2021
Letter to Investors

Guardian Capital Management B.V., Concertgebouwplein 21, Amsterdam

Affirm
Digital payments

Alphabet
Information intelligence

Amplitude
Software to enhance digital optimization

Block
Digital financial services for merchants and individuals

Cloudflare
A leading cloud services provider enhancing performance of the Internet

Databricks (private)
Software that helps to manage data and enhances information intelligence

Elastic
Data search and observability

Epic Games (private)
Operator of Fortnite and the Unreal Engine

Palantir
Software to empower organizations to manage data

Roblox
Building virtual communities

Roku
Operating platform for streaming to the tv

Sea
A global internet-enabled platform for gaming, ecommerce, and payments

Shopify
The leading centralized retail operating platform

Snowflake
A leader in cloud services

Spotify
Leading audio platform and enabler of audio creators

January 12, 2022

Dear Partner,

In 2021, the return of the Guardian Fund was 3.27%, measured in euros and net of fees and expenses. This compares to 28.71% for the S&P 500 Index, measured in U.S. dollars, and including dividends.

The return of the Knight Tech Fund - our crossover fund that owns private stakes in Epic Games and Databricks - was 7.90%, net of fees and expenses. This compares to 21% for the Nasdaq 100, measured in U.S. dollars, and including dividends.

What has changed: a tech rerating

After the outperformance in 2020 (52.2% for the Guardian Fund and 127.8% for the Knight Tech Fund), the weak price performance of our portfolio for the year is humbling. Especially because both funds were up 28% and 23% respectively as of the end of October. Then the sector sell-off in technology stocks almost erased our annual return and resulted in the underperformance versus the relevant indices in 2021. The drawdown did not materially affect big tech companies' market values that constitute a large part of the index as here, the market can put a multiple on their massive accounting earnings and also because their valuations have reached more reasonable levels for a long time.

Since 2008 and especially since the start of the pandemic, the Federal Reserve (Fed) has provided enormous liquidity and the tech and crypto markets functioned like sponges for this liquidity. Declining interest rates pushed up valuations and the zero-interest rate environment dramatically increased people's willingness to provide funding for unprofitable growth.

The main fear now is the extent to which higher interest rates possibly caused by inflationary pressure of too much money chasing too few goods, are going to pull down the valuations of companies and especially 'growth' tech companies which are growing without showing material accounting profits (yet). The Fed is incentivized to act by hiking interest rates and reducing the size of its balance sheet in order to counter elevated inflation, which it first labeled as 'transitory' due to persistent supply bottlenecks as a result of the pandemic.

Over the past decade, owners of assets have basically been swimming in a river downstream. The low interest rates environment is likely to end at some point. Then, investors must start swimming against the current which is less pleasant, and many are likely to end up lagging instead of moving ahead as rising rates function like gravity for all asset classes because future earnings get capitalized at lower multiples.

What has changed: How much the market is willing to pay

Over the past few years, the median valuation of younger software-as-a-service (SaaS) businesses almost doubled from around 8 times revenues to 15 times. The material correction of the past few weeks has brought this back to around 10 times which means we are back to pre-COVID levels.

Aggregate multiples are seldom completely comparable over time as the composition of the basket of businesses is changing. For example, over the past two years a few exceptionally strong businesses, e.g., Snowflake and Datadog, have come to the market and are still trading in the higher valuation range today.

As a result of the sell-off towards the end of the year, we saw significant multiple contractions across some of our portfolio companies. Roku and Spotify saw their enterprise value/revenues multiples being cut significantly (-58% and -40% versus the beginning of 2021 respectively), while their share prices returned -39% and -27% respectively. We are impressed to see that several companies experienced rising share prices while showing significant multiple contraction, e.g., Snowflake and Shopify. It is a testimony to their strong revenue growth.

Note that we have owned most of our portfolio companies already for years (Shopify since 2016, Sea since 2017, Palantir since before their listing) and that today they are worth multiples of what we paid initially. We have owned those businesses since an earlier stage when revenues were a fraction of what they are today and, in the meantime, have experienced multiple expansion and again contraction. We expect such fluctuations to continue, and we keep adding shares of companies we think are attractive long-term investments.

Often, when people speak about valuations it is about price/revenues or price/earnings. The challenge of investing is that the investor needs various tools to understand different businesses. As technology is changing, company architectures are changing, and this means that metrics to understand economic reality and valuations are evolving as well. Even traditional SaaS metrics like average net retention rates (if above 100% then there is an increase in revenue from existing clients meaning the business is scaling with its clients) and annual recurring revenues can oversimplify economic reality.

For example, studying customer cohorts instead of averages can give valuable insights into profitability of clients acquired recently. If the lifetime value versus the cost to acquire the latest client is highly attractive, then the shareholders like to see the company reinvesting every dollar back into the business to grow scale and the moat. When the business is expensing those investments, the result is growth without any accounting earnings.

It seems that the innovation cycle is getting faster and consequently people's vision of the world, much of which has been shaped in the younger years, is being disrupted over shorter periods of

time. Going forward, investors will have to learn new mental models more frequently to understand emerging powerful business models. One reason why Warren Buffett has been so successful is that he kept learning and as a result his track record, in contrast to that of most who basically had a run in one specific period and state of the world, is strong over multiple decades.

Nobody knows how the market will price companies going forward. Exponential growth does not go on forever and the best business models we have ever seen, Alphabet, Microsoft, and Facebook, are currently trading at relatively low multiples on strong cash earnings in a time of low interest rates.

Therefore, one can basically know the maximum valuation at which the best fast-growing technology companies will eventually trade at maturity. Yet, the market can greatly underestimate the effect of longer than expected exponential growth as well. The market value of a business can increase tenfold while its valuation declines if revenues and operational cash flows grow faster than the share price. The key question we need to answer is: can sustainable growth continue for a longer time than consensus is willing to pay for?

We do not know how much valuations will shrink during this downturn. Often, a sell-off tends to over-correct and therefore there may be further downside in valuations; another 20% would bring the average back to 8 times sales. Timing the bottom of a market is seldom successful when measured in series.

The 10-year government bond market is important because all assets are priced in relation to this risk-free rate (risk-free if one does not bother too much about declining purchasing power of fiat currency) and it basically provides an alternative to being invested in equities. Today, the 10-year government yield in Europe is around 0% and the U.S. 10-year Treasury yield at 1.7%. The fact that the rate of change at which the 10-year yield is going up is slowing down may indicate that the market currently thinks that some of the current high single-digit inflation is transitory and tightening by the Fed will further help to correct it as well.

Meanwhile, trillions of euros and dollars are looking for a return. In addition, we have to see to what extent the deflationary force of demographics and technology, especially self-learning neural networks, and the fact that people can produce more products while companies can offset rising wages by automating certain tasks, will provide a massive counterbalance to inflationary monetary policy.

Today, especially after the sector rotation, our view is that many mediocre companies seem expensive while some of the finest internet-enabled companies seem as attractive as we have seen them. Significant value can be found at the frontier of technology and some of the world's biggest fortunes will continue to be made in that field.

What has not changed: Solid fundamentals of our businesses

The operational performance in 2021 of the businesses in which we own shares was strong and the outlook for these businesses remains unchanged today.

We own thriving companies which we believe will be worth several times their current value by the end of the decade. Those businesses are growing with healthy unit economics, reinvesting all operational cash flows, and showing operational leverage which means that profitability is likely to catch up as the business scales. All are experiencing the tailwind of digitalization of society.

The table below shows our larger public investments. Over the first nine months of 2021, these companies reported double-digit revenue growth, which is impressive when considering the exceptionally strong 2020 during which the same companies grew their revenue by 71% on average. Most internet-enabled businesses are relatively capital-light (even including significant human capital) and most exhibit high gross margins (57% on average).

Names	Market capitalization ($Bn)	Revenue growth 9 months 2021 vs 9 months 2020	Gross margin (LTM)	EV/2022 revenue multiple*	Share price performance (4/1/2021 – 6/1/2022)	EV/Revenue multiple change vs 01/2021 in %
Alphabet	1828	45%	56%	5,8x	59,6%	-2,3%
Cloudflare	34	51%	77%	35,1x	39,5%	-23,7%
Snowflake	89	108%	60%	41x	6,8%	-55,5%
Palantir	34	50%	77%	15,7x	-28,4%	-41,1%
Roblox	52	120%	75%	18,2x**	28,4%	N/A
Roku	26	98%	52%	6,3x	-39%	-57,8%
Sea	107	119%	38%	7x	-1,7%	-31,8%
Shopify	147	65%	54%	22,4x	7%	-40,9%
Spotify	44	22%	27%	3,6x	-26,6%	-39,7%

Source: Company reports, * GCM estimated 2022 revenue, ** non-GAAP revenue (bookings)

A business is creating value if it can 1) build a product people want, 2) sell it at a healthy margin, 3) show that the capital it is reinvesting to acquire new clients is attractive versus the lifetime value of that client, 4) expand margins as the business is growing, in other words, show economics of scale, 5) become a platform that provides clients tremendous value and reduces churn. Companies that can show all the above can grow to an enormous size if the market is big. Often, such businesses can be found in the technology-driven space.

One of the most important things is to recognize when a business reaches an inflection point, which is when operational leverage starts to kick in and the growth in profitability catches up with

revenue growth. The inflection point is often the big promise, and a lot of our effort is spent trying to understand if scale is likely to translate into significant profitability.

For example, regarding Spotify, we believe margins should inflect sooner than later because Spotify's total monthly active user base continues to grow from about 390 million, which combined with more engagement and better machine learning drives significant ad-supported revenues (USD 323 million in 2021 Q3, small yet growing 75%). It's also worth noting that because Spotify's growth is only around the 20-30% range, the valuation is dramatically lower than that of for example Snowflake. The lower price provides a substantial margin of safety because it gives an asymmetric return profile.

Companies' gross margins reflect the characteristics of their business models as well as the specificities of the sectors in which they operate. Unsurprisingly, SaaS companies like Palantir or Cloudflare boast excellent gross margins as the products they sell are both capital-light and highly scalable. While a high gross margin is an indicator of the quality of a business it is not exclusive. A company like Sea operates in a highly competitive environment where building scale matters more than near-term profitability. As a result, its current margin does not reflect the underlying profitability of its business model at maturity.

What else has not changed: Investing from the perspective of an owner

Occasionally, and again towards the end of 2021, and for the rest of our lives, almost every person active in any asset class, becomes a macro economist and starts focusing on top-down strategies to maneuver through 'uncertain' periods of higher interest rates and inflation rather than a bottom-up analysis of an individual asset.

The fear of missing out in the tech sector was high indeed and now the wild price swings are causing a shake out of shareholders many of which do not know what they bought and at prices that require a vision on the business as well as the horizon of an owner. Driven by fear, the strategy becomes to rotate from 'growth' companies back to 'value' where at least one can find a margin of safety in the balance sheet or accounting profits. And indeed, 2021 was a year in which 'value' investors finally outperformed 'growth' investors.

The labels 'growth' and 'value' are words for ideas rather than reality. It is a great oversimplification to think in those buckets and one can find overvalued and underpriced assets in both so-called silos.

We do not like to participate in the game of constantly churning the portfolio by selling a company at full valuation and then be forced to reinvest the cash. Good investment ideas are rare. The key point here is that one can keep owning a great business at a full valuation whereas one must sell the mediocre business at a higher multiple. In addition, because we focus on scalable businesses,

we rather err on the side of not selling. Over the past decade, our biggest mistake was to sell (shares of) great businesses because the valuation seemed high.

The above makes us fundamentally different to almost all other investors and funds. We do not trade in and out of what we like to own long-term and do not trade based on general economic projections.

This means we must be right about the businesses we own. Whether we are right or wrong is the main source of risk of a permanent loss of capital rather than valuation. It also means that when stock prices move up faster than the intrinsic value of a business, we are borrowing returns from the future and as such, the logical subsequent period of lower performance is acceptable to us if the business is growing and pushing down the valuation until the market can see the strong investment case in clear daylight.

On one hand of the investing spectrum sits the Benjamin Graham schooled value investor who needs to find a tangible margin of safety in the balance sheet and income statement and likes to buy any business no matter what it does as long as it is cheap. On the other hand of the spectrum, we find the venture investor who looks the talented founder in the eyes in order to hand over a cheque based on a vision of what can be achieved with that capital. If that start-up proves to be successful, then the investor can own it for a long time.

We believe that, in order to be successful over the next decade as a public equity investor, one needs to have the skills of both. The sweet spot is somewhere between the two extremes where the bulk of the value is identified by the intangible drivers of earnings power such as the company culture, human capital, embedded pricing power, superiority of software, network effects, etc. In contrast to the venture capital investor, the public equity investor must deal with a volatile quote of the entire business all the time. This is an opportunity and a threat as few things are more distracting than having to deal with a liquid price all of the time.

In early March 2020, days before the lockdown, we asked you, would you sell your family business because a pandemic was spreading? Today, would you sell your company because interest rates might reverse to higher levels?

Like we stayed invested in February 2020 going into the lockdowns based on the fundamental conviction that being invested in the right businesses is far superior to having to trade back in, we stayed invested over the past few months despite rising valuations because we believed our businesses offered excellent risk-adjusted returns that would lead them to be worth a multiple in 2025. Such a trade-off is difficult and as a result the fourth quarter of 2021 was one of the most challenging periods I have been through since I launched the fund back in 2010.

However, short-term stress provides an opportunity to the long-term investor, a net buyer of shares, which he should celebrate. While the crowd is running from 'growth' stocks to 'value' stocks, we observe with equanimity how our 'growth' stocks are being magically turned into 'value' stocks as the prices have come down.

Digital wave + great business > rising interest rates

Apple's market value has increased by USD 700 million *per day* since Tim Cook became CEO in 2011. As a result, Apple is worth more than the entire crypto market, and Microsoft is worth more than all 900 or so unicorns in the world. Both examples illustrate how scalable internet-enabled companies have become as well as how undervalued the rest of the world's most promising innovation may be.

When we read the quarterly earnings updates, we continue to be impressed by the magnitude of the reallocation of resources within society. For instance, cloud spending is expected to nearly *triple* by 2025. The migration to the public cloud is a massive opportunity for Snowflake, Alphabet, Cloudflare, and Databricks, as well as dozens of companies that are still small private ventures today. The markets for digital commerce, payments, advertising, streaming of content, and information intelligence, are likely to keep compounding at double digit growth rates for the foreseeable future.

No wonder there is much excitement and people feel increasing pressure to participate in wealth creation that is taking place in those fields. While many intelligent capital allocators understand the value that is to be found in investing in internet-enabled businesses, the fear of timing and valuation has been high for years. The shift in thinking and the new mental models required to transition from linearly growing companies to some of the most scalable business models is hard. It becomes even harder when having to do the homework in an echo chamber of worried market observers constantly pointing at rising stock prices combined with the 'I told you so' crowd that are flourishing nowadays.

All in all, we are convinced that the podium on which we are focused - the data-driven, cloud-native, founder-led, businesses that enable people to play and work digitally - is where the magic happens for a long time to come. What matters to us is whether the businesses are worth at least double in 2025. We think that when we will be looking back at today's prices in 2030, they will likely look like bargains for several businesses.

Shopify: Our Biggest Investment

When we first bought the shares in 2016, we were generally right about the fact that Shopify would be an important player in facilitating digital commerce by offering merchants good

software. Early on we had a lot of respect for Tobi Lütke and his team, and we understood the enormous opportunity that laid in front of them. Yet, we were terrified by the valuation.

Today, it has become the dominant operating software platform for commerce with over 43,000 ecosystem partners and almost two million merchants. The market value has multiplied, and the valuation is lower than when we initiated the investment. We think that the risk-adjusted expected return is superior today.

Shopify	2014	2015	2016	2017	2018	2019	2020	2021E	2022E
Revenue ($M)	105	205	389	673	1073	1578	2929	4631	6252
Merchant solutions	67	112	189	310	465	642	909	1204	1313
Subscription solutions	38	93	201	363	608	936	2021	3427	4939
GMV ($bn)	4	8	15	26	41	61	120	165	220
Gross Profit ($M)	62	113	210	384	603	879	1568	2501	3313
Margin	59%	55%	54%	57%	56%	56%	54%	54%	53%

Source: Shopify, Guardian Capital Management

At the beginning of 2021, market observers believed that the growth of pure digital commerce enablers like Shopify would come down significantly following a booming 2020 year. Growth remained strong; Shopify's revenue for the first 9 months of 2021 increased by 65% versus the same period in 2020.

Shopify has two main revenue streams: merchant subscriptions and merchant solutions. The merchant subscription business is a SaaS business where companies pay a certain fixed amount to Shopify each month based on their size. Subscriptions offer revenue visibility to Shopify.

Merchant solutions refer to services that go beyond just building a sophisticated online presence and include payments, working capital financing, fulfilment, discoverability, etc. Here, Shopify generates money by charging a fee on its merchants' gross merchandise volume (GMV). As of 2020, Shopify's Merchant Solutions revenue represented approximately 1.6% of the total GMV generated by its customers. A 1.6% take seems fair when considering how much value Shopify delivers to its customers. This is different from a payment company taking a 1.5% fee for just processing a transaction.

The combination of under-monetization and optionality gives us confidence that Shopify will be able to maintain or even increase its take rate in the years to come. As a comparison, most marketplaces charge 30% on GMV. As this is certain to grow a lot, Shopify basically earns a royalty fee on GMV like The Coca-Cola Company does on non-alcoholic liquids consumed.

By enabling entrepreneurs, small and medium businesses, and increasingly large companies to sell their products online while retaining the direct relationship with their customers, Shopify has

positioned itself in a unique spot where it indirectly competes with Amazon. Shopify's market share of U.S. retail e-commerce is about 9% versus 39% for Amazon and this achievement illustrates how a new winner can compete with a powerhouse without playing the same game.

We believe that Shopify has now reached an inflection point that goes far beyond the transition from brick-and-mortar retail to digital commerce. The software platform is of such high quality that large enterprises like Colgate Palmolive and Lindt & Sprüngli have started to use the platform. While Amazon is a powerful force in commerce, Amazon is not another company's software operating platform for commerce like Shopify is. This is a key difference between both players.

Operating systems are some of the best business models because they are simply essential to a business, computer, or any organization to function effectively. As such, they have high switching costs that make customers sticky, which in turn makes the revenue profile predictable. In addition, operating systems contain much embedded optionality because the direct client relationship enables new revenue streams that will sustain a growth rate for a long period of time so that the price that clients pay is a fraction of the value they receive.

Like at Amazon.com, most expense lines of a merchant are an opportunity for Shopify; payments, financing, marketing, etc. Shopify will not be able to compete with the logistics network that Amazon is building. This requires a ruthless execution as well as a different culture than the one we see today that has enabled Shopify to build excellent software. Shipping gives Amazon some edge when Amazon's fulfillment network becomes the low-cost provider of the industry.

However, commerce is a big market and Shopify has a strong product focus. People tend to overestimate big tech companies' ability to do everything well. Indeed, success at companies like Snowflake and Spotify largely comes from their clear focus.

Above all, many independent merchants prefer to work with an independent party where brand and direct customer relationship matter. While aggregators like Amazon offer outstanding services to certain customers, they also tend to delocalize commerce by bringing winner-takes-it-all dynamics to the retail space. In other words, small merchants feel forced to list their inventory on Amazon, meaning they dilute their brand amongst thousands of other products. Shopify is 'arming the rebels' by providing independent players enterprise level software at affordable prices.

Since the Covid-19 outbreak, customers' desire to shop and support their local businesses has grown significantly. Alphabet's CEO Sundar Pichai recently said: 'Also an interesting trend, people are more eager than ever to support their local small businesses. Searches for "support local business" are up like 20x last year in the U.S. alone. And this is creating additional opportunity for SMBs overall.' Shopify's incredible growth since the start of the pandemic is driven by the ongoing need for businesses to digitize their operations but also because many people care more about locally sourced products.

As illustrated by the success of Google Maps, better the machine learning to match demand and supply is likely to result in more engagement. Shopify has a ton of optionality to offer value to both merchants and consumers.

Total GMV was about USD 165 billion in 2021 and its network of merchants counts over 1 billion unique monthly users. We believe that Shopify has an enormous opportunity to leverage this trove of data to drive better outcomes for merchants, enable discovery, and maybe even create an advertising business. For example, Amazon has used its unique data to establish a USD 30 billion high-margin ad business.

Currently, Shopify trades at about 22 times 2022 revenue while it traded at 28 times 2019 revenue in December 2019. Shopify now trades at a lower valuation while we think the business has become much stronger, more dominant, while execution risk has declined. This valuation still implies strong growth in the near-term yet if growth does not suddenly reverse to the mean, then the risk-adjusted return is attractive. One can both give the market credit for giving a high valuation to Shopify, and at the same time realize how myopic the market's horizon is when one models the unit economics on the back of an envelope further out than about three years.

The current market capitalization of USD 147 billion undervalues the valuable position the firm has reached. The addressable market is somewhere in the trillion dollars today and we expect revenues to be north of USD 50 billion in 2030 and likely half of that in operating earnings. Shopify is on its way to get a majority market share in the segment of merchants who do not build their own commerce engines (like Amazon and Etsy do).

We think Shopify is going to be a USD 1 trillion+ market value before 2026 and therefore we welcome current and future swings in the market's sentiment.

Databricks & Epic Games

While Shopify is a leader in commerce, a massive market, our two private investments, Databricks and Epic Games, are active in the huge and rapidly growing markets of cloud services and gaming.

Databricks helps enterprises process massive amounts of data and to derive unique insights using their strong machine learning capabilities. Most industries like to lever their data yet do not have an army of software engineers at their disposal that can build and maintain the data infrastructure and develop analytics to derive insights from as well as monetize data.

Databricks is integrated with Amazon Web Services, Microsoft Azure, and the Google Cloud making it easy for clients to integrate with the infrastructure cloud giants. Users feed in their data and the software makes predictions about the future. For example, Databricks helps John Deere and Shell predict when a tractor or an oil rig are likely to break down.

In the podcast with Patrick O'Shaughnessy, Ali Ghodsi, CEO of Databricks explains: 'A company like Uber tells you when the food is going to be ready or put more people on the same route so you can do carpooling. It's not just one data science or a research team, you actually enable your entire organization to be data driven, then you can actually compete in a different way, and you can disrupt the industry that you're in. Based on that, we're looking at how can we enable the whole organization. How can we democratize AI? Any investments we can do into the platform that enables more people in the organization to be able to use these techniques and be data-driven? We think eventually 10 years, 15 years from now, every company will have every business unit using data and AI in a strategic way.'

The market is gigantic with total cloud spending expected to multiply several times before 2030. In 2021, we estimate that Databricks generated about USD 600 million in revenue and we expect this to keep growing at 50-60% in 2022 and probably for many more years to come.

As vastly better broadband is providing the necessary infrastructure for hundreds of millions of people to participate in the global Internet, various software platforms are enabling creators to engage by providing affordable and easy-to-use tools. Examples of enablers are Shopify, YouTube (owned by Alphabet), Shopee (owned by Sea), Spotify, Roblox, and Epic Games.

Our interest in the gaming sector was primarily spiked by its incredible size, the demographics of the communities they target (young people) and by the overall growth of the gaming ecosystem. Our research led us to invest in Roblox (direct listing in March 2021) and Epic Games (still private).

Gaming was a highly debated sector in 2021 with the heated discussions about addiction as well as a growing awareness among the general audience of the concept called the metaverse. The metaverse basically refers to a natural evolution of how we experience the internet, where online and off-line experiences are uniquely combined thanks to the latest advancements in connectivity, software, and computing power.

People have played games for ages and will forever do so. They are fun, stimulate the brain and creativity, help us build social bonds, and train the body for essential tasks. While some games remain unchanged like chess, others evolve over time influenced by technology. The size of the communities playing and socializing around Fortnite, Roblox, and Sandbox is impressive. Gaming software is bound to play an essential role in shaping virtual communities and their related activities that are increasingly part of the metaverse.

Epic Games is a unique player in the industry because it creates, develops, publishes and sells its own games as well as enables other studios' games to sell their games. The company is a video-game developer (Fortnite), a video-game engine (Unreal Engine), a video-game management

system (Epic Online Services), a video-game publisher (Epic Games Publishing) as well as a video-game online store (Epic Games Store).

Epic is first and foremost known for its blockbuster game, *Fortnite Battle Royale*, which attracted over 350 million registered users since its 2017 launch and generated USD 5.1 billion in revenue in 2020. Fortnite is not as popular as it once was yet Epic keeps investing in content and this player count shows that approximately 3.1 million people are playing right now with an average of between 6 and 12 million (concurrent users).

The Epic Games Store has about 58 million monthly active users and in its 'Project Moonshot', Epic plans to reach USD 1 billion in gross revenue for the game store soon. Last year, when Epic was giving Grand Theft Auto V away in its store, 7 million new users flooded the games store, showing its incredible reach and relevance.

The Unreal Engine is a powerful gaming engine and has more than 25 years of R&D under its belt and is the world's most sophisticated gaming engine. Unreal was first and foremost developed to assist the most sophisticated game studios or so-called "AAA games" (a word for the most photorealistic games). As such, Unreal has been a perfect fit for studios that develop PC and console games.

The other great gaming engine is Unity Technology's engine, which is leading the mobile gaming industry, the fastest-growing segment of the overall gaming industry. Over the last few years, we have seen both engines moving in each other's direction. Both engines are increasingly used beyond gaming. Taking advantage of decades of R&D at both Unreal and Unity, many industries are now using their unique capabilities. For instance, Disney's movie *The Lion King* used Unity's engine and The Mandalorian was made in partnership with the Unreal Engine.

The use cases for engines like Unreal or Unity are likely to continue expanding well beyond their core industry as the boundaries between the virtual and the physical worlds continue to blur. That is the reason why we are convinced about the potential of Epic Games to enable virtual communities. Epic is an enabler in an open fashion, meaning they just provide the tools to developers/designers to build games or projects that will be displayed/used in the way they want. Unreal presents many characteristics of an operating system (e.g., Shopify) and continuous innovation is expanding the moat. The revenue of Unreal is still small (below USD 200 million) yet we think this will become a more significant part of revenues.

As the demand for Epic's software is growing, we are excited to be a shareholder.

Mindset

In closing this letter, we would like to share ten perspectives that we believe will help in order to be successful over the coming decade.

First, like always, one must focus on participating in a thriving business with the mindset of a co-owner.

This is the main lesson one can learn from the success at Berkshire Hathaway; buy a great business at a fair price based on a vision where the individual business is headed rather than based on any macro-economic projections. Correctly identifying a unique business among merely good businesses is the main intellectual challenge of the investor.

Second, the quality of the business is far more important than the valuation and the biggest driver of quality is culture.

This is something the equity investor must learn from the best venture investors. While money is a commodity, talent is scarce and plenty of companies are not able to attract the right people no matter how big their budget is. The best engineers like to work at inspiring places that are trying to solve hard, important problems. The amount of talent that is being attracted by the tech sector is impressive and the pipeline of stunning businesses that at some point may start their public life is interesting.

Third, one must feel comfortable owning a great business at full valuation while experiencing multiple wild price swings.

We expect the stock of every business we own to go down by 50% (top tick to bottom tick) at least once during the period we are shareholders. It even happened four times to Berkshire Hathaway and this is part of the life of the equity investor. As we are not dealing with cyclical businesses where some trading strategy might make sense, the risk of not being invested is significant.

The main risk for us is the permanent loss of capital resulting from misjudging the quality of the business rather than from paying a high price. It is rare for a great business to be significantly overvalued for a long period of time because the growth is constantly lowering the valuation. In fact, it seems that the great businesses of our times have been undervalued most of the time. The best tech businesses are seldom easy to own because a vision is required where it is going and even the founders are just adapting and innovating day by day.

Fourth, the more talented the founding team the less accurately one can know the ‘right’ valuation.

Value is being determined by discounted cash flows. However, future cash flows of software companies are often impossible to measure because writing lines of superior code that can be shipped to a global audience at zero marginal cost can be worth billions. In 2016, it would have been hard to see what Shopify or Sea would become as they added multiple earnings streams. No amount of due diligence would have given certainty. Again, human capital is the most important thing. We are looking for investments where some sort of cash flow analysis gives a base value and the set of options is large because of the uniqueness of the founding team. The business that comes to mind immediately is Spotify where the current price reflects the value of a mediocre music streaming business rather than the world's greatest audio platform.

Fifth, the fundamental investor can find 'venture' returns in the public market.

Investment opportunities in the public market remain underappreciated versus the private market. The biggest investment gains come when growth of the business continues for much longer than the market is willing to assume, e.g., Alphabet, Microsoft, and Amazon.

Sixth, the real competition of the active investor is Amazon, likely a 2x over the next six years.

That is our opportunity cost of capital, and it is not an easy race because of the combination of excellent execution on both commerce and cloud services, two enormous and growing markets. We need to own businesses that compound their intrinsic value faster than Amazon can. We own Shopify instead of Amazon and this judgment must prove to be correct or we might underperform.

Seventh, it is our job to sail the optimal course and not to manage volatility.

The market is a maniac and because we are net buyers of shares over the rest of our lifetime, we welcome stress in markets. While we focus our energy on understanding individual businesses, we make zero effort to manage volatility or perform some pseudo risk management like hedging ownership of businesses, something that some market participants merely do to justify higher fees.

Macroeconomic talk is an interesting intellectual exercise yet is does not help in achieving good investment returns. There is no monolithic economy, stock market or sector. While most businesses share some aspects with others there is a unique nature to most. Most market participants have a horizon of days, maybe months, and are concentrating all IQ and compute power on trying to guestimate near-term swings. That seems a zero-sum game to us for most. The gloomier and scarier the crowd is the more attractive investment opportunities there are. Today, the ghost of higher inflation and interest rates is scaring many out of valuable positions.

Eight, money is not wealth.

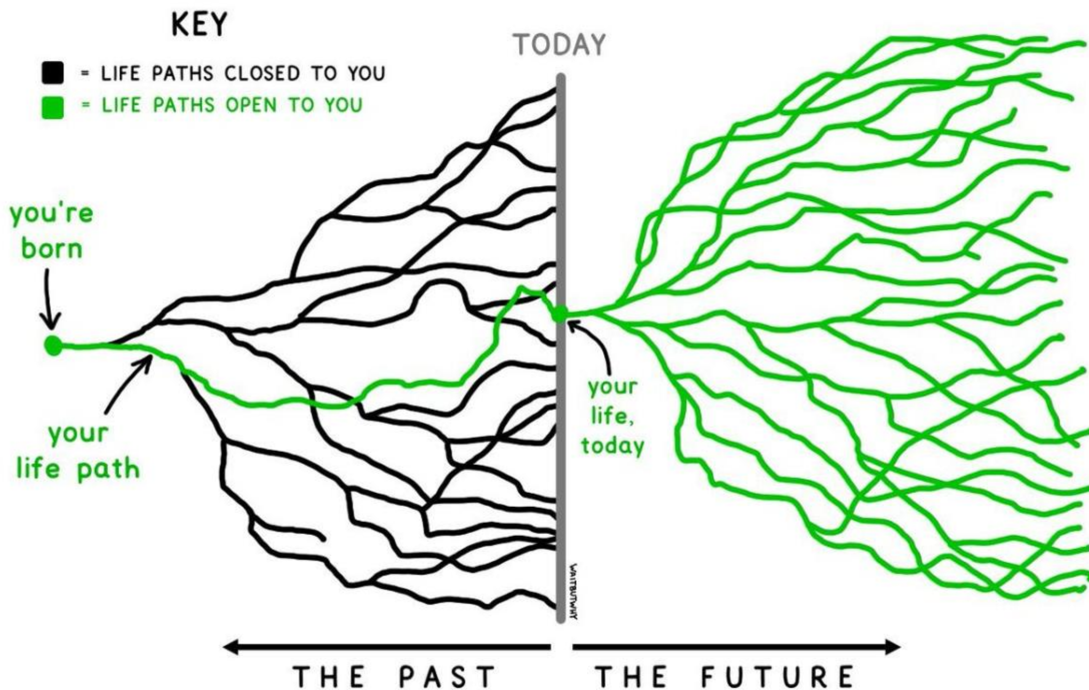
Money is like information in a database for resource allocation. The goal of many crypto technologies is to reduce the bugs in the database called money when one player (government) has the exclusive privilege of editing the database. Elon Musk correctly said, 'money now is a bunch of heterogeneous mainframes running COBAL in batch mode (old code).' If there is too much money chasing too few goods, then the likely result is inflation. Lockdowns increased the money supply and decreased the production of products. The owners of certain businesses have a natural protection against inflation as they own a piece of the economic pie and do not have to bother how the pie is denominated. Of course, money has option value because the lower assets prices get, the more it can purchase. That is the dance between owning cash and being invested in productive assets, which is wealth.

Ninth, the biggest mistakes are likely to be mistake of omission rather than commission.

We will certainly fail to participate in many successful companies. The magnitude of the current technological revolution in which self-learning neural networks start to become more powerful, driven by vastly greater computing power and better AI, is probably greater than the industrial revolution. Our mission is to participate in a few high-quality entrepreneurial adventures with a large percentage of our net worth. We would personally not feel comfortable not having at least 50% of our net worth invested in the leading software companies of our time. We are risk on. That means we are in the arena, dust on our hands, invested and opportunistically looking to cope with a changing world.

Tenth, we are more excited about the opportunity set than ever before.

The drawing below is in many ways relevant to investing as well. While things we do are path dependent, we also need to have open eyes, curiosity, and the passion to learn in order to find and seize future opportunities.



Source: Tim Urban @ waitbutwhy

Miscellaneous

Thank you for being part of our partnership. Over the year we welcomed new partners and our funds' assets grew to record numbers. The plan is to grow assets under management while keeping the quality of our investor base high. We prefer to work with long-term capital from investors that share our philosophy. This should give us an edge over time.

Welcome to Louis Delahaye who started on December 1st as a new research analyst and who will help us to uncover insights into businesses.

If you are not a member yet, you are welcome to subscribe to the *Sharing Thoughts*, a monthly message about business that is directly or indirectly relevant to our investments.

Thank you for your referrals; we are happy to welcome your children and friends as partners. In closing this letter, we wish you and your family a wonderful 2022.

Sincere regards,

Also on behalf of Felicia, Martin, and Louis,

Georg

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