

SaltLight 1Q21 Letter

3 May 2021

Dear Co-Investor

A fairly robust performance from the [SaltLight SNN Worldwide Flexible Fund](#) during the first quarter of the year as conditions for equities were rather favourable.

It is a sobering thought to admit that it is difficult to foresee *when* a volatile period like the first half of 2020 will occur. Nor is it possible to foresee *when* a “recovery” like the one in the first half of 2021 will transpire. As we have whispered many times before, we believe that the exact pathways of future outcomes are unknowable. Therefore, we constantly ask ourselves: *how should an investor construct a portfolio if the future is indeed indeterminable?*

The first action is to admit. We can’t know the exact outcome ahead of the decision being made. Secondly, we can prepare the portfolio for a range of potential outcomes - including the ‘*unthinkables*’. Thirdly, we can make good ‘probabilistic’ bets using a handicapping process.

Admit that we don’t know

We’re avid readers of anything authored by Annie Duke. Her latest book, “*How To Decide*”¹, is a practical guide to making good decisions. Duke cautions decision-makers in determining a good decision was made because of a good outcome:

“When you make a decision, there is stuff you know and stuff you don’t know. One of the things you definitely don’t know is which of all the possible outcomes that could happen will be the one that actually happens. But after the fact, once you know the thing that actually happened, you can feel like you should have known it or did know it all along. The actual outcome casts a shadow over your ability to remember what you knew at the time of the decision”

Duke outlines a very candid idea of hindsight bias: “*the tendency to believe an event, after it occurs, was predictable or inevitable*”.

To mitigate hindsight bias, we consistently capture our thoughts in a proprietary research database and update them as new information comes to light.

Prepare for a range of outcomes

During this period, our South African portfolio companies contributed a substantial portion of our period return. Whilst tempting to pat ourselves on the back, we’re mindful that these results were based on decisions made not last quarter, but two to three years ago in vastly different circumstances.

Nothing in our investment process changed nor have business fundamentals markedly altered. Our belief is that market participants will react to a particular narrative in their own time and their own way.

¹ “How to Decide, Simple Tools for Making Better Choices” Annie Duke [link](#)

Ultimately, an investment decision made in uncertainty is best described as a probability distribution of potential outcomes. We try to cut out drivers of negative outcomes that can kill an investment (“left tail” outcomes such as poor capital allocation, defaults, debt restructurings and frauds) and own the drivers of positive outcomes that allow space for good things to happen (“the right tail”)

We’ve learned the hard way that it is better to bet on a business with good competitive dynamics rather than poor ones; good management rather than poor management; ample opportunities to reinvest capital rather than limited ones.

‘Probabilistic’ bets with characteristics of ‘resilience’ and ‘optionality’

We allocate larger positions in our portfolio to companies that have characteristics of ‘resilience’ (and an element of unrecognised optionality) and then a portfolio of smaller ‘optionality’ positions in businesses with less certainty (a wide range of potential outcomes) but considerable upside potential².

Resilience comes in many forms, but we have found that owning businesses that offer something indispensable to their customers keeps the business ticking over - even in tough times.

In this letter, we highlight one ‘bet’: a follow-up on our December letter where we wrote extensively about our broad thesis about the Artificial Intelligence opportunity. We present a case study of **NVIDIA** who we believe is delightfully positioned to capture this opportunity.

Unfortunately, for some readers, again this letter tends to overflow in technical IT jargon. Part of our mission is to educate co-investors about our thinking over the long term. We attempt our best to moderate complexity, however, sometimes the technical analysis is the only way to reinforce the thesis.

Encouragingly, we continue to find global opportunities to deploy capital. We remain cautious on South Africa and believe that, overall, distribution of outcomes is skewed to the downside despite the recent mean reversion in share prices. We believe that we own the best of the South African opportunity set. Therefore, the majority of incremental capital in the fund is being deployed into global opportunities.

Notwithstanding, we’ve increased our position in one South Africa business that will directly benefit as the population is vaccinated. We’ve also participated in two special situations that are still yielding satisfactory returns on capital.

A quick read of our factsheet will show high cash balances. This is slightly misleading as a substantial portion of the cash is backing derivative exposures that are not reflected in the disclosure.

² We’ve written extensively in [1Q20 letter](#) about how we came across this framework

In our [December 2020 letter](#), we outlined our thesis around opportunities in artificial intelligence:

"How do we invest in an unknown future?... AI[Artificial Intelligence] all sounds extremely promising, but can we make rational capital allocation bets that create value for our clients? Our research has focused on mapping out the inputs, outputs, learning about what is difficult and what is easy to compete in AI. History has taught us that picking technological 'winners' is an extremely difficult endeavour (who would have predicted that Google would have eclipsed Yahoo in the late 1990s)?

We've found that a more profitable approach in a nascent technological phase is to follow the wise adage of "selling shovels to hopeful prospectors in a gold rush". Our current portfolio investments have focused on the companies selling the inputs to these "AI prospectors" in search of AI leadership."

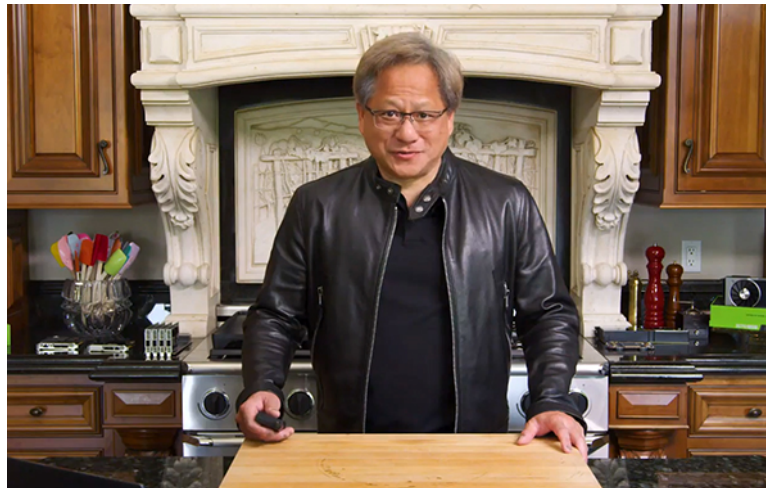
Our portfolio of "AI winners" has performed well during the quarter.

NVIDIA is one of our portfolio companies that, we believe, has considerable potential. Their recent GTC conference confirmed some elements of our long term thesis:

- As leading enterprise customers started to find competitive advantages adopting AI solutions, their competitors would need to heavily invest in keeping up.
- NVIDIA is creating layers of 'tools' to solve the input and output bottleneck challenges that we mentioned in our December letter.
- On top of this, and fortunately for us, geopolitical and COVID-related factors added further tailwinds and a well-known shortage of semiconductors across the industry ensued.

Speak to your brother-in-law who works in IT and he would probably associate NVIDIA as a gaming hardware company. However, over the last few years, NVIDIA has been building an AI platform company with integrated hardware, developer 'middleware' and AI applications. Gaming has funded this platform, but AI is likely to define NVIDIA over the next decade.

As an aside, we think co-founder and CEO Jensen Huang, is one of the most impressive CEOs that we've come across. It is customary amongst tech CEOs to have a signature clothing ensemble; Jensen is no different and he frequently sports a 'glossy' black leather jacket. Since the COVID-era, Jensen has presented all of NVIDIA's product launches from his kitchen.



For those not familiar with the sector, it is worthwhile contextualising how they got here.

One of the key inputs in AI is the hardware for computational power – particularly deep-learning models. Compute power is determined by semiconductor architecture, packaging and the software layer to extract maximum performance.

Gaming has funded the future AI platform

Whilst Intel will be associated with dominating the central processing unit (CPU), NVIDIA almost already owns the space for Graphics Processing Units (GPUs); the primary reason – *gamers*.

Toward the end of last year, the company launched its *3000 series* with much excitement from gamers. As of writing this letter, they are extremely hard to get hold of. The 'street price' is as high as three times the recommended sales price³.

NVIDIA earns software-like gross profit margins of 63% whilst technically earning most of its revenue from hardware⁴. However, if this premium 'street price' is any indicator, NVIDIA could charge substantially more to earn higher margins. The consumer surplus is evident.

Why are customers willing to pay three times the retail price for an NVIDIA GPU?

Hard-core gamers desire to submerge themselves in the worlds that they play in. They don't want to be in an animated world, they want to *feel* like they are there. The GPU brings them closer to 'reality' through high fidelity and immersive experiences.

³ Source: [link](#)

⁴ A key reason for the higher margins and return on capital are the NVIDIA outsources manufacturing of its boards. Allowing it to focus on design and software.



Figure 1 – Metahuman Creator from Unreal Engine (source Epic Games)

We can share an anecdotal picture of where things are going: Epic Games (40% owned by Tencent) recently announced a 'Metahuman Creator' software kit that simulates virtual humans for games and movies. At this stage, the only GPU that can handle the software in real-time is the new NVIDIA GPU. *We'd personally be scared of becoming an actor when we see what can be created by software.*

(you can watch the Youtube video introducing the product [here](#))

Games to Digital 'Reality'



Figure 2 - An image rendered with no ray tracing (left) and ray tracing on (right)

In most computer-generated images, it is often quite clear that the image is not a photo. The human eye is able to easily differentiate between an animated image and a real photograph. There is just something *off* about it.

One of the missing links is that, in the real world, light bounces off all objects in a particular environment and does not only emanate from the sun or direct light sources. Games have got better with a technique called rasterisation where shadows and shades of colour simulate a deeper sense of light, depth and context. However, to solve the 'light bouncing off all objects' problem, the game engine needed to keep track

of each object, where it was located, its position relative to others and what light bounced off its surroundings. The computational requirements were just too much at the time.

However, with developments in computational power, ray tracing was finally commercially introduced by NVIDIA in 2018⁵. Ray tracing is a rendering technique that simulates the many paths of light emanating from objects in the image whilst obeying the laws of physics.

Hardware + AI Models

You can imagine that this is a computationally-intensive process. Yet, even with the latest technology, GPUs still can't fully replicate the infinite light interactions that occur in the real world. NVIDIA came up with a deep learning model, called DLSS, to use AI software to enhance what the hardware still can't do. The model essentially fills in the gaps. A GPU plus DLSS create an incredibly realistic image and is driving demand for upgrades of the new 3000 series.

You may be asking, what does this have to do with NVIDIA's AI platform? As it happens, the same mathematical approach to solving complex rays of light is very similar to the types of calculations needed for AI.

GPUs are structurally superior for AI problems

At its essence, an AI algorithm is a linear algebra problem optimised through brute force. There are trillions of calculations that need to happen very quickly.

CPUs are good at doing many different tasks, GPUs are good at doing one specialist task very well. In layman's terms, the CPU is a Swiss Army Knife, and the GPU is a surgical scalpel.

GPUs carry out repetitive linear algebra calculation in parallel threads. Conversely CPUs are fast processors in their own right, but they handle mathematical operations sequentially rather than parallel. This makes the CPU processing time orders of magnitude slower than a GPU.

Hardware to Building an Ecosystem

It is becoming clearer that NVIDIA's strategy is to use its leading position in GPUs (or what really should be called 'AI' hardware) to build an AI ecosystem by tying in hardware users into their software (middleware and applications).

We believe that this integrated stack could build a considerable moat over the next decade.

⁵ The idea of Ray Tracing has been around since the 1980's; AT&T had a parallel computing machine called "The Pixel Machine". The problem is that computational power required to process images in real-time was decades away. [Source](#)

NVIDIA's strong position

Right now, it's for NVIDIA to lose this substantial future opportunity.

- **Making AI simpler:** Today, a PhD is required to develop a well-trained deep-learning model that generates substantive value. Unfortunately, we 'average' users would generate a subpar model that has many false positives and as a result, a model that doesn't accurately predict the desired results.

The blue-sky opportunity is for a company to make it considerably easier for enterprise and SME customers who can't hire PhDs to use AI to their benefit. We're talking about software as easy as Excel and Word for AI problems. If this opportunity is solved, it will exponentially grow the AI total addressable market (TAM).

- **Building AI Infrastructure:** The challenge is that the AI foundational blocks don't yet exist at scale. The 'highways, piping and ducts' still need to be built.

NVIDIA is slowly laying the building blocks to do that in place by launching network accelerators, pre-trained deep-learning models and hyper-scale supercomputers that solve high computational problems such as weather prediction and gene sequencing.

Providing tools for developers that eventually build a moat

NVIDIA's CUDA SDK⁶ is the primary software that interfaces with their GPU. As they have the most advanced GPUs, by virtue of being the first mover, scientists repurposed gaming GPUs for their particular use case. Seeing a new market of users, NVIDIA provided the software to maximise the performance of the GPU for free. As the AI opportunity has become more established, CUDA has become the de facto parallel processing software SDK used by developers.

This is a critical place to be to build a moat and 2.3m developers already use NVIDIA SDKs. *But we've seen this movie before.*

Developers are the enablers

Two decades ago, Bill Gates became very wealthy because MS-DOS was in a similar position. Operating Systems are the structural foundation for developers to create their applications⁷.

Many books have been written about how IBM handed the opportunity to Gates on a platter. However, the reality is that developers were the real enablers. Operating systems have high switching costs for a developer who would have to completely rewrite their application to work on a different operating system. Therefore, they stick with it even if a better operating system comes along.

And so, over time, the software ecosystem develops; more applications and users, which means more developers, which means more applications and users. In a few

⁶ A Software Development Kit(SDK) is a collection of software development tools in an easily installable package.

⁷ Operating systems interface between the hardware and software layers such that the software developer does not need go to the effort to write code to use the hardware. It's all taken care of by the operating system.

years, Gates is the richest man on Earth! This is a great example of software network effects.

NVIDIA believes that gaming was just the first 'killer app' that excelled using their technology. It's early days into what could be a very large opportunity. NVIDIA has generally sold 'shovels' to hopeful prospectors. It is starting to become a prospector itself.

I'll leave it to their own words where they are taking the company: a journalist recently asked CEO, Jensen Huang, the following⁸:

Do you find it ironic that a company that has its roots in entertainment is now providing vitally important computing power for drug discovery, basic research and reinventing manufacturing?

He replied:

"We always started as a computing company. It just turned out that our first killer app was video games. At the time video games was a zero billion-dollar market, and we postulated that this new industry called video games, with 3-D graphics that are really rich and beautiful was going to be one of the largest technology industries in the world. The condition is extremely rare that a market is simultaneously large and technologically demanding.

It is usually the case that the markets that require really powerful computers are very small in size, whether it's climate simulation or molecular-dynamics drug discovery.

The markets are so small, they can't afford very large investments. That's why you don't see a company that was founded to do climate research. Video games were one of the best strategic decisions we ever made.

...

AI is a watershed moment for the world

Humans' fundamental technology is intelligence. We're in the process of automating intelligence so that we can augment ours. The thing that's really cool is that AI is software that writes itself, and it writes software that no humans can. It's incredibly complex. And we can automate intelligence to operate at the speed of light, and because of computers, we can automate intelligence and scale it out globally instantaneously.

Every single one of the large industries will be revolutionized because of it. When you talk about the smartphone, it completely revolutionized the phone industry. We're about to see the same thing happen to agriculture, to food production, to health care, to manufacturing, to logistics, to customer care, to transportation. These industries that I

⁸ Source: Time Magazine: <https://time.com/5955412/artificial-intelligence-nvidia-jensen-huang/>



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just mentioned are so complex that no humans could write the software to improve it.

But finally, we have this piece of this new technology called artificial intelligence that can write that complex software so that we can automate it. The whole goal of writing software is to automate something. We're in this new world where, over the next 10 years, we're going to see the automation of automation".

Some other quick updates about our portfolio companies:

In April, **Cartrack** successfully relisted on NASDAQ and will be domiciled as a Singaporean company. Therefore, you will see a substantial decline in SA positions in the next quarter.

Management of **Long 4 Life** has announced a strategic review of their portfolio and there is some speculation that management will break up the company and delist.

As we highlighted last year in our letters, the JSE opportunity-set is rapidly shrinking, and we believe that the global opportunity set will generate attractive returns over the long term. We continue to find attractive opportunities in global markets and as our SA portfolio companies hit our estimates of intrinsic value, we are reinvesting capital into new global opportunities.

As a reminder, the SaltLight SNN Worldwide Flexible Fund is denominated in ZAR, but it has a considerable portion of capital offshore in foreign currencies. In periods like this quarter, whilst we may achieve attractive returns in foreign currency, a strengthening ZAR dampens these returns in the short term.

As always, please feel free to get in touch with us should you have any questions. We always remind co-investors that most of our liquid wealth sits in the same fund as yours. We, therefore, share in the 'ups' and inevitable 'downs' alongside you.

Warmly,

David Eborall
Portfolio Manager

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