is that we would rather increase the odds of success, by willingly accepting (and embracing) the first, lumpier return profile. As Charlie Munger says, "All I want to know is where I'm going to die, so I'll never go there." I realized prior to founding Hayden, that where most investment firms die is by chasing the latter return profile to appeal to a larger potential client pool (not because they are inherently bad investors, but because the added criteria makes their job that much harder).

So since Day 1, I have consciously structured the firm and set expectations to avoid this death trap. It seems I say it every quarter, but I'll say it again (because it's just that important) – the quality of our partners is what allows us to operate in this manner, and produce (hopefully) high returns over a long-period of time.

Quality, like-minded partners understand that the volatility is a feature, and not a bug, and willingly embrace it by adding additional capital during the troughs. This provides us with the business stability, mental headspace and freedom to pursue what matters – great returns over a 5 - 10 year investment horizon. As such, our performance is a result of the quality of our capital partners, as much as it is the actual investment process & research we conduct at Hayden. Thank you to everyone involved, at the Hayden "family".

P.S. A couple weeks ago, I did another interview with Tilman at ValueDACH / Good Investing TV (LINK) – but this time with my good friend Dennis Hong, who runs Shawspring Partners in Boston. It was a wide-ranging conversation and went quite a bit longer than we expected (1.5 hours)! Please check it out along with Tilman's other videos, and hope you enjoy!

Sincerely,

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