

For marketing purposes
For global professional / qualified / institutional
clients and investors and US individual investors

The Red Thread

The Disruption Edition

Mid-year 2024 | UBS Asset Management



UBS

For additional content and previous editions of Panorama, including videos and additional in-depth investment insight, visit ubs.com/theredthread or scan the below QR code.

Publishing information:

The Red Thread, formerly Panorma, is released bi-annually by UBS Asset Management

Editorial deadline: June 2024
Editor-in-chief: James Whiteman
Editor: John White, Aya Sayegh
Design: Monika Kaczmarzyk, Yasmin Zahedi
Project Manager: Kseniya Gancho

Table of contents

7 The investor's dilemma

19 Magnificent moats?

29 Megatrends and disruptive innovation

41 A tug-of-war transition

49 Nomadic survival

57 Filling the void

65 The inflection point

Introduction



Barry Gill
Head of Investments,
UBS Asset Management

"[What counts is] competition from the new commodity, the new technology, the new source of supply, the new type of organisation ... competition which ... strikes not at the margins of the profits and the outputs of the existing firms but at their foundations and their very lives."

Joseph Schumpeter

Disruptive forces

Disruption is hard to define. In its broadest sense, it can be anything that interrupts an event, activity or process. In this publication, we focus largely on the technological and commercial side of its far-reaching tentacles. And where we choose to lean into its geopolitical tendrils, we do so from a sustainability lens – to cover political disruption more widely would warrant a whole separate edition!

Ultimately, disruption (and by extension innovation) is key to business and the global economy. Technological change is the driving force behind productivity, which is in turn the driving factor of economic output. Investors who aren't thinking about disruption are neglecting their duties. Disruptive innovation is often created in markets that incumbent industry leaders overlook. *The investor's dilemma* tackles the thorny issue of valuing hyper-growth companies, concluding a blend of art and science is necessary. *Magnificent moats* looks at the current crop of superstar companies and their relative competitive advantages. *Megatrends and disruptive innovation* argues our sector- and country-based view of equity markets is somewhat anachronistic and that we should invest along 'big picture' theme-based lines.

A tug-of-war transition assesses the competing forces bearing down on energy majors. With the transition set to take longer than any purists would like to admit, balancing the old and new worlds and investing accordingly will be a fine balance – as will the communications and storytelling effort supporting any path forward. Continuing the

sustainability theme, *Nomadic survival*: An interview with Gaia Vince is a journey from the depths of climate dystopia to the hopeful realization that our migratory instincts could hold the key to some of society's greatest challenges. It is a unique and thought-provoking take on a well-trodden and, at times, intractable issue.

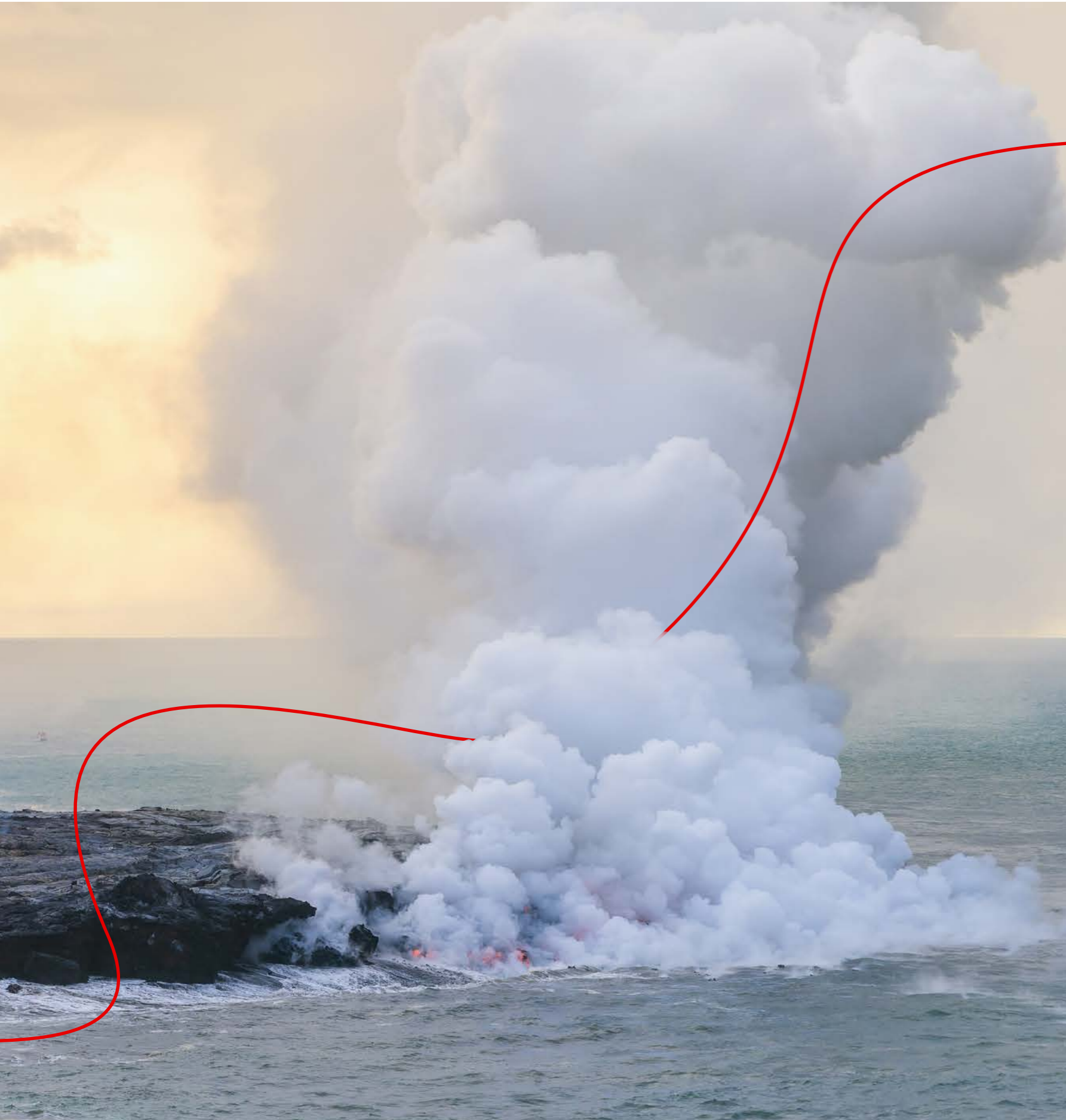
Filling the void looks back over the various disruptive phases of bank lending and tries to peek around the corner to better understand where private credit might head next. Finally, in *The inflection point* I look at the disruptive forces bearing down on our industry. This will, of course, affect the various industry players differently depending on size and asset class coverage. However, certain broad lessons can be drawn as forces like the democratization of finance, indexing, AI/technology, and the rise of alternatives play out across the industry.

Perhaps fittingly, this edition also marks a slight disruption to the publication's name. Following a recent shift to more theme-based editions (e.g., China, sustainable investing, inflation) we felt the Red Thread label more accurately reflected our editorial approach. In tackling topics from many different angles, we try to help readers find a common thread and, ultimately, make sense of important topics and trends that can help people navigate the complex maze of investing.

I hope you enjoy reading this revitalized publication and welcome any feedback.

A handwritten signature in black ink, appearing to read 'Barry Gill', written in a cursive style.

Barry Gill
Head of Investments,
UBS Asset Management



The investor's dilemma

The art and science of valuing hyper-growth companies



Peter Bye
Portfolio Manager and Senior Investment Analyst



Albert Tsuei
Co-Portfolio Manager on Digital transformation and Senior Investment Analyst

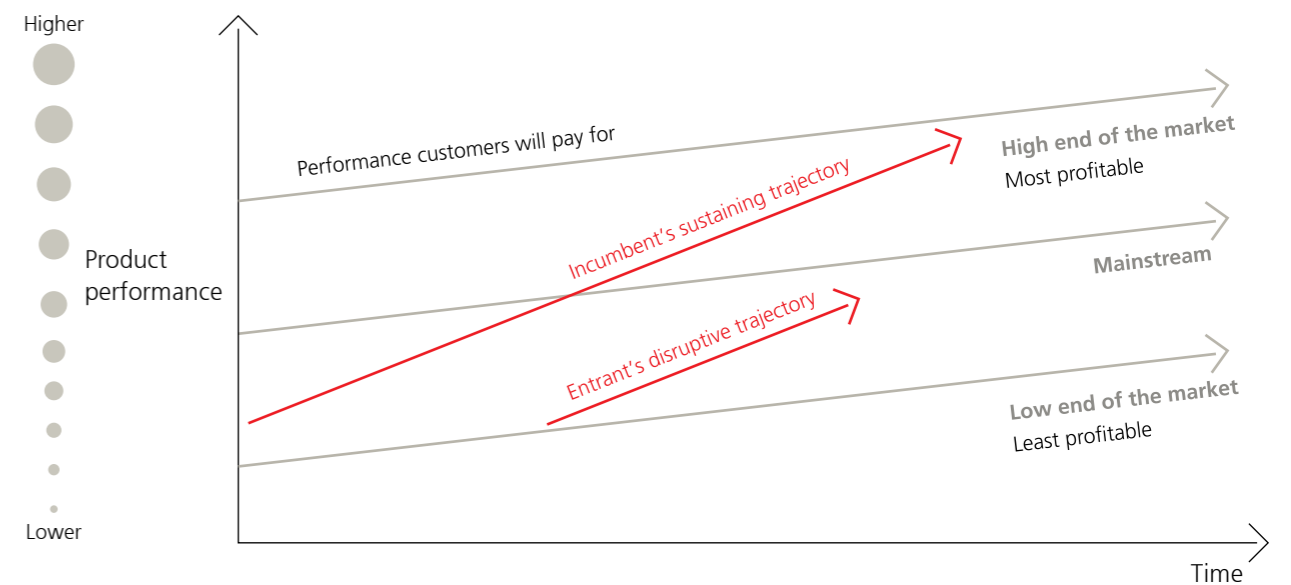


Companies that disrupt a market or industry are fiendishly hard to value. Peter (Pete) Bye and Albert Tsuei walk us through how they approach valuing both early-stage and incumbent companies in disruptive settings.

When Clayton Christensen first coined the term 'The Innovator's Dilemma' he surely did not foresee the breadth, depth and overall impact it would have as a cornerstone of business development. Whether consciously or otherwise, few corporate leaders are untouched by the power of his ideas.

Christensen's thinking not only stands the test of time, but also is highly relevant to investors. By definition, disruptive companies tend to defy convention and test the outer limits of valuation models. In the face of such uncertainty, traditional techniques frequently buckle.

How disruptive innovation enters the market



Source: Clayton M. Christensen, Michael Raynor, and Rory McDonald from "What is disruptive innovation?" December 2015

¹ The term "disruptive innovation" was coined by Clayton M. Christensen in a Harvard Business Review article "Disruptive Technologies: Catching the Wave".

The 2024 UBS Global Investment Returns Yearbook reminds us of the transformative (and often transient) nature of business by underscoring how a “high proportion of today’s companies come from industries that were small or non-existent in 1900.” Indeed, you only need look at the top ten global companies by market capitalization on a rolling ten-year basis to see the revolving door access to the winner’s circle.

Disruption is rife and the commercial landscape nasty and brutish. To ward off disruptive innovations, incumbent firms therefore need to either completely disrupt themselves, acquire a disruptor, or spin off operations and allow competing realities to co-exist under one roof until the future becomes clearer.

Self-disruption is hard. Status-quo bias, the risk of sacrificing existing revenue streams, investment costs, organizational silos and cultural issues all conspire against decisive action.

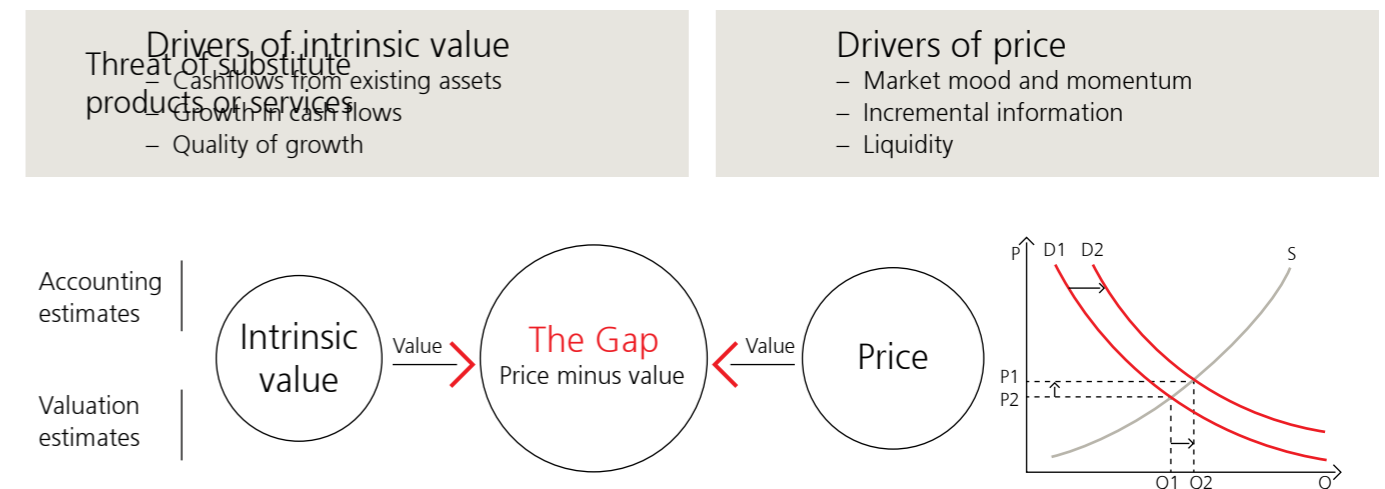
Mind the intrinsic value gap

With all investing, a gap exists between price and value. Markets are not perfectly efficient, thereby allowing for alpha opportunities to emerge.

Indeed, in his autobiography *My Life as a Quant*, Emanuel Derman wrote of his mentor Fischer Black, in one short essay he struck at the foundation of financial economics. Black essentially wrote that “certain economic quantities are so hard to estimate that I call them unobservables,” and went on to say, “Our estimates of expected return are so poor they are almost laughable.” This is not a trivial admission; it comes from one of the founding fathers of risk management and strikes at the very heart of traditional investment principles (i.e., the Capital Asset Pricing Models, Efficient Market Hypothesis, Black-Scholes-Merton derivative formula).

This is the point at which financial theory and practice diverge – and spectacularly so. As there is currently no real Black-Scholes-Merton formula capable of capturing all the qualitative variables, baking in some flexibility (‘margin of safety’) on valuation decisions seems wise. Doing so helps to ensure buy/sell decisions are not solely based on the discount rate applied to any given model, particularly when analyzing potential disruptors and innovators.

An illustration of price-value gap



Source: Aswath Damodaran, “Musings on Markets”, <http://aswathdamodaran.blogspot.dk/>

The above is a stylised depiction of this valuation gap. Disruptive forces only cause it to grow wider, as do lower market capitalizations. Whether looking at an early-stage disruptor (i.e., harder to invest in and access), or an incumbent investing heavily behind a pivoted strategy, the investment signals are usually weak at best and distinguishing them from the noise takes expertise and skill.

There are two parts to this equation. First, you need to be mentally flexible enough to embrace the art of the possible; you need to suspend judgement and allow your imagination to kick in. It is a highly creative endeavour and requires a latticework of different mental models, modes of thinking and reference points. Second, you then need to ground this thinking in ‘real’ fundamental numbers – such as a discounted cashflow (DCF) model. It is part art, part science.

Both sides of this process really matter. If you only focus on the hard numbers, as ‘value’ investors typically do, you can miss the true potential of the upside scenario. Limited financial disclosure, negative earnings and other potential uncertainties make DCF valuations of disruptive companies rather challenging. As Lijing Zhang of Copenhagen Business School stated, “DCF is not capable of capturing all the

future cash flows of a disruptor. Because analysts can only estimate the cashflow growth from existing products and services. Disruptor’s source of cash flows can change dramatically once its business model changes.”² Simply put, DCF analysis was not designed to capture values not yet observable in operating activities.

But equally, if you only rely on the blue sky thinking you can lose sight of reality. Scenario analysis based on weighing up the various options is therefore a fundamental part of our approach. This is sometimes referred to as a ‘real-options approach’. It essentially tries to capture the part of value which is outside of a given business model.³ With these option values in mind, we ask ourselves ‘what could go wildly right?’ as keeping an eye on the upside is something routinely undervalued and overlooked by investors. Instead, risk management tends to exclusively focus on the downside and misses the opportunity cost. This is where much of the equity mispricing often happens, especially in growth companies. Thanks to the asymmetry in downside and upside outcomes and contrary to fixed income investing, the biggest mistakes in investing are around the ones that got away, not the ones that turned out to be zeroes.

² ‘Valuation of private tech companies – A concentration of disruptive innovations’ Lijing Zhang, Copenhagen Business School, 2016.

³ Amram, M., & Kulatilaka, N. (2000). Strategy and shareholder value creation: The real options frontier. *Journal of Applied Corporate Finance*, 13(2), 15-28. Relevant quote: “Viewed narrowly, the Real-Options approach is the extension of financial option-pricing models to the valuation of options on real (that is, non-financial) assets. More broadly, the Real-Options approach is a way of thinking that helps managers formulate their strategic options, the future opportunities that are created by today’s investments.”





Directional correctness

For incumbents trying to disrupt themselves or enter new markets, you can blend this options approach with a more traditional valuation method (such as DCF) to also capture the intrinsic value inside the current business model. We therefore always try to heed the advice of legendary economist John Maynard Keynes who said, "It is better to be roughly right, than precisely wrong."⁴

Most valuation techniques have a linear modelling bias (e.g., CAGR) and do not leave room for exponentials. In a networked age, where platforms scale-up in a winner-takes-all fashion, the tipping point between success and failure can be hard to pinpoint. But once through the viability and then profitability thresholds (often achieved as much through powerful storytelling as anything else), a business can fly.

Growth investors seeking to value potential not yet captured by operating activities are, in our view, best served by seeking "directional correctness" over precision, as the magnitude of inflection for companies that have successfully navigated these forces to unlock as-yet-undiscovered whitespace dwarfs the marginal gains of quantitatively narrowing a confidence interval on paper.

Our internal research therefore focuses on understanding the duration of a company's competitive advantage and the capital return potential of that investment relative to other opportunities available in our universe. Our process begins with Michael Porter's Five Forces and SWOT analysis, which we augment with frameworks derived from resource advantage theory.

⁴ An earlier variation of this quote ("It is better to be vaguely right than exactly wrong.") is attributed to English philosopher Carveth Read 1848–1931. *Logic, Deductive and Inductive* (1898)

The Five Forces that shape industry competition



Source: Michael Porter, Harvard Business Review, 1979.

Porter's Five Forces model offers a framework for understanding the competitive pressures – and opportunities – at work in an industry. The 'forces' drive the way economic value is divided among companies and, perhaps even more importantly, provide a model for the challenges and opportunities faced by a potential disruptor.

They also emphasize and animate creative thinking, forcing disciplined investors to consider industry dynamics that may be underappreciated by consensus (and linear) thinking.

Industry structure is iterative, with buyers and suppliers becoming more or less powerful over time. Advances in technology can make new entrants and substitution a foregone conclusion – or, conversely, may suggest an ever-widening moat around an incumbent's competitive position. Regulation, pricing, and distribution also play a role in the evolution of competitive dynamics.

Lessons from Uber

Let's take Uber as an example. Today, Uber has a USD 135 billion market capitalization⁵ and reported gross bookings of USD 162.3 billion last year.⁶ Despite those numbers, bookings are expected to grow in the high-teens annually into the latter half of the decade, led by annual growth in mobility bookings in the mid-20% range. However, the power of Uber's service was underestimated for years, even by its own investors.

In 2014, the company closed a fundraising round that valued the company at USD 17 billion⁷ – a large increase from its 2013 valuation of USD 3.5 billion. With the benefit of hindsight, we can see a quadrupling of Uber's valuation a year later still represented a vast discount to what the company has become. What was the reason for scepticism, and why did some potential investors see the company as overvalued? The answer lies in the disruption that Uber (and rideshare in general), provided as a service.

The mistake made by investors was not realizing that Uber's total addressable market (TAM) was beyond that of just a taxi service. In 2014, the taxi market was just over USD 10 billion in the US, according to IBISWorld. Uber doesn't disclose its mobility gross bookings from the US, but we know that it generates around half of its revenue from the country.⁸ If we apply that number to its USD 68 billion of mobility bookings in 2023⁹, Uber would be over 300% than the 2014 market – it has become more than just a taxi service.

Uber's service addresses far more than just the taxi or limousine market; rather, we think it should be viewed as a new form of travel itself. Americans drove more than three trillion miles in 2023⁸ – at a price of a few dollars/mile, suggesting Uber's real TAM is in the trillions of dollars. Instead of just competing with a small taxi market, Uber competes with all forms of transportation from your morning commute to car ownership. AAA estimates that it cost USD 12,000 to own a car in 2023⁹ – with an average Uber price of around USD 20 in the US, this would represent almost 600 Uber rides per year.

While Uber won't be able to capture all of this as bookings or revenues, our view is that comparisons to the dawn of air travel are more apt.

This would suggest Uber still has a considerable runway ahead of it. For example, passengers in the US airline industry grew at a compounded annual growth rate of approximately 9% from 1958-1977 as air travel became deregulated.¹⁰ This type of growth ramp by the aerospace industry (itself a disruptor) is seemingly being modelled by Uber's active user growth: high teens in Q1, despite a 150 million base of users.

A combination of sustained user growth, increases in user frequency as new products are added, and a ramping ad business that supplements profitability lead us to believe that Uber can drive bookings growth in the teens through the end of the decade. While the company trades at around 20 times next-twelve-months EV/EBITDA,¹¹ its future earnings could make this multiple look cheap. If we look at the 2014 valuation on 2023's EBITDA, Uber was valued at just over three times EV/EBITDA.

This is precisely why we use DCFs to gain a greater understanding of the future value of disruptive companies. However, although DCFs are valuable, they limit future projections of a company's performance to its current business; Uber did not have a food delivery business until August of 2014 and in 2023 Uber Eats recorded just over USD 60 billion in bookings.⁶

Classic measures of valuation must therefore be partnered with a qualitative analysis on the potential for expansion into new areas. With a user base of 150 million people and over 6 million drivers,⁶ Uber could introduce highly successful businesses that we have not even considered. It is our job as analysts to combine both the quantitative numbers with a qualitative assessment of a company's potential for future growth.



⁵ Bloomberg, 2024.

⁶ Uber, [Investor Financials](#), 2024.

⁷ [Wellington and Fidelity Expected to Lead Uber Investment](#), Wall Street Journal, 3 June 2024.

⁸ [Federal Highway Administration](#), 2024.

⁹ [Annual New Car Ownership Costs Boil Over \\$12K](#), Newsroom, 30 August 2023. (citing AAA data)

¹⁰ [Airlines.org](#), 2024.

¹¹ Factset, 4 June 2024. (EBITDA = Earnings before income taxes, depreciation, and amortization.)

Disruptive investing

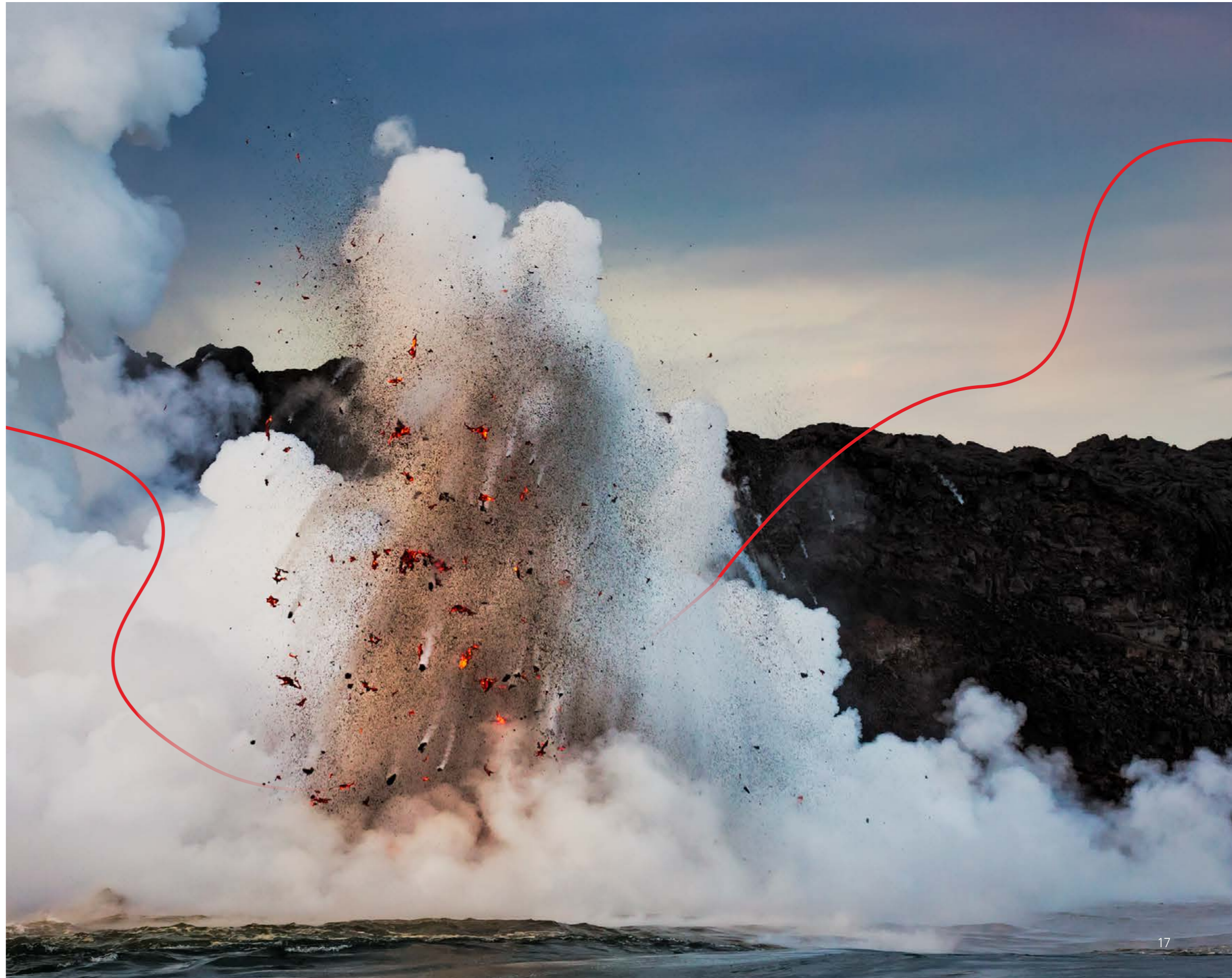
Ultimately, elite-growth companies are marked by the ability to disrupt large existing markets, or pioneer new ones, often at underestimated penetration rates. Sizing both the TAM, and careful modelling under realistic S-shaped adoption curves,¹² can drive upside returns vs. consensus; usually reflected in expected value weighted towards the out years of a DCF framework and/or beyond the typical forecasting period.

As we have seen, hyper-growth companies also often have platform attributes, with the capacity to address additional, large TAMs that aren't captured in the initial modelling and scenarios. These can become more concrete 2-3 or 5-10 years into an ownership period and enable sizable further upside to be modelled within a valuation framework.

For us, valuation is driven by both the probability we assign to different operating scenarios, and how we believe investors will assess, growth and risk profile of the company. Incorporating our forecasts into a 10-year DCF model, we try to think about discount and terminal growth rates in ways that reflect our expectation of change in market consensus.

Much as we would like to believe otherwise, disruption is neither new nor novel. It is part of how economies evolve and change. Disruption does create uncertainty but, more importantly, it changes the underlying structure of businesses and entire economies. Those structural changes imply investing, valuing or managing companies on the assumption mean reversion always works and mechanical models/metrics are the answer is dangerous. As such, valuing hyper-growth stocks will always be a blend of art and science.

¹² An S-shaped (sigmoidal) curve increases gradually at first, more rapidly in the middle growth period, and slowly at the end, typically levelling off at a maximum value after some period of time.





Magnificent moats?

Analyzing the relative competitive advantages of the seven US technology superpowers



Angus Muirhead
Head of Thematic Equities



Michael Nell
Senior Investment Analyst and Portfolio Manager



Jia Tan (TJ)
Head of Research China Long/Short Equity



Albert Tsuei
Co-Portfolio Manager on Digital transformation and Senior Investment Analyst



Barry Gill
Head of Investments



The Magnificent Seven (Mag7) are currently valued as if their moats are quasi-permanent. We assess whether this is correct, taking into account their varied nature and the threats they face.

Earlier this year, the world's biggest sovereign wealth fund – Norway's NBIM – posted its highest quarterly return since its creation in 1996, a result it attributed mainly to its vast holdings in Mag7¹ companies. They were not the only ones; with Mag7 stocks hugely outperforming – and carrying – broader indexes in 2023 off the back of rampant artificial intelligence (AI) optimism, current valuations seem to imply almost boundless faith in the unassailability of their economic moats.

Indeed, viewed through the prism of economies of scale and network effects, there is even a case for arguing the Mag7 are cheap. A recent study found that “the top-performing 2.4% of firms account for all of the USD 75.7 trillion in net global stock market wealth creation from 1990 to December 2020.”² By some estimates, such disproportionate market capitalizations mean “the economic profit of the Magnificent Seven is around 40% greater than the aggregate economic profit for the Russell 3000” as professor and strategist Michael Mauboussin told the Financial Times back in February.³

The performance of these companies reflects well known – and colossal – competitive advantages, which many observers deem practically insuperable, at least for the foreseeable future. As Mike Nell, Senior Equity Analyst and Portfolio Manager at UBS Asset Management, puts it, “in our model, we’ve baked in a 35% return on equity at terminal value (or very near) for all these companies, which is sort of an act of faith that they won’t lose their moat.”

Such forecasts are not made lightly. Each member of the Mag7 cohort has its own distinct variety of moat, enabling them all to create enormous value – and profits.

Notwithstanding Microsoft’s big ambitions for its rival search engine, Bing,⁴ Google’s 90% share in global search is so dominant that many consumers barely realize alternatives exist anymore. Embeddedness in business infrastructure make its removal seem virtually unthinkable for most companies, while Apple’s brand strength exerts a hold over its customers that can border on cultish.⁵

In many cases, Mag7 dominance is so entrenched that experienced analysts find it impossible to imagine where meaningful competitors will emerge. “You can’t see anything that would supplant, say, the iPhone,” says Nell. “And I certainly don’t think the market is going to assume

it’s been supplanted until it can see the whites of the eyes of the thing that is displacing it. It’s really hard to imagine what that would be; Apple’s ecosystem is so sticky that it’s unlikely to be upset in the foreseeable future.”

‘Foreseeable’ carries a lot of weight in that verdict, of course. Like all great empires before them, the Mag7’s aura of immutability is only that: an aura. As all investors know, nothing lasts forever. On a long enough time horizon, all champions are supplanted. Angus Muirhead, Head of Thematic Equities at UBS Asset Management, cautions that “nearly all of the biggest companies are publicly listed, and the bigger they get, the more successful they get, the more significant they are in these indexes. But look back over 10-year intervals, and the largest companies have changed. Only two or three tend to survive the next ten years. But we can never imagine that at the time.”

¹ The Magnificent Seven (Mag7) is the recently minted collective noun for Amazon, Apple, Alphabet, Microsoft, Meta Platforms, Nvidia, and Tesla.

² [Long-Term Shareholder Returns: Evidence from 64,000 Global Stocks](#), Financial Analysts Journal, Vol 79, 2023.

³ [Michael Mauboussin on increasing returns to scale](#), Financial Times, 23 February 2024.

⁴ In an interview with the Wall Street Journal in August 2023, Satya Nadella said that “Bing with AI is gonna completely change what people can expect from search”. Earlier in the year he told CBS that “we are looking forward to the new search wars.” (CBS, 7 February 2023)

⁵ Using an MRI scanner on an ‘Apple fanatic’, a [2011 BBC documentary](#) found that images of Apple gadgets triggered responses in the same parts of the brain as images of a deity do for religious people; <https://www.bbc.co.uk/news/business-13416598>



The world's 10 largest companies by market capitalization (ex Berkshire and Aramco)

1980	1990	2000	2010	2020
Peak oil	Japan will take over the world	TMT bubble	China will take over world	US tech offers only growth
USA IBM	JPN NTT	USA Microsoft	USA Exxon Mobil	USA Microsoft
USA AT&T	JPN Bank of Tokyo-Mitsubishi ⁶	USA General Electric	CHN PetroChina	USA Apple
USA Exxon	JPN Industrial Bank of Japan	JPN NTT DoCoMo	USA Apple Inc.	USA Amazon
USA Standard Oil	JPN Sumitomo Mitsui Banking ⁶	USA Cisco Systems	AUS BHP Billiton	USA Google
USA Schlumberger	JPN Toyota Motors	USA Wal-Mart	USA Microsoft	USA Facebook
NLD Shell	JPN Fuji Bank	USA Intel	CHN ICBC	CHN Alibaba
USA Mobil	JPN Dai-Ichi Kangyo Bank	JPN NTT	BRA Petrobras	CHN Tencent
USA Atlantic Richfield	USA IBM	USA Exxon Mobil	CHN China Construction Bank	USA Johnson & Johnson
USA General Electric	JPN UFJ Bank	USA Lucent Technologies	NLD Royal Dutch Shell	USA JP Morgan Chase
USA Eastman Kodak	USA Exxon	DEU Deutsche Telekom	CHE Nestlé	USA Exxon Mobil

AUS = Australia, BRA = Brazil, CHE = Switzerland, CHN = China, DEU = Germany, JPN = Japan, NLD = Netherlands, USA = United State of America
 Source: Gavikal Data/Macrobond

Today, with the Mag7 accounting for close to a third of the S&P 500's market capitalization, many observers are drawing parallels with 2001 – the last period of comparable market concentration, also characterized by disproportionately weighty tech stocks against a backdrop of tech exuberance. Barry Gill, Head of Investments at UBS Asset Management, highlights that, “while such security level concentration may be a novel phenomenon here, that level of concentration is not unusual for other country markets.”

While today's superstar companies have far sounder fundamentals than the poster companies of the dotcom bubble, they have no divine right to remain at the top either: “people used to think IBM could never be replaced”, says Muirhead. However dominant the Mag7 look today, it is a historical certainty that they will face disruption and displacement eventually.

Gill posits that

“The big question here is whether AI is a sustaining or disruptive innovation as per Clayton Christensen's framework. If it proves to be the former, as many believe, it should reinforce the moats.”

AI: levelling the playing field, or tilting it?

Since many believe it to be the most disruptive technology in a generation, might AI be the catalyst to rattle the Mag7 Titans?

It is not hard to find voices that think so, even inside the walled gardens of the Mag7 itself. A leaked 2023 internal memo from Google fretted that open-source models were eating the company's lunch, and that by comparison with their own AI offerings "open-source models are faster, more customizable, more private, and pound-for-pound more capable."⁶ The conclusion of the memo was frank: "we have no moat." Other voices have raised similar concerns, with plenty of commentators cautioning against AI 'hype' around the Mag7.

At the same time, it is just as easy to find those who think AI's high-tech, capital-intensive, talent-scarce nature is more likely to compound existing Mag7 advantages than erode them. "There's a lot of slack in the R&D budgets of these big companies," says Nell. "They can spend USD 100 million, and it's meaningless to them. But if you're a smaller company, trying to spend USD 10 million extra might be a reach." All the Mag7 companies enjoy R&D budgets in the billions of dollars, substantial portions of which have been devoted to AI in recent years, including strategic acquisitions such as Microsoft's of OpenAI, Google's of DeepMind, and Apple's of Xnor.ai.

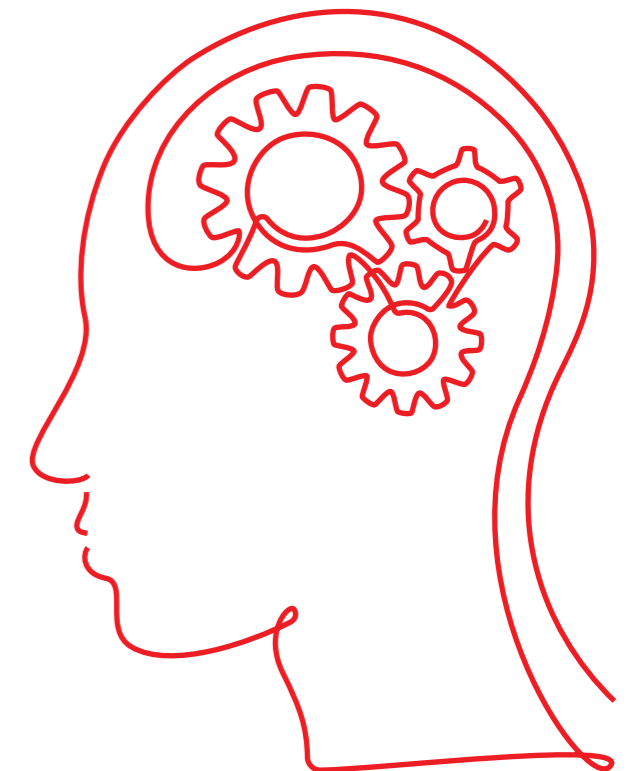
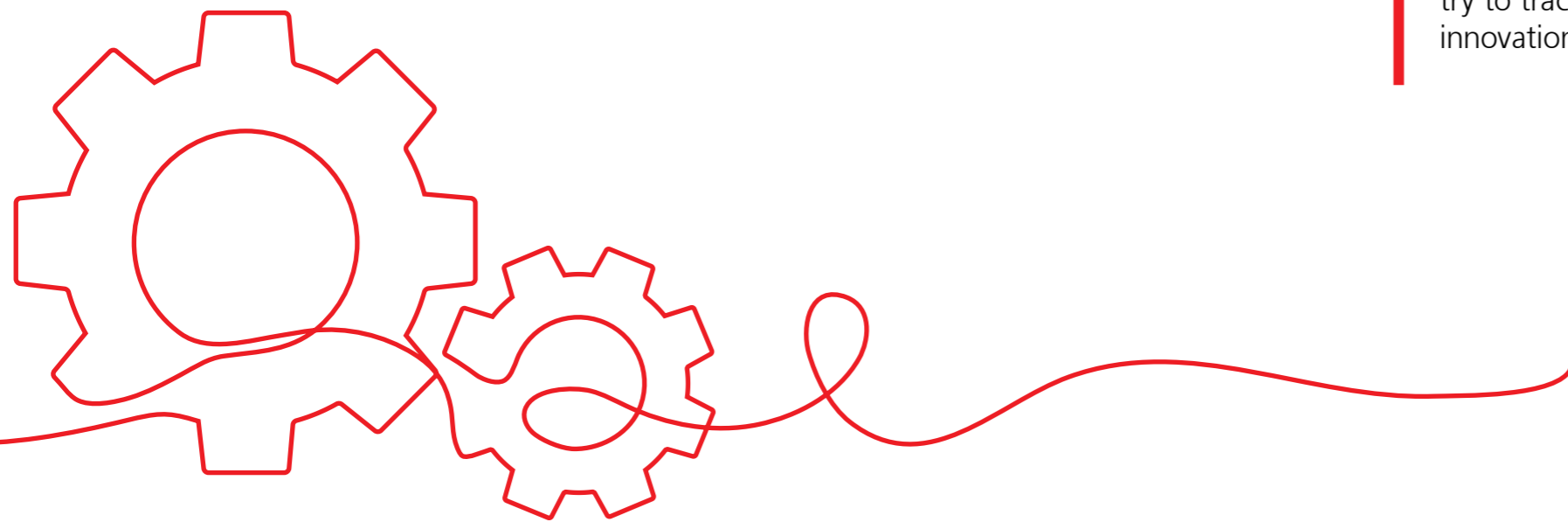
But deep pockets aren't the only advantage enjoyed by the Mag7, many of whom have data-driven business models that stand to benefit immensely from AI. Despite the 'no moat' memo, for instance, Google's dominance in search and cloud computing alongside its vast data accumulation give it a rock-solid foundation for AI tools to polish its core search and advertising functions. Amazon too has vast quantities of consumer data, which its AI can use to sharpen its preeminent logistics and marketing capabilities still further, while Facebook's ad targeting and content personalization are also set to benefit.

China analyst Jia Tan, Head of Research, China Equity Long/Short, UBS O'Connor, points out that Nvidia's stratospheric recent performance is premised heavily on AI's rapidly manifesting potential, and that Microsoft's investment in AI Copilot is strengthening its moat too. Meanwhile, the data lake Tesla has accumulated from millions of self-driven miles is likely to prove a huge asset in the ongoing race for fully autonomous vehicle networks, deepening its advantage over legacy US and European competitors:

"What's happening in that market is a transition from a product that was largely mechanical, to something that's basically a large smartphone on wheels," says Nell. "Most car manufacturers weren't born in Silicon Valley, which means that their software expertise is minimal. Detroit is not Silicon Valley. Germany is not Silicon Valley. These companies are trying to take on Tesla, which is just a completely different animal."

Acknowledging the power of such advantages, Jia Tan is dubious of any imminent breach of the Mag7 moats: "investors have talked about a potential threat to Google's search function from Bing and OpenAI, but so far it hasn't materialized. It's ultimately not possible to forecast where the true threat will come from; all we can do is try to track all those disruptive innovations closely."

Far from threatening the Mag7, AI might turn out to add yet more width to their moats. Albert Tsuei, Lead Portfolio Manager for UBS Asset Management's digital transformation equity strategy, points out that investors have historically misjudged the value of big tech stocks at moments of paradigmatic technological change: "investors have often underestimated the sheer power of these big tech business models when they are at scale. Historically, many of these companies turned out to be significantly cheaper than they should have been as they started to flex their economic power." A point backed up by the stock market wealth creation study mentioned earlier.⁷



⁶ <https://www.semianalysis.com/p/google-we-have-no-moat-and-neither>; <https://www.theverge.com/2023/7/10/23790132/google-memo-moat-ai-leak-demis-hassabis>

⁷ [Long-Term Shareholder Returns: Evidence from 64,000 Global Stocks](#), Financial Analysts Journal, Vol 79, 2023.

Regulation in the cards

Whatever AI's effects on Mag7 business models, it is already fomenting a major discussion about regulatory intervention. Summits on this theme are coming thick and fast, and both the European Parliament and UN adopted major AI resolutions in March of this year.⁸

Historically, regulatory activity has sometimes functioned as a drawbridge to competitors looking to storm incumbents' moats, and the conversation around AI could serve to embolden the many ongoing regulatory interventions against big tech. Google and the US Justice Department are already embroiled in the most significant antitrust case in years, with many lawmakers on both sides of the Atlantic eager to see the company – and others in the Mag7 – broken up.⁹ Apple and Amazon too are being sued by the US government, and accused by the Justice Department and Federal Trade Commission, respectively, of monopolistic practises.¹⁰ Meanwhile, Facebook has faced scrutiny from a number of inquisitors over the same issue – as well as data privacy, free speech, and content moderation.

But again, regulation can just as often magnify pre existing commercial advantages as diminish them, since it is generally easier for bigger companies to absorb the compliance costs and friction it imposes. Last year's Senate hearing, in which OpenAI CEO Sam Altman appeared to plead for greater regulation for the AI sector, provoked competitors to fret publicly about unintended consequences, with Stability AI's Emad Mostaque telling reporters that regulation invariably favors incumbents and can stifle innovation, and Clem Delangue, CEO of Hugging Face, tweeting that: "Requiring a license to train models would be like requiring a license to write code. IMO, it would further concentrate power in the hands of a few & drastically slow down progress, fairness & transparency."¹¹

Since most of the Mag7 place a significant premium on public trust, they may well benefit from the reassurance regulation can provide consumers as they learn to engage with AI, especially in contentious use cases such as fully self-driven vehicles or medical diagnostics. In addition, the Mag7 have powerful public affairs presences that are accustomed to lobbying the world's major legislatures and governments, and may be better positioned than most to shape any nascent national or global regulatory framework to their advantage.

Mean reversion

The width of Mag7 moats is, of course, a separate question from their value. Today, market concentration at the top of the index looks as precarious as it has in a generation. While most investors expect these companies to maintain their dominant position, it may be that the bigger opportunities now lie elsewhere in the market.

"It's very difficult for these stocks to outperform," Nell explains, "because the thing they're trying to beat is themselves. If you take Apple and Microsoft together, they're almost 50% of the benchmark in the IT sector. So, if you want to own stocks that are going to perform in line with the IT sector benchmark going forward, it would seem logical you'd have to look elsewhere. It's not a question of whether their moats are sustainable, but whether their valuations are excessive relative to the other opportunities within tech."

So far this year, there has already been some divergence in fortunes among the Mag7, with Tesla falling 28% and Apple posting a relatively modest 10%.¹² Naturally, many analysts are talking about a mean reversion. "I believe that

the mega-cap stocks are fully valued, and there's a mean reversion trade coming," says Nell. "That could come in one of two forms: either the mid-cap, and smaller-cap stocks catch up with the mega-cap stocks, or the mega-cap stock valuations decline to match those of the small-cap and mid-cap stocks where they are today. Personally, I think it's more likely the former."

The price of success: vigilance

The Mag7's relative immunity to competition stems from powerful elements of each company's DNA and will not be simple for tomorrow's challengers to overcome. But the same was true of previous corporate giants, and history has shown that such advantages cannot be sustained forever.

Recent results have been impressive, but the AI hype cycle is young and it is still hard to determine where AI's impacts will be felt most profoundly. With regulators watching carefully and more disruptive technologies emerging every year, the Mag7 will need to do all they can to justify today's sky-high valuations as competitors continue to test their defences.



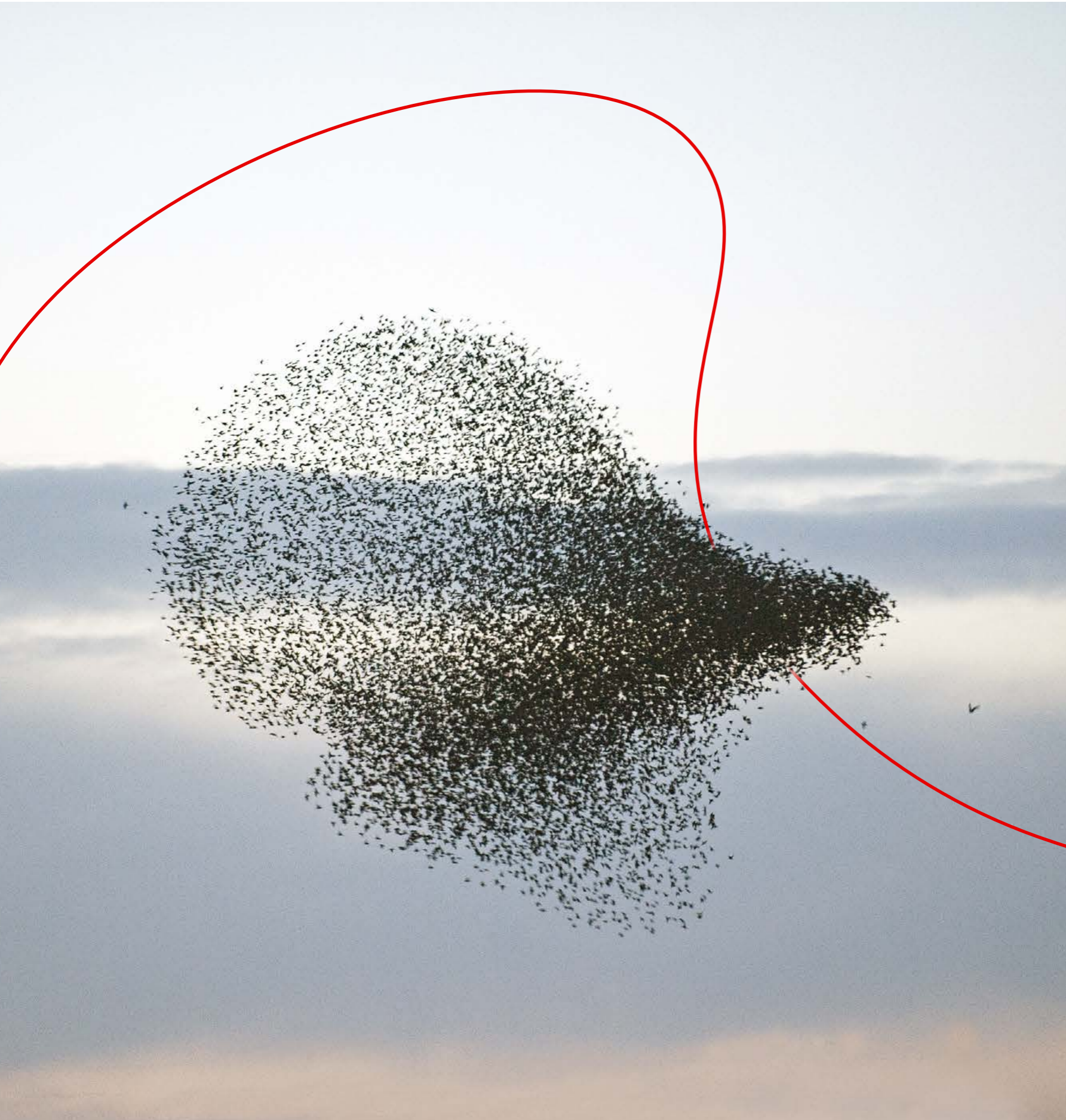
⁸ [Artificial Intelligence Act: MEPs adopt landmark law](#), European Parliament, 13 March 2024; [General Assembly adopts landmark resolution on artificial intelligence](#), United Nations, 21 March 2024

⁹ [Google, Apple breakups on the agenda as global regulators target tech](#), Reuters, 25 March 2024

¹⁰ [Justice Department Sues Apple for Monopolizing Smartphone Markets](#), Office of Public Affairs, U.S. Justice Department, 21 March 2024

¹¹ [@ClementDelangue](#), Twitter, 17 May 2023.

¹² [Advisors weigh in on the future of the Magnificent Seven](#), Investment News, 29 April 2024



Megatrends and disruptive innovation

A thematic take on the key factors driving economic and societal change



Angus Muirhead
Head of Thematic
Equities

Thematic equity investing shuns the idea of using a benchmark or index as a starting point for constructing a portfolio. Angus Muirhead explains why focusing on secular growth trends can make sense in a complex and interconnected world, increasingly driven by megatrends.

The world order is shifting. Triggered by COVID supply-chain related shortages and geopolitical fears, countries are starting to unwind decades of globalization. Capitalism and democracy face serious challenges for the first time in several generations. Adding to the tension, demographics around the world are vastly divergent, with more than half the global population growth to 2050 projected to occur in Africa,¹ and while global wealth continues to rise on average (measured by GDP per capita), that average conceals an increasingly wide gap between rich and poor.²

These are examples of 'structural forces of change,' the powerful tectonic shifts in the way we live, our cultural norms, our environment, our health and safety. These forces of change, sometimes known as 'megatrends,' typically occur over several generations and can impact certain industries or communities, or be more far-reaching in nature, touching the lives of many and impacting entire industries and economies.

The structural forces of change at work in the world today are colliding to create an environment of tension and uncertainty. Protests around the world continue to increase in number at a steady rate,³ global military spending has risen to new highs after nine consecutive years' of increase,⁴ and the Earth's temperature continues to rise.

Against this apparently bleak backdrop, we find both hope and opportunity. In fact, many significant technological advances and innovations have been born out of conflict, confrontation or necessity. Current geopolitical tensions are clearly intensifying competition between countries and driving efforts, often government sponsored, to push the boundaries of science and know-how.

The race is now on for countries and companies to develop the most powerful artificial intelligence, build the most robust cyber-security systems, attract the smartest talent, achieve the lowest carbon footprint in agriculture and manufacturing, and develop the most efficient healthcare and welfare systems. As a result, more semiconductor fabs are being built and expanded today (more than 70 globally) than ever before.⁵ Five decades on from the last Apollo missions, the Moon is once again a target for space exploration,⁶ and quantum computers and hypersonic missiles are now close to becoming a reality after decades of research.

As the innovation cycle accelerates, disruptive forces will inevitably take hold, and such change can present attractive opportunities for the patient long-term investor. Dislocations between how things have been done until now and how they might be done in the future can open-up fissures of intrinsic value.

Dominant companies of the day outgrow their market and gradually become legacy incumbents, unable to react fast enough, while being closely watched by regulators. Each year, winners of today are challenged and over time some are replaced by newcomers, unencumbered by legacies and free to design business with a clean-slate, using the currency of new technology, innovation and business models.

“Over the coming decades, there will be further acceleration as technological innovation increases. And if the atoms, bits and cells are the foundations of the modern world, three innovations in particular will shape the future: AI, biotech and climate tech.”

extract from “A new national purpose,” a joint report by Tony Blair and William Haig, February 2023

In what follows, I look at six disruptive themes driving the world forward in ways investors should take note.

1 “Global Issues: Population,” United Nations (www.un.org/en/global-issues/population), June 2024

2 “Global Wealth Report 2023,” UBS (Credit Suisse Research Institute (CSRI), Credit Suisse AG, a UBS Group Company)

3 The GDELT Project

4 “Global military spending surges amid war, rising tensions and insecurity”, Stockholm International Peace Research Institute (SIPRI), 22 April 2024

5 “Nine key statistics on new semiconductor fabs being built around the world,” by Michelle Adams, 22 September 2023

6 “Moon Race 2.0,” by Sue Nelson, BBC World News, 16 February 2024

AI and robotics

Computer controlled robotics and automation systems have existed in factories since the 1960s. However, as technology advances, becoming easier to use and cheaper, the established market is being disrupted and its market size greatly expanded by new, smarter robotic and automation solutions.

“Automation is the new electricity. It’s transformative, and it’s going to change everything”

Ken Goldberg, University of California, Berkley

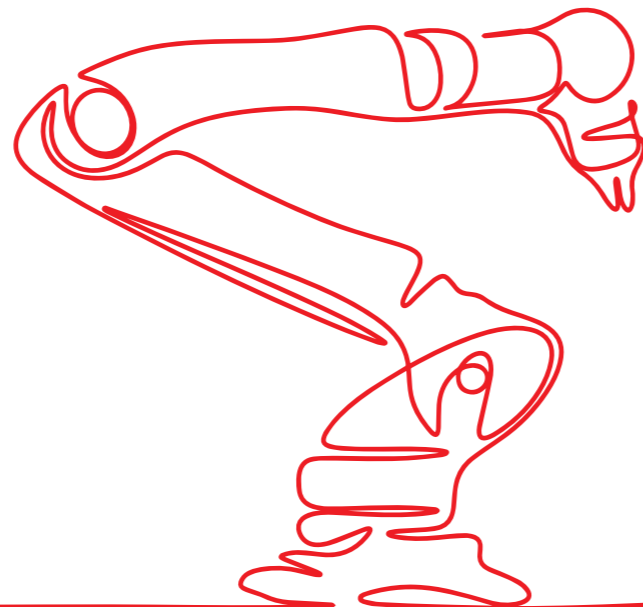
Until recently robots and automation systems were 'automatons', rigidly following a pre-programmed code. That is now starting to change. Over the last 20 years, the power of computer processors has increased exponentially, and thanks to economies of scale, costs have also fallen. At the same time, platform technologies, such as fast mobile and fixed line internet, cloud service providers offering data storage and compute services on demand have evolved, and advanced processors together with a huge increase in digital data are allowing AI algorithms to be far more powerful and useful today than ever before.

As a result, robots are becoming smarter, AI-enabled, and as they do so, their usefulness in industry and in society is growing rapidly. You can think of AI as the 'brain' of the robot: as the AI becomes more capable, the robot can perform tasks with greater autonomy, sensing and reacting to changes in its surroundings, and learning from its own mistakes and those of its robot co-workers.

Until recently robotics and automation solutions catered to a very small market segment of companies which produced large volumes of goods with very limited variance in mix, such as autos, semiconductors, processed foods, flat panel screens for TVs and computers, and chemicals.

However, as automation systems become smarter and more autonomous, they become easier to set up and program and generally safer to use. Each one of these benefits, together with more affordable prices, allows robotics to be employed as an economically viable option in an ever-expanding range of use case. Robots continue to be used in production lines on the factory floor, but are also being deployed in different areas of the factory and in collaborative use cases where the system might support and enable a human worker. They are also increasingly being deployed beyond the factory, in the service industry, in agriculture, logistics, security, transportation systems, as well as in purely digital automation applications such as software used to simulate plant operations, enhance industrial designs and accurately predict when machines need to be serviced, to avoid downtime from unexpected breakage.

As AI and other technologies develop further, smarter automation solutions will continue to emerge to meet the growing challenges faced by business, governments and society, and this disruption driven by innovation presents a range of compelling opportunities for the patient investor over the long term.



Security and safety

Against the backdrop of heightened geopolitical tensions and imbalances in wealth, security and safety has become a highly relevant and very powerful theme. IT security is just one aspect of this theme. While the benefits of digitalisation are starting to bear fruit for society, thanks to increased productivity and wealth creation, the related cyber-risks are also rising. As we store more sensitive and personal information online and become reliant on digital services such as banking or payments, we become increasingly vulnerable to the risk that our access might be compromised or that our passwords, and critical information, and even our identity, may be stolen.

According to the CrowdStrike Global Threat Report 2024, the 'good enough' approach to cybersecurity is no longer adequate against modern threats. As organizations move more applications and data into the cloud, adversaries are specifically targeting their attacks to exploit and abuse features unique to cloud computing. The report cites a 75% increase in cloud intrusions year on year and a new record in 'eCrime' breakout time at just two minutes seven seconds.

Cyberattacks are becoming more prevalent, more sophisticated, and faster. Adversaries use techniques such as interactive hands-on-keyboard attacks and legitimate tools to avoid detection. To further accelerate their attack tempo, credentials can be accessed in multiple ways, including purchasing them from access brokers on the 'dark-web' for a few hundred dollars. As a consequence, organizations have no choice but to continue to invest more into IT security going forward.

IT security has never been a winner-takes-all market. In fact, considering the idiosyncratic nature of attacks in the cyber world, it is not even a "winner-takes-most" market. Since technologies both in defense and offense continue to evolve, we believe the market opportunities remain underpenetrated by any single vendor and that growth opportunities for specialized companies will continue to develop for many years to come.

It is not only IT security that is important for our society, but also physical and psychological safety. Professor Abraham Maslow's "Hierarchy of Needs", first published in the 1970s, describes the need for 'safety' as one of the very basic human needs, together with the physiological basic needs of food, water, warmth and rest. Beyond these are the more evolved, psychological needs such as belonging, self-esteem, and self-fulfilment.

We think the structural drivers such as the ongoing digitization of our society, adoption of robotics and automation and increasing complexity, tension and inequality in the world make security and safety and all associated tools and services increasingly valuable and therefore compelling as a long-term investment.

Innovative healthcare

With global average life expectancy almost doubling over the last 100 years, it is evident that great advances in healthcare and basic sanitation have already been achieved. However, beyond this upbeat headline, the reality is rather less rosy. Healthcare spending, which now accounts for more than 10%⁷ of global GDP and 17% in the US, is on a rising long-term trend, and many countries appear to have hit a ceiling in life expectancy despite spending more.

Healthcare is also prohibitively expensive in many countries, with the most advanced treatments only available to the wealthy minority or the very well insured. And, despite large healthcare budgets, many national or government-funded healthcare schemes are understaffed and have high 'avoidable mortality' and 'treatable mortality' rates.⁸

The opportunity to increase efficiencies, lower costs and improve patient outcomes in healthcare are significant across every step of the health value chain. As technologies from different fields converge, IT combines with OT,⁹ biology and material sciences, new innovative ways to detect and diagnose illness, treat and manage disease, and discover and develop novel therapies are coming to the market.

Systems that allow earlier and more precise diagnosis, and sophisticated drug-development platforms that offer personalized, perhaps gene-specific, medicines, might allow the healthcare sector a paradigm shift from the treatment and care of patients, to an age where health is preserved and disease is predicted in advance, allowing for remedial action to be taken, to avoid the disease from taking hold. Meanwhile, digitally driven efficiencies can be achieved immediately in how hospitals are run, how patient information is used and how we interact with our care providers.

As our healthcare solutions become more digitalized, automation, robotics and AI will be used to improve efficiencies and to enhance human capabilities in drug development, disease diagnosis and in surgical procedures. Yet as we use more digitization and automation, the more critical it becomes to ensure that systems are safe and secure from cyber-attacks.



⁷ "Current health expenditure (% of GDP)," The World Bank, April 2024.

⁸ "Comparing the NHS to the health care systems of other countries: 5 charts," The King's Fund, June 2023.

⁹ Operational Technology (OT) is defined as programmable systems or devices that interact with the physical environment (or systems that manage devices that interact with the physical environment). Definition from the National Institute of Standards and Technology, and agency of the US Department of Commerce.

Climate solutions

Advances in medicine and rapid productivity gains throughout the industrial revolution drove unprecedented growth in world population from 2 billion in 1920 to 8 billion today.¹⁰ With 57% of people living in cities,¹¹ generating more than 80% of global GDP today,¹² global resource consumption has been pushed beyond planetary boundaries. To cater for the growing demand in basic needs for resources, energy and finished goods, we need to rethink the traditional way of living, manufacturing products and providing services to customers.

As the effects of climate change are becoming ever more visible, the switch from finite to renewable resources is reshaping businesses across a number of industries, such as electrification of the transportation, construction and industrial sectors to enable wide-ranging emission reductions. This trend is propelling meaningful innovations and opportunities for investment in the 'climate solutions' theme.

As an example, related to the earlier mentioned growth spurt in demand for AI technology, liquid cooling solutions are enabling a step change in cooling performance while delivering up to 50% energy savings compared to conventional cooling solutions in data centers.¹³ With connectivity gaining importance in the consumer world, logistics and manufacturing sector, Internet of Things (IoT) devices are forecast to grow at a 16% compound annual growth rate (CAGR) between 2021 and 2027. As these devices are the cornerstone of efficient resource management in water supply, lighting, and waste management, 'climate solutions' providers see their addressable market expanding. Finally, leading research in biosolutions offer substitutes for traditional plastics and the biorefining of organic waste and starch, supporting circularity in natural resource use while having the potential to reduce global emission by 8% in 2030.¹⁴

¹⁰ "The world population explosion," National Institutes of Health (NIH) publication by J. van Bavel, May 2013

¹¹ "Urbanization rate by continent," Statista, January 2024

¹² "Urban Development Overview," The World Bank, April 2023

¹³ nVent, 28 July 2023; Science Direct, 2022

¹⁴ "The era of biosolutions," Novonosis, retrieved on 11 June 2024



Energy evolution

As populations grow, driving demand for energy, affordability and security of the energy supply become ever more important. This has become all too clear in light of recent geopolitical developments, which saw energy prices spike while putting energy independence firmly on top of political agendas. Furthermore, governments, companies and consumers are increasingly focused on mitigating climate change through policies, process changes and shifting consumer preferences. Moving from an economy and society so dependent on hydrocarbons for its energy needs, to a cleaner, greener energy system is the most economical way to achieve the dual objective of ensuring energy security at affordable pricing, while also combating climate change.

A key aspect of the energy evolution is electrification: making devices in our everyday lives run on electricity rather than oil, gas or coal. Think of cooking or heating with electricity, driving an electric vehicle, or powering a data center with clean energy. Electrification is facilitated by rapid developments in technology: innovation in renewable energy generation has lowered the cost of renewable energy significantly, making wind and solar power generation cost competitive with traditional fossil-fuel-based forms of energy.

Increased electrification and growing penetration of renewable energy will increase the need to spend on electricity distribution grids, making them more decentralized, and capable of accommodating small-scale two-way transmission and distribution. This will not only require investments in smart grid technology, but also in the building blocks for a resilient grid: critical energy transition materials such as copper and aluminium for connections and wiring, lithium, cobalt, nickel, manganese, and graphite for batteries to accommodate storage of electricity on the grid for when the sun does not shine or the wind does not blow, will become sought-after commodities. Hence energy transition investing is about more than renewable energy, clean technologies or electric vehicles and related infrastructure – it is also about looking for opportunities in minerals developers and chemical technology companies.

¹⁵ International Renewable Energy (IRENA), "World Energy Transitions Outlook 2023: 1.5o Celsius Pathway," June 2023


Infrastructure

Modern, resilient, and reliable infrastructure is critical to all the themes I have described previously. Infrastructure is the backbone of any economy. The building blocks of our civilization and society. These long-term assets allow us to move people and goods, to generate and transmit energy, to supply fresh water and remove waste, and to store and share data (digital media, news, health records, corporate and government information, and so on).

The need for ever greater productivity, decarbonization, electrification and digitalization is driving global infrastructure investments. To avoid catastrophic climate change, the world must achieve net-zero carbon dioxide (CO₂) emissions in all sectors of the economy by 2050, with a focus on energy generation, buildings, industry and transport.

This means a large proportion of our fossil-fuel power stations will need to be decommissioned and replaced with hydro, wind, solar, wave and safer forms of nuclear power. According to IRENA, the number of electric cars will grow to over 2 billion by 2050, and this will depend on the global deployment of charging infrastructure. In homes and offices the number of heat pumps is expected to grow to approximately 800 million by 2050.¹⁵

The unabated increase in data volumes and the demand for ultra-fast data connections, to support autonomous driving and any applications of artificial intelligence, require the expansion of 5G and fixed line fibre networks, as well as a huge fleets of data centers.



Focus on the winners of tomorrow

Disruption is driving many sectors of the economy towards a golden age of innovation. The megatrends are powerful long-term trends which cut through the economic cycle and short-term noise of the equity markets. They demonstrate secular growth characteristics which can provide highly favorable tailwinds for investment strategies.

Some caution is due, however. While the long-term outlook may be compelling, the short-term view may be more challenging.

The economic cycle, politics, interest rates, taxes, regulation, trade disputes and more, may push performance off course in the near term. However, if the long-term thematic thesis remains sound, and the underlying health of a business is strong, then periods of underperformance can often be seen as a buying opportunity.

In some themes and markets this could be the case today. War has put clean energy and environmental concerns on the back burner. COVID caused a devastating loss of human life, but also burdened the healthcare sector with significant debt, such that spending today on innovative and digital health solutions remains at anaemic levels. And since our pure-play approach gives all our strategies reasonable exposure to smaller companies, the last 18

months has been a tough environment for many, with rising interest rates taking a disproportionately high impact on the valuation of small companies relative to large and mega-caps.

But within the short-term challenges, there is always the promise of long-term opportunity. Investors need to identify the correct long-term themes, and find the key innovations likely to accrue the most value through the period of creative disruption.

As industries face dynamic change, companies react, restructure and adapt, and often governments and regulators intervene and change the natural course of things. While opportunities for some businesses proliferate, legacy incumbents may face ever greater challenges. In order to select the long-term winners, while avoiding the inevitable losers, the thematic investor needs to understand the industry and the technologies at a fundamental level and to be highly selective.

Given the urgency and persistence of the megatrends, the long-term themes I have described above may all offer the potential for above-market returns over a market cycle.



A tug-of-war transition

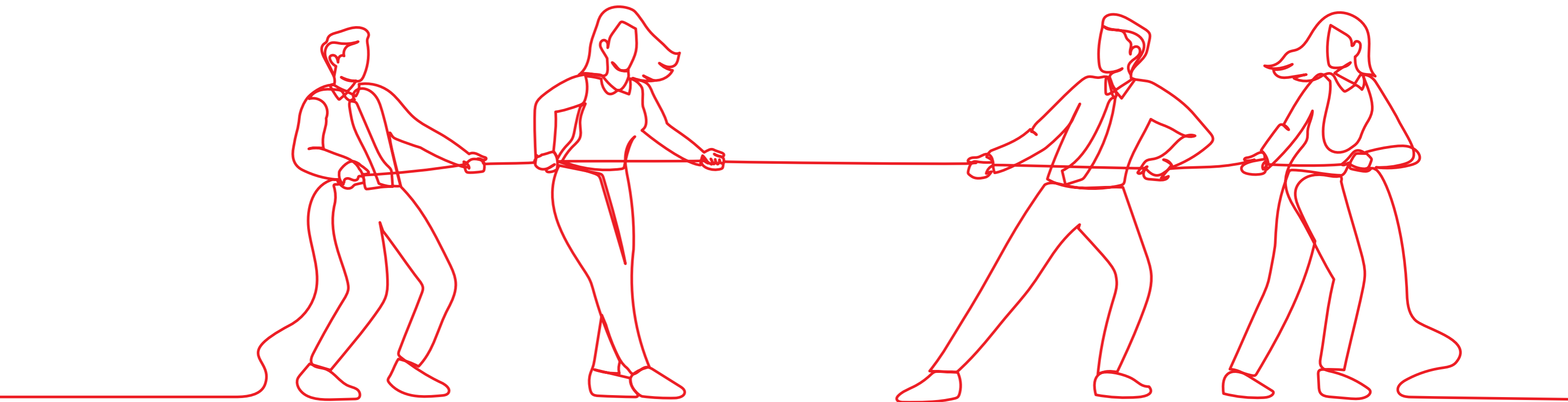
How energy companies should allocate capital expenditure and best navigate the path to net zero



Ellis Eckland
Senior Investment Analyst,
Portfolio Manager



Lucy Thomas
AM Head of Sustainable
Investing



The world is grappling with the dual imperatives of reducing carbon emissions and ensuring energy security, meaning energy majors find themselves at a crossroads. Lucy Thomas and Ellis Eckland assess the resulting capital expenditure (CapEx) tug-of-war dynamics playing out within energy incumbents' business strategy and finance departments.

If you are confused by what a 19th century athletic contest has to do with an energy company's capital expenditure, allow us to elaborate. Investors' perceptions of their time horizons and priorities play a significant role in their willingness to embrace sustainable investing practices for climate change.

On the one hand, some traditional value investors prioritize short-term effects at the expense of the long term. This does not only refer to a prioritization of short-term returns and dividends but highlights that certain investors are unable to consider the urgency of long-term investing without an immediate threat. We have seen investors shift their processes for war- or pandemic-like events, but the urgency of the climate crisis does not trigger the same fear response.

On the other, a separate group of sustainable investors and non-governmental organizations (NGOs) are able to take action quickly, prioritizing their investments in line with achieving climate goals. Legacy oil companies are therefore caught between the sustainable investors and NGOs (combined with a lot of media attention) demanding a quick transition and traditional value investors who worry about the destruction of value often associated with aggressive transition strategies.

Indeed, the European majors provide quite a few recent examples of poor capital allocation decisions. BP was the first oil major to commit significant capital to renewable energy via investments in solar and wind projects. Specifically, they launched a USD 200 million campaign in 2001 to rebrand BP into Beyond Petroleum and established BP Alternative Energy to consolidate their low-carbon activities in 2005. These projects lost them over USD 8 billion.¹ By some estimates, had the capital been invested at BP's cost of capital via oil and gas or share buybacks, BP's share price would be around 45% higher. Cases like this emphasize the importance of considering the pragmatic realities before diving in.

There also appears to be a significant disconnect between governments' public statements about reducing fossil fuel production to address climate change, vs. their actual policies and plans that continue to support and incentivize increased fossil fuel extraction and use. Despite 151 national governments pledging to achieve net zero emissions, a major report from the United Nations Environment Program (UNEP) found that governments globally plan to produce around 110% more fossil fuels in 2030 than would be consistent with limiting warming to 1.5°C.²

Another group of stakeholders contributing to the intensity

of this tug-of-war is consumers. While there seems to be general consumer openness and demand for sustainable energy solutions to replace fossil fuels, concerns around the affordability of this new technology may trump any desire to transition quickly. With the consistent prevalence of fuel poverty³ and the post pandemic cost of living crisis, consumers are looking for assurances around protection and assistance before their sentiment can turn into action.

So as we approach 2030 and near the deadline for certain climate ambitions, difficult decisions and tough trade-offs will need to be made. How can these energy companies that are pivotal in steering the global energy transition balance the competing interests of environmental sustainability, economic viability and energy security, when deciding where to allocate their CapEx?

¹ [The renewable energy strategies of oil majors](#), Energy Strategy Reviews, November 2019

² [Production Gap Report](#), UNEP, November 2023

³ [Annual fuel poverty statistics in England](#), Department for Energy Security and Net Zero, 15 February 2024

Pragmatic realism

This game of tug-of-war would be less challenging if both teams dropped the rope for a second and stepped back to examine the current progress towards the net-zero goals and reduction of fossil fuel use. Both sides would find that many hard truths need to be confronted before picking the game back up.

Firstly, as Vaclav Smil puts it, the global goal of zero carbon by 2050 is unlikely due to our current reliance on fossil fuels.⁴ The demand for fossil fuels is not falling as quickly as expected and people have been unrealistically optimistic about the pathway to achieving these targets. Moreover, the “speed, scale, and modalities (technical, economic, social, and political) would be historically unprecedented.” We cannot compare this transition to any previous energy transition we have endured. Never in a previous energy transition have we actually reduced the use of the previous fuel, nor have we ever moved to a less dense form of energy.

For example, we are still using the most wood we have ever used (traditional biomass energies still supplied about 5% of the world’s primary energy in 2020⁵), despite the transition beginning over 100 years ago. With the green transition now, not only do we want to introduce renewable energies, but we want to reduce the use of coal, oil and gas, not in 100 years, but in 30 years. This makes it nine times as difficult.

Even more demanding is that, according to The International Energy Agency (IEA), we have not yet reached the peak of the global consumption of fossil fuels and are only projected to by 2030.⁶ The scale of this disruption must happen in a very short period of time. And creating the infrastructure for renewables, including batteries and electric vehicles (EVs), is very energy intensive. In fact, China is producing most of our solar panels and wind turbines, and they are using coal to do it (the most energy-intensive step in the solar-panel manufacturing process occurs in a Chinese region where coal accounts for 77% of power generation).⁶ On a positive note, we do believe China’s coal production is likely to peak soon and their emissions should start declining accordingly.⁷



Ultimately, simple quick-fix solutions will not work. Cutting fossil fuel production too quickly is not only increasingly difficult given the strong demand, but also counterintuitive. If you cut fossil fuels too quickly, they could become extremely expensive and cause a massive economic shock. This will hurt consumers negatively, and carry potential knock-on effects. For instance, when people are worried about losing their job they tend to worry less about the climate. Moreover, if China cuts coal, which it is using to create solar panels and wind turbines, then the cost of renewables is likely to go up. People do not appear ready for that. By considering what is feasible in practice, investors can balance some of the noise coming from both sides and hone their expectations of CapEx allocations accordingly.

Transition trade-offs

By taking a step back, a clearer view of where energy incumbents should be positioning their CapEx emerges. Although we believe there will be positive return opportunities with any transition pathway, it is not an easy balance to strike.

To start with, oil and gas companies need to have strategies with strong industrial logic and the potential for returns that are acceptable to shareholders. While the transition is a massive shift for the energy industry, commercial realities mean any investment needs to make business sense. As with the BP examples earlier, market participants had worries about uncompetitive investments and sold shares.

Some comfort can be found from the fact that investor reactions are not universally negative to aggressive transition strategies; some early leaders like Neste and Orsted have been market darlings despite near-complete abandonment of fossil fuels. Why? Because they had clear strategies based on widely acknowledged competitive advantages.

Incumbents could therefore consider cutting high-grade capital investments in upstream businesses so they shrink over time, while simultaneously investing in hitherto more niche areas of the energy transition where they have a real competitive advantage. One way to ascertain how and where these may lie is to look at patent applications. An often-overlooked fact is how many green patents are actually filed by energy incumbents (according to some studies, they produce more and of higher quality).⁸

We know this to be true when it comes to biofuels, where oil majors tend to have very strong positions as this requires refining skills that are very similar to what they do in their fossil refineries, or in carbon capture & storage (CCS) where oil companies have been doing it for over 40 years and have immense expertise. To reach a net-zero scenario by 2050, CCS needs to expand 120-fold to offset around 45% of emissions.⁹ This is an area where the fossil fuel companies should take the lead given their competitive advantage. The prevalence of supportive regulations and the ability to offer ‘carbon capture as a service’ will be a major advantage here for the majors or those with competitive advantages.

Ultimately, innovative energy projects may be inherently riskier than traditional investments for two main reasons and we believe this should be reflected in higher discount rates for fossil fuel extraction projects.

Firstly, the risk of stranded assets or obsolescence of oil and gas company assets as a result of technology advancements has gone up. Green policy aside, there is a risk that as top scientific talent shifts towards jobs in innovation in green tech, new solutions could render oil and gas expensive and obsolete, leaving assets stranded. We foresee the combination of solar and low-cost electrolyzers for green hydrogen as the single biggest risk to fossil fuels.

The second issue relates to oil majors’ social license to operate. A portion of the world blames these companies for climate change, which creates an environment conducive to heightened political risk. In a worst-case-but-possible scenario, an unhappy politician could use this as justification to nationalize their assets. Their political risk is therefore extremely high and returns need to compensate through the form of higher discount rates. To put this into context, we believe that, through a combination of these factors, oil and gas companies are at least as risky as frontier markets which attract a 20% discount rate.

Despite seeing a derating of the European majors, as they refine their strategies and incorporate more industrial logic, this could reverse. There is also a temporary time phase effect where the investors use the same historical multiples while looking at the lower cashflows of renewables. A few years on, they could realize the discount rate also declined, making it less value destructive vs. initial calculations.

Additionally, energy majors could pay out cash to investors who could then in turn reallocate it to attractive climate solutions elsewhere in the market. This could include share buybacks which have surged in recent years. We believe strong capital discipline and investment in areas where these companies have competitive advantages are key to a successful strategy for shareholders.

4 [Halfway Between Kyoto and 2050: Zero Carbon Is a Highly Unlikely Outcome](#), Vaclav Smil, 2024

5 [World Energy Outlook](#), The IEA, October, 2023

6 [The True Cost of Chinese Solar Panels](#), Time, 18 January 2024

7 [China's emissions set to fall in 2024 after record growth in clean energy](#), Carbon Brief, 13 November 2023

8 [The ESG - Innovation Disconnect: Evidence from Green Patenting](#), European Corporate Governance Institute, 11 January 2021

9 [Scaling the CCUS industry to achieve net-zero emissions](#), McKinsey & Company, 28 October 2022



Transitioning fast, and slow

The suggestion of a slower transition is admittedly a little discouraging, but historically issues have arisen when companies transitioned too quickly. We have also seen evidence of this not sitting well with company management for fear of investors fleeing. Indeed, Steven Chu (former US Energy Secretary under the Obama administration) shares his experience of advising Shell on their energy transition: share price pressure mounted as a result of having more ambitious targets than their peers, despite most of their CapEx still in oil and gas.¹⁰ They subsequently dropped an important climate target in March. Chu aptly highlights that, while global temperatures have broken records for 11 straight months, markets are still punishing companies making green investments.

The energy transition is an irreversible path, and energy incumbents must continue to adapt their CapEx strategies to align. The urgency and scale of the problem makes any degree of tolerance difficult. And yet we do need the incumbents to play a key role in decarbonizing society.

In our view, the future will likely see a more diversified energy portfolio with a steady shift away from fossil fuels towards renewables. If fossil fuel companies put forward convincing strategies that commit to a plan for reduction, no new reserves and deliver shareholder returns, there is the potential to end this tug-of-war game with handshakes all around.



¹⁰ Steven Chu: 'Wall Street analysts are totally amoral' on climate, Financial Times, May 27, 2024



Nomadic survival

An interview with Gaia Vince



Lucy Thomas
AM Head of Sustainable
Investing



Gaia Vince
British environmental
journalist and nonfiction author



Climate change is set to disrupt lives, livelihoods, and ultimately economies and financial markets. We interviewed author Gaia Vince to find out how she envisages societies best adapting to the challenges and new realities.

As we endure the hottest summers on record and witness extreme weather events with increasing regularity, the changes in our climate are inescapable. One thinker who addresses these implications in detail is Gaia Vince, a science writer, honorary senior research fellow at University College London's Anthropocene Institute and founding member of the Climate Migration Council. She is the author of *Adventures in the Anthropocene and Transcendence*.

Vince's latest book, *Nomad Century*, assesses the impact of climate change on our planet population and sets out a plan to address the existing post-climate change world.

The relevance to investors and capital allocators stems from the seismic geopolitical implications that mass migration across countries and continents could cause. The World Economic Forum's latest Risk Report cites societal polarization, interstate armed conflict, lack of economic opportunity, and involuntary migration in its top ten risks over the next two years. These issues are clearly complex and interwoven in nature, but they are affecting the global economy right now.

Until now, most focus on climate risk to the built environment has focused on physical risk, but Vince also points to a more subtle social dynamic that could disrupt and destroy communities: the subtle and barely visible downward spiral of economic magnetism that towns, cities and places are subject to. This could have huge implications for corporate workforce planning decisions, local and regional economic prosperity, as well as for real asset investors in real estate and infrastructure projects.

Anthropocene is a term used to describe the current geological epoch, characterized by the significant impact of human activities on the Earth's geology and ecosystems.

The Anthropocene is believed to have begun in the mid-20th century, as human activities such as industrialization, deforestation, and the burning of fossil fuels began to cause significant changes to the Earth's climate, geology, and biodiversity.

Although you ultimately set out a positive view, Nomad Century paints quite a dystopian picture of how the climate crisis might play out. Could you give an overview of the disruption that climate change could inflict on communities, habitats and society?

I work with scientists at the UK Met Office to map what we expect in terms of extreme events. I call these events the Four Horsemen of the Anthropocene. They are the risk factors for human habitability: heat, fire, flood and drought. Drought, which threatens agriculture, mainly results from heat – which also kills people directly. Hot air holds more humidity and ensuing floods and fire damage economies affecting people's livelihoods as well as their lives.

As large portions of the world become increasingly unliveable, the more liveable parts will be mainly towards the north. We will therefore see a migration not just of people but also of capital investments, infrastructure expertise, resources, agricultural production and industrial production. Everything will start shifting north. Climate migration is currently mainly within countries. Increasingly, it will occur across borders, regions and continents.

We often talk about climate change in terms of mitigation and adaptation. You are hopeful we can adapt as a species by drawing on some of our primal nomadic tendencies. Could you elaborate?

Yes, we need to mitigate, and we need to avoid making things worse. That requires much faster decarbonization: not just of our energy systems but of our agricultural systems and the way we use land.

We need to be pragmatic too. That involves various types of adaptation, one of which is moving people in a managed way before it becomes a disaster. Once you are evacuating people, that is a failure of management. We should target people at the age when they move. Typically, that is between their late teens and early 30s. They move for education, work, apprenticeships, training, curiosity or love. And they also go because everybody else is going – which makes it a network-forming time too.

I think that we need to be talking about that and directing our infrastructure, investments and industrial strategies towards safer places. That will include turning towns into cities, expanding existing cities and building entirely new ones.



You talk extensively in the book about the opportunity to fill key strategic industrial gaps relating to climate and nature-based solutions. Can migrants help plug some of these gaps?

Absolutely. People move for work, and they generally move to where the work is. So I don't think that's a problem. But we need a better steer from our leaders. Recently, there has been far too much of the 1990s principle that you just leave it up to the markets. I think we do need bigger government. We need to face up to the fact that we need to move people in a managed way. There hasn't been a single industrial transition, and certainly not an energy transition, without considerable investment and direction from the state.

What role do you see the private sector playing?

The private sector wants certainty on government direction on all of this. They don't want flipflopping on policies. They don't want to invest in solar only to discover that the government's decided to re-subsidize gas. Why would they invest?

The same goes for immigration. I've spoken to many leaders of industry who want migrants and certainty in their workforce planning decisions. They also want better skilling and training programs for existing and new populations because it is difficult and expensive for them to make investments in these new areas. And they want regulatory certainty too. Standardization between nations is so important, not just regionally but globally. It helps with modularization of our energy value chains, which brings down costs and increases production.

Our readers make capital-allocation decisions and are thinking about risks and opportunities. What do they need to know?

With decarbonization, we have gone through a tipping point. Energy will be produced from renewables and, eventually, entirely from non-carbon sources. How quickly that happens is still to be decided. But it means that investing in fossil-fuel dependents is much riskier and may not bring you long-term rewards.

There is huge opportunity in many of these nascent technologies – from biotech for food and material production to new ways of generating and storing energy to new grid infrastructure. But there are risks, of course. Not all of these initiatives will become massive money-spinners, so the public sector needs to be involved to mitigate some of the risks. However, there is value in investing in things that actually benefit humanity.

Some pension funds now take the view that while their duty is to provide a pension, there is no point in providing a pension in a world that is not worth living in.

I think that is very valid. For some reason, we can be embarrassed about that kind of value system – perhaps because of increasing secularisation. These kind of values should transcend any belief system. We should know what is right and feel satisfaction from spending our lives productively. Otherwise, we are just making money for other people.

A climate-ridden, unequal, unjust world is a scarier place, and that risk is not just to our personal safety but also to our wealth.

Changing our mindsets around migration obviously requires a massive shift. And people with certain political leanings might be more open to it than others. How do you see that challenge?

We are living at this quite unusual time where the narrative around migration has been directed and dominated by populist accounts. We had Brexit in Britain, which was a helpful stepping stone for Trump. And we have also seen the rise of populism across the EU and around the world.

The populist narrative hasn't changed. It's a denial of the complexity of everything and a distillation of all society's problems into simple slogans – and when that fails, the demonization of marginalized minoritized groups, most obviously powerless immigrants.

Could you expand on how this denial of complexity through populism leads to the marginalization of these groups?

Yes: immigrants are blamed for policy failures. If there is a housing shortage or people have to wait longer for medical care, that is supposedly because of immigration. But if you drill down into it, the problem's quite often the state's failure to provide enough housing for the existing population, let alone increased populations.

The point is that the populist narrative doesn't help the economy. Most economies need greater immigration. Indeed, one study showed that US counties with larger levels of immigration experienced an increase of 57% in manufacturing output per capita, up to 58% increase in agricultural farm values, and even 20% higher average incomes and educational attainment.¹ Another concluded that immigration to the US between 1990 and 2007 boosted the average wage by USD 1500.²

A large part of our success as this globalized, industrialized species is the fact that we move around cooperatively and create these melting-point fusions of technologies and ideas. That's the origin of cities. They, and universities and all centres of excellence, are entirely built on immigration.

We are also living at a time when most northern countries are suffering this huge demographic decline; we are not

1 Immigrants, Productivity, and Labor Markets, G. Peri, Journal of Economic Perspectives, Vol. 30, No. 4, Fall 2016 (P. 3–30).

2 Immigrants and the Making of America, Sandra Sequeira, Nathan Nunn, Nancy Qian, The Review of Economic Studies, Volume 87, Issue 1, January 2020, P. 382–419.

having enough babies to support our ageing populations. How do you reverse that? You can try paying women to have more babies, but it doesn't work. The only thing that does work is immigration. This doesn't mean that immigration is problem-free. You need to invest in it and treat it like any other investment. A social investment is also required. Part of this is investing in projects that help with language skills and cultural learning – not just for immigrants, but also for the existing population.

Better planning is a big message from the book, whether it is from government or indeed from investors. So when they are investing in physical assets, how should investors think about their location?

That is really important – looking at the future demography and climate safety of the place that you are investing in. Some places are literally becoming uninsurable because the insurance industry recognizes that they are too much of a risk – as in parts of California, Florida and Europe. This creates obligations whether lending or investing. We need to be pragmatic on decisions on where to abandon and where to adapt and grow. Climate moves businesses to places of growth with increasing workforce and increasing vibrancy of community and innovating.

When investing in assets, you also need to make sure they are fit for the new conditions we are living in. You cannot make investment decisions without considering the drastically transformed environment of a few decades to come – the physical environment, the biological and ecological environment, but also the human environment.

There is much research on buildings and infrastructure in terms of how you protect them against physical climate risk. But the human element is a fascinating new dimension.

It's crucial even if your particular business is not affected. Let's say the area's economy is based on agriculture and that agriculture is declining or has gone due to climate change. Either people will be too poor to keep other businesses going or they will start moving away. And then the community enters a death spiral. Very few businesses can survive in a town that's depopulating and dying.

We saw that with the Rust Belt. It is now reversing to some extent, but with coal and the coal-mining towns, that kind of death doesn't just affect coal miners. It is much bigger.

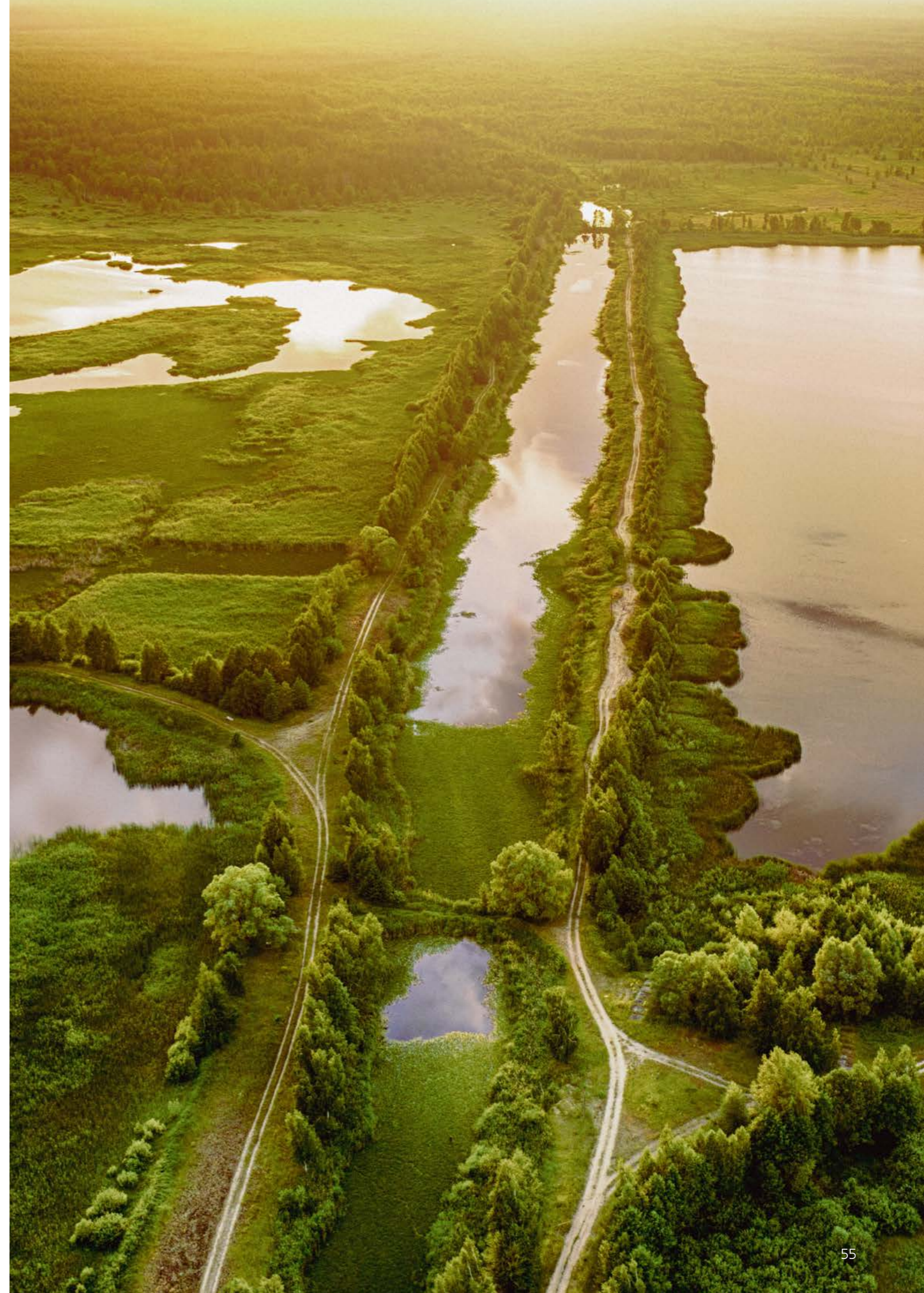
In these situations, investors have a decision to make. You might decide that it is a good place to be because you can offer an alternative industry. That could be a great opportunity if you can invest in the necessary transfer of skills. Or you might recognize that it is not appropriate because of the changing environment – and that the place should be left to die. These are the decisions that people need to wake up to. We are living in very volatile times.

Land use is a massive part of the climate crisis and the energy transition. How does our relationship with land need to change?

This is key, and something not picked up on very often. Choice around land use is crucial because many of the equations – whether it is biofuels or rewilding or food – are choices that must be made over the same acreage.

As we look to make single pieces of land do more, one solution lies in the energy transition. Once we ramp up renewable energy production – everything from solar and wind to deep geothermal – we can use marginal or desert land to do all sorts of things, including agriculture and power generation.

And a beautiful aspect of this is much of this land is in very poor places, so some of the world's poorest people should benefit. But we need strategies, policies and regulations to ensure this doesn't become yet another colonial exploitation.





Filling the void

A brief history (and future) of lending disruption



Kevin Lawi
Portfolio Manager, Credit
Investments Group



John Popp
Global Head Credit
Investments Group



Eduardo Rulli
CIO and Head of
UBS Hedge Fund Solutions



Rodrigo Trelles
Co-Head of
O'Connor Capital
Solutions



Baxter Wasson
Capital Solutions,
Portfolio Manager,
O'Connor

While the 2008 global financial crisis greatly sped up the growth of private credit, where is the disruption of bank lending headed next?



NationsBank's USD 65 billion acquisition of BankAmerica Corp in 1998 is still the largest ever banking M&A deal. The merged entity, which took on the name of Bank of America, created a financial juggernaut with assets of almost USD 575 billion that served more than 30 million customers and two million businesses at the time.¹ It immediately became the largest bank in the US at the time by assets and exemplifies a period in which bigger was most definitely better.

Even before then, it was clear that consolidation had taken hold of the US banking industry. In 1994 BankAmerica Corp acquired Continental Illinois for USD 2 billion, which was followed by Chemical Bank's USD 10 billion buyout of Chase Manhattan Corporation, which was finalized in 1996, with the merged company keeping the Chase name. Then came NationsBank's mega deal in 1998, with Bank One Corporation's USD 21 billion acquisition of First Chicago NBD taking place in the same year. Two years after that Chase announced its USD 30 billion takeover of JP Morgan, becoming JP Morgan Chase, now the world's biggest bank, which then in 2004 acquired Bank One – as well as the services of a certain Jamie Dimon.

Deals got bolder, larger and more frequent and, by the time NationsBank made its USD 65 billion blockbuster purchase, M&A deals within the banking sector were already coming thick and fast. According to the Federal Deposit Insurance Corporation, an independent agency of the US government that protects bank depositors, there were almost 14,500 insured commercial banks in the US in 1980. By 2022, that had dropped to just over 4,000.²

The rise of private credit

Just reading through the list is dizzying but, while those flurry of M&A deals filled thousands of newspaper columns and made dealmakers very rich, they also inadvertently helped give birth to a now vibrant and important alternative lending market. Indeed, private credit – in which loans are extended by non-bank lenders to smaller and riskier borrowers – was once a niche corner of the alternative investment landscape.

Today, assets are predicted to jump to a mighty USD 2.8 trillion by 2028, according to data firm Preqin.³

So how did the growth materialize? Well, as banks got bigger during the 1990s and morphed into national banking platforms, they also changed their lending habits – pulling money away from small and mid-sized businesses towards larger corporate borrowers. While capital adequacy guidelines and risk retention rules at the time limited the total volume of non-investment grade corporate credit banks could originate, heads were also turned by the lucrative cross-selling opportunities larger corporate borrowers presented.

Smaller tickets were set aside as bigger clients, who needed multibillion dollar credit issuances, were also more likely to generate ancillary fees from services such as M&A advisory, equity capital markets and treasury management. At the same time, despite both being equally time and labor intensive, it was far more lucrative for banks to originate a USD 100 million loan than a USD 1 million one. The upshot is that smaller and mid-sized clients began to be ignored, creating opportunities for others to step in and tend to those left behind – though at this stage it was certainly not preordained that private capital would take the reins. John Popp, Global Head of UBS Credit Investments Group, points to the gradual repeal of parts of the Glass-Steagall Act during the 1990s as a critical precursor to the banking

M&A wave. Franklin Roosevelt first signed the Glass-Steagall rules into law in 1933 as part of a number of measures adopted during the President's first 100 days to rebuild trust in banks as well as the country's economy in the wake of the Great Depression. The act separated commercial and investment banking and prohibited bankers from using money from deposits to chase high-risk investments.

Its removal meant that, between 1999 and 2024, there were more than 8,000 'business combinations' between commercial and industrial banks, savings and loans institutions, and credit unions, according to the FDIC.⁴ "As Glass-Steagall began to erode through the 1980s and 1990s, bank merger activity accelerated, and banks actively focused on reducing their lending books," says Popp. "Banks did not want to lend as much as they had previously, but they also wanted to generate all the ancillary fees associated with lending."

Popp also draws parallels to the heyday of junk bond trading under Michael Milken, the controversial investment banker who helped usher in a new wave of leveraged buyouts and significantly altered the make-up of corporate America.

While there were clearly other dynamics at play, this period also got market participants used to the concept that, although smaller companies are riskier to finance, doing so is worthwhile because higher yields offset the greater losses. The 'first disintermediation' of banks came in the wake of the junk bond trading boom during the 1980s, says Popp, when banks transitioned from what he calls the "storage business to the moving business".

"A bank can be a lender or an arranger. Traditionally, banks would lend and hold that risk on their balance sheets, often syndicating the risk among other banks. But the development of leveraged finance and junk bonds in the 1980s allowed the role of banks to change to that of an arranger. They shifted into the moving business, but importantly still maintained relationships, earned fees and acted as a central point of contact for borrowers," he says.

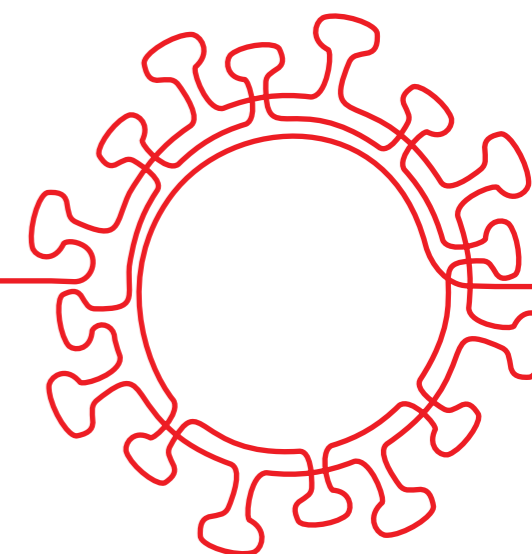
The views expressed herein are as of the date of this article unless otherwise stated. It is believed to be reliable; however, its accuracy cannot be guaranteed. All such information is subject to change without notice.

¹ [Securities & Exchange Commission](#), 9 October 1998

² [The definitive history of private credit](#), Wall Street Fintech, 13 February 2024

³ [Private debt – An expected but uncertain "Golden Moment"?](#), Ernst & Young, data from Preqin, 8 January 2024

⁴ [The definitive history of private credit](#), Wall Street Fintech, 13 February 2024



GFC, COVID and rising rates

Although it was then that the seeds were sowed for today's bustling private credit market, it was not until more than a quarter of a century later, with the collapse of Lehman Brothers and the onset of the global financial crisis (GFC) in 2008, that the asset class truly took off. And the numbers map this trajectory out.

According to figures from Preqin, assets under management within private credit funds totalled just USD 44 billion in 2000. Ten years later this had grown to more than USD 310 billion. Now the market stands at an eye watering USD 1.52 trillion. "The 2008 crisis re-assigned risk appetites and allocations," says Rodrigo Trelles, Co-Head of UBS O'Connor Capital Solutions. "The global financial crisis was critical in terms of the private credit expansion."

The more recent outbreak of COVID and resultant lockdowns in the US as well as Europe and Asia provided the same market dislocations as the 2008 crisis and hence the same subsequent boost to private credit. "Multiple managers (including us) were very busy between March and June of 2020," says Trelles. "The existing bank regulatory framework limits risk-taking for banks and diminishes their ability to provide liquidity in periods of stress. On the other hand, many alternative managers thrive in dislocation events, which create unique opportunities for them to provide liquidity at an attractive price."

Popp agrees: "The GFC drove banks to largely exit lending to small and medium enterprise business. But, like all things, a crisis accelerates trends that were already in place. "Indeed, while the 2008 economic crisis brought with it a litany of problems, it also created opportunities; with the resultant retrenchment among traditional lenders, who had their own balance sheets to repair, creating a lending vacuum that non-bank players gladly filled. The outcome is that the rise of private credit funds, also known as alternative lending, shadow lending and private debt, has been nothing short of breathtaking.

Baxter Wasson, Co-Head of UBS O'Connor Capital Solutions, reiterates the important role the 2008 crisis played: "In the wake of the GFC there was a pullback in lending by banks, and so a supply and demand imbalance emerged across the board, which became very favorable for new lenders. And that's what allowed them to create such strong transactions with such attractive pricing."

Spiking interest rates also played their part, increasing the attractiveness of the floating rate nature of the asset class. The US Federal Reserve has increased rates 11 times since March 2022, which included four 75 basis point jumps, with the headline rate now in the range of 5.25% to 5.5%.

Although the last hike came in July last year, the growing sense is that rates could now stay higher for longer as the Fed continues to try and wrestle inflation down to the central bank's 2% target. Meanwhile, the European Central Bank increased interest rates 10 times since July 2022, though recently cut by 0.25% to leave the headline rate at 4.25%.

The Fed Chair Jerome Powell said at a press conference in Washington in May: "The recent data have clearly not given us greater confidence (that inflation is heading sustainably to 2%) and instead indicate that it's likely to take longer than expected to achieve that confidence."

At the start of the year, financial markets were pricing in five or six Fed rate cuts in 2024. That has now dropped to one or two. Kevin Lawi, Managing Director, UBS Credit Investments Group, believes this "higher for longer" scenario should settle investors' fears that they might have already missed the boat in terms of the attractive returns that have been on offer within private credit.

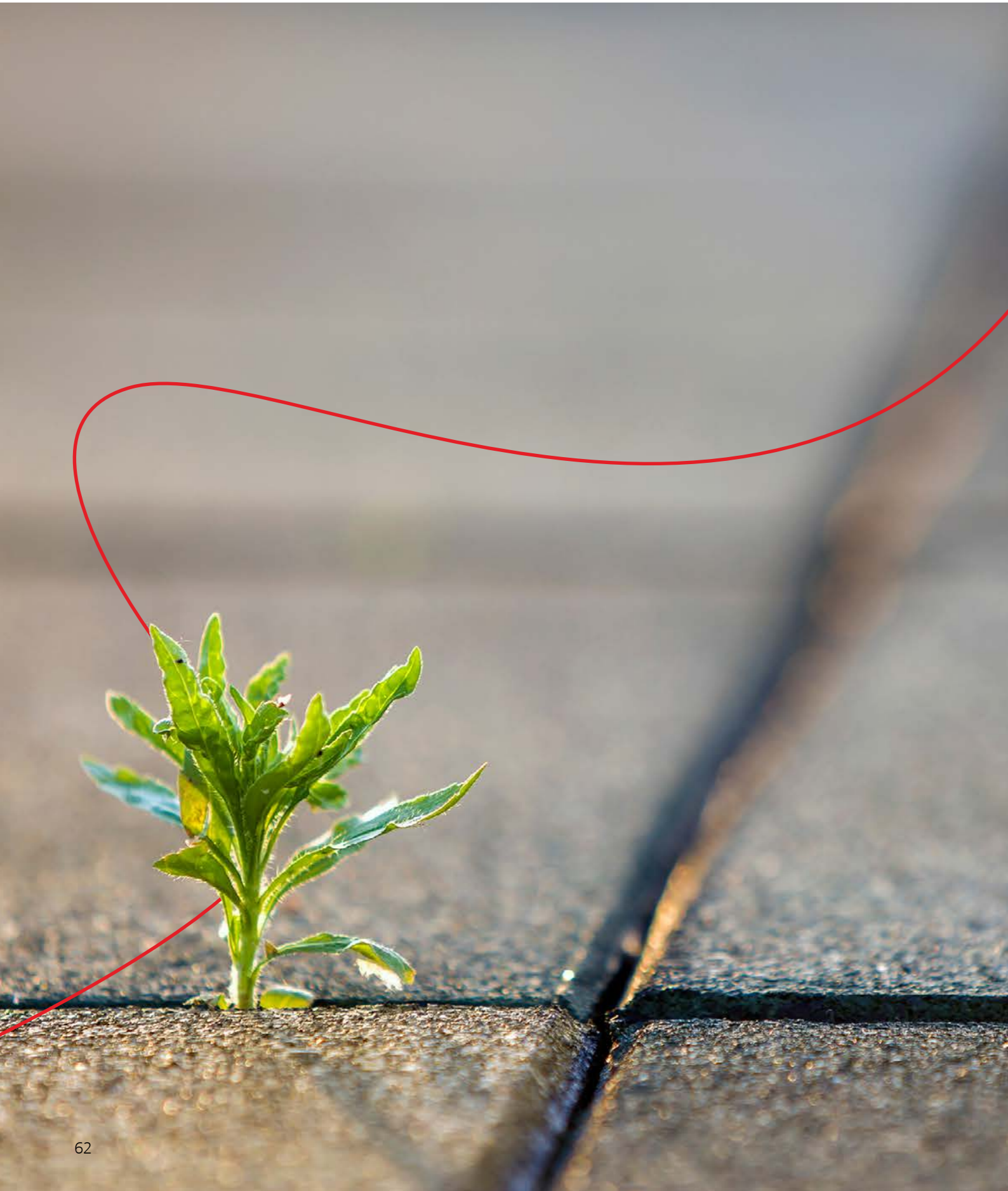
On a historical basis, private credit returns in a zero-rate world, which is much of what we lived through during the last decade, were 7% to 8% unleveraged, according to Lawi. "Today we're at a 300-plus basis point premium to that, and so individual deals may yield over 10%," he says.

Indeed, many factors point to the private debt market swelling at an even faster pace in the future, especially in light of the regional banking crisis in the US last year where Silicon Valley Bank (SVB) experienced a severe bank run and disappeared from the market almost overnight after US regulators were forced to take control of the West Coast lender. It triggered a contagion that eventually spread to Europe.

Edoardo Rulli, Chief Investment Officer, Head of UBS Hedge Fund Solutions, says the "disintermediation" of banks "shows no signs of slowing down" in the wake of SVB's demise, with calls for banks to increase their capital ratios, providing an even greater footing for the private debt market. What the future holds for the asset class is a question for allocators, says Popp, but "the private credit market is already very big and successful".

Upper/middle market direct lending could take the trajectory of the syndicated loan market. And while niche strategies should see growth, the core upper/middle market strategy has already arrived. Rulli adds that there are very good reasons why institutions and, increasingly, retail investors might invest, "whether through retirement accounts or otherwise, money will continue to be allocated to private markets".

The views expressed herein are as of the date of this article unless otherwise stated. It is believed to be reliable; however, its accuracy cannot be guaranteed. All such information is subject to change without notice.



Trelles agrees: "Private credit still has a lot of room to capture market share from other sectors, such as syndicated loans, high yield, asset backed securities and real estate. The key is for institutional investors to get comfortable with the different sub-asset classes within private credit." Rulli puts things more bluntly: "In my view, the growth story will continue."

But what of the growth stories elsewhere? And what does the future of bank-lending disruption look like?

The democratization of alternative investments is one trend that has the potential to radically change the investment landscape. Increasingly, swathes of retail investors find themselves waiting on the sidelines for the right price and entry point. The so-called 'liquid alternative' market was one of the investment industry's early attempts at tapping into the unrealized demand of retail investors for private equity and hedge funds. The demand was strong, but performance issues have somewhat stifled interest, although assets in these vehicles have jumped sharply, growing from almost USD 14 billion in 2003 to nearly USD 250 billion at the end of last year, according to data from financial research firm Morningstar.⁵

The untapped potential is the prize. Historically, alternatives have not been part of the typical retail investor portfolio. However, this is quickly changing as cash-strapped governments across the globe look for ways to make it easier for alternatives and small investors to meet.

According to the consultancy Bain & Co, the opportunity can be captured in two numbers: 50% and 16%. Individual investors hold roughly 50% of the estimated USD 275 trillion to USD 295 trillion of global assets under management. Yet those same investors represent just 16% of AUM held by alternative investment funds. "Retail investors account for half of all wealth globally. No wonder alternative funds have them in their sights," Bain says.⁶

However, the future of alternative lending and the disintermediation of banks will no doubt be governed by the world's regulators. At the end of last year, US regulators cleared the way to increase oversight of asset managers, hedge funds and other non-banks they believe pose risks to the financial system. Meanwhile, in the UK the Bank of England's deputy governor Sarah Breeden recently said regulators need broader oversight of financial firms to prevent a crisis in the vast non-bank sector turning into a credit crunch and wreaking havoc on the economy. "A shift in the willingness of market-based finance to lend to corporates, particularly those perhaps that are highly leveraged, would have significant implications for the real economy," she said.

In closing, Popp says: "The disintermediation of lending from banks to private players represents a significant shift in the financial landscape. Private debt presents a wealth of opportunities for investors and borrowers alike. However, navigating this complex and rapidly evolving market requires careful attention to regulatory changes."

The views expressed herein are as of the date of this article unless otherwise stated. It is believed to be reliable; however, its accuracy cannot be guaranteed. All such information is subject to change without notice.

⁵ [The dangerous democratization of alternatives](#), Caprock, 21 February 2024

⁶ [Why Private Equity Is Targeting Individual Investors](#), Global Private Equity Report, Bain & Co, 27 February 2023



The inflection point

Technology and customization will shape
the future of asset management



Barry Gill
Head of Investments

Asset management stands at a critical juncture. Megatrends like the rise of indexing and alternatives will continue to disrupt and – ultimately – drive the industry forward. However, Barry Gill argues that technology and increasing customization will be defining trends of the next ten years.

Innovate or fall behind. Disrupt or be disrupted. Adapt or die.

To really understand strategic inflection points, you must first realize that they have almost always been gestating for a while. As Hemingway’s character, Mike Campbell, answered when asked how he went bankrupt, “Gradually, then suddenly.”

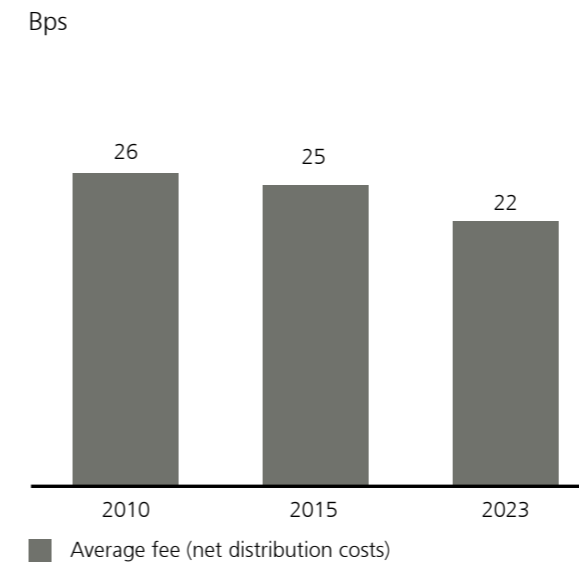
In other words, the threats to our business model are already upon us and we cannot rely on approaches that have worked for us in the past doing so in future. We need to spot the signals that offer inklings to where we are all headed and act accordingly. In my mind, this means fully embracing technology in ways that asset managers have not previously been accustomed to – using it to create efficiencies, scale operations to allow for mass customization, and also enhance the investment process.

Part of this involves taking more notice of what retail clients are doing. They are increasingly complex – with tax, reporting and client service demands that extend far beyond general performance outcomes and the liability matching requirements of defined benefit pension and insurance mandates.

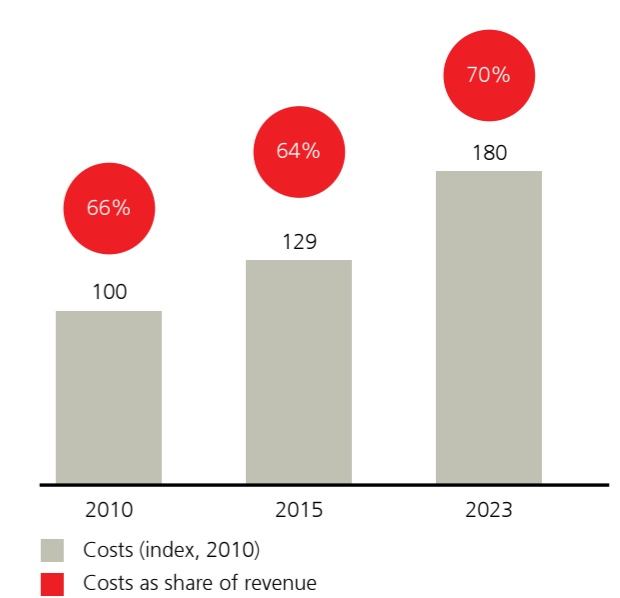
Allied to this, the democratization of alternatives has, been driven by wealth management clients and defined contribution pension pots. The resulting trend towards liquid alternatives reflects an almost insatiable demand from private investors to access the somewhat mythical illiquidity premium.

And with fee compression, rising costs and increasing client demands rippling through the industry, there isn’t long to course correct. While extraordinary market performance used to more than offset this fee pressure on revenue growth, those days have long since passed.

Fee compression is accelerating



Costs are rising



Source: BCG. Global Asset Management Report 2024



Value, not vehicles

We need to recalibrate our attention, and a good place to start is with truly understanding clients' needs.

“People don't want a quarter inch drill, they want a quarter inch hole.”

In a 1960 article entitled 'Marketing Myopia', Theodore Levitt, the late Harvard Business School marketing professor, correctly identified that companies spend too much time thinking about producing goods or services and not enough time thinking about what the customer actually wants. He “encouraged executives to switch from a production orientation to a consumer orientation.”

Levitt's insight still holds. Put a slightly different way, and to paraphrase Peter Drucker, 'clients never buy what you think you sold them'. To understand and unlock what this really means, asset managers need to look at the world the way our clients do. This means recognizing that no one ever wakes up in the morning and says, “I want to buy a mutual fund.” It simply doesn't happen. They want value, not vehicles. They want exposure to themes, asset classes, and differentiated investment strategies; and, increasingly, they want cutting-edge digital client service, customization, and tax management.

Whether you serve all this up to them in a mutual fund, an ETF, or a separately managed account (SMA) is almost irrelevant. The vehicle only matters insofar as it either constrains or enhances your ability to deliver value.

For example, a mutual fund is just a wrapper that solves for fixed cost delivery of investment performance. They have proved to be extremely efficient for asset managers, but have actually catalyzed little to no innovation in terms of delivering value to the end client.

ETFs, on the other hand, have added a new dimension to all parts of the investment value chain. They are essentially a technology offering cost-effective access to specific indexes, themes and investment returns. However, ETFs are to funds what electric vehicles (EVs) are to internal combustion vehicles. To use Clayton Christensen's lexicon, they are 'sustaining innovations' as, while the auto industry is being disrupted, our driving experience really isn't (i.e., EVs are still just a box on four wheels with a steering wheel).

Yet SMAs are genuinely innovative from a client's perspective – which, after all, is the only one that matters. They constitute a genuinely 'disruptive innovation' akin to autonomous driving; a total game-changer. And while yet to take off in Europe and Asia, the US 'pilot' has proven impressive levels of portfolio customization, as well as tax management and client reporting benefits.

If built on the solid foundations of technology and indexing capability, it is possible to scale the platform (and assets) and dramatically drive down the breakeven production point of SMAs.

Forecasts from Cerulli support the above hypothesis, too. ETF assets are projected to grow at 9.5% per annum from 2021–2026 and SMA assets by 7.2% over the same period. Meanwhile, mutual fund assets are predicted to decrease by 2.0% annually.¹



The narrative of alpha (and alternatives)

We are all suckers for a good story – and as markets are driven by people, narratives play out clearly in financial form. The elephant in the room here is the narrative around alpha which, while no longer the be all and end all, is still what many clients pay for and expect. In short, the rise of indexing and in many ways the rise of alternatives are in no small part due to the inability of active managers to reliably generate alpha and price it accordingly.

Indexing and alternatives have stronger stories behind them.

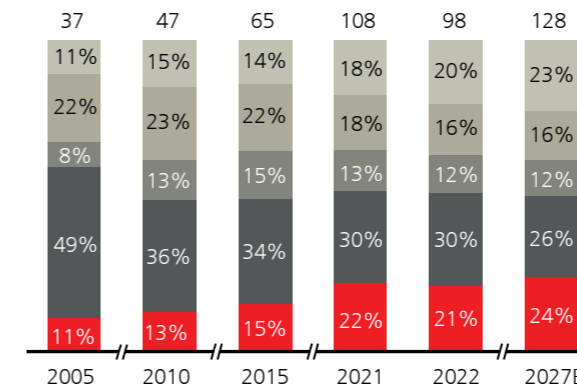
Index funds provide a solution for investors comfortable exchanging alpha, which at times is costly, for more affordable market returns that are 'just good enough'.

By focusing on delivering market returns in the most precise and cost-effective way, indexing has essentially created a reputation for being the most reliable tool for investors. Where active has failed, indexing has stepped in and captured market share in the process.

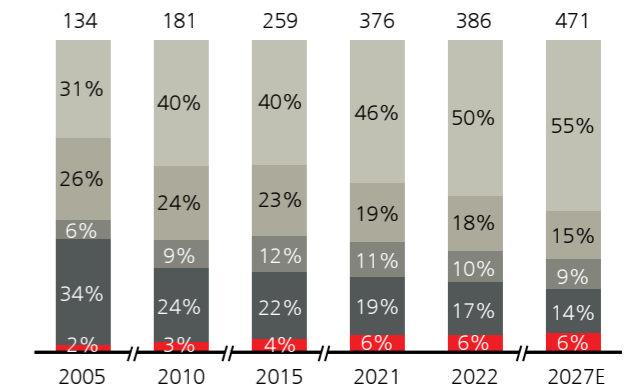
Similarly, the alternatives industry has capitalized on the opportunity by selling a story of highly prized and exclusive alpha. You can see below the impressive job private markets have done, with a near doubling of assets since 2005. More impressively, they now account for over 50% of global asset management revenue, despite representing less than a quarter of the assets.

Alternatives have stolen the narrative on alpha and diversification

Global AuM by product
USD trillion



Global revenue by product
USD billion



Legend:
 ■ Alternative Assets¹ ■ Active Specialists² ■ Solutions, Liability-driven investments, and balanced³
 ■ Active Core⁴ ■ Passive

Source: BCG Global Asset Management Report 2024

¹ Includes hedge funds, private equity, real estate, infrastructure, commodities, private debt, and liquid alternative mutual funds (such as absolute return, long and short, market neutral, and trading oriented). Private equity and hedge fund revenues do not include performance fees

² Includes equity specialties (such as global and emerging-market active equity, developed-market small cap and midcap, and themes) and fixed income specialties (such as emerging markets, high-yield, flexible, and inflation linked)

³ Includes target date, target maturity, liability driven, outsourced chief investment officer, multi asset balanced, and multi asset allocation

⁴ Includes actively managed developed-market large-cap equity, developed-market government and corporate debt, money market, and structured

¹ Cerulli Associates Projects Direct Indexing Assets to Top USD 800 billion by 2026 While Outpacing Growth of ETFs, Mutual Funds, and SMAs.

However (and as with any trade), the more money that piles in, the more the available alpha pool gets dispersed. In private markets, the elusive and hard to value illiquidity premium is undoubtedly lower now that more private capital is chasing fewer opportunities. This is finance 101.

According to BCG, a consultancy, the overall fee share of the AUM pool was broadly flat between 2004 and 2022.¹ Therefore, despite the disruption of indexing, clients are essentially saying they will pay a lot for alpha but only believe it exists in private markets.

Regardless, all active managers – both public and private – must be self-critical of how they price their offerings and ensure their investment approach is structured in a way that not only delivers value efficiently, but also prices each layer of value (including alpha generation) appropriately. And while I see indexing becoming an organizational bedrock, this should not be confused with a dogmatic argument for the efficiency of markets.

We are all tech companies now

Technology is key to underpinning, underwriting, and ultimately creating a successful and future-proofed asset manager. Serving as an efficiency tool, it can improve the implementation portfolio ideas and trades more efficiently. It is working its way up the value chain and already starting to seep into the investment process as investment teams strive to find the crucial edge. Artificial intelligence – the latest edge case of technological progress – can clearly help with the ‘thinking’ activities of research analysis, problem solving and portfolio management and needs to be applied in a way that frees up more blocks of quiet, uninterrupted time. This is when the magic happens in active management.

The transformative potential of technology to automate, simplify, and scale our many operational processes is undeniable. Once a platform is put in place it creates the opportunity for material margin improvement as the asset base scales. Over time, as you attract more and more assets onto a common platform you can operate on a fundamentally different cost paradigm than other companies, thereby delivering a compelling value proposition for clients seeking alpha in low-cost solutions.

Client needs are increasingly varied and an asset manager’s ability to deliver on them will be dependent on a common infrastructure with shared processes capable of delivering on a greater need set. By creating a unified technology infrastructure that underpins this heterogeneity of activities, a flexible business model can be created. From here, the innovation flywheel accelerates and the platform can continuously be redefined to solve for an increasingly complex and unique set of client needs.

Culture eats strategy

Any management thinker worth their salt will tell you that business strategy can be boiled down to two fundamental questions: where to play?, and how to win? To be successful in delivering for clients, asset managers will need to make difficult decisions about where to prioritize and focus.

As Steve Jobs famously said,

“I’m as proud of many of the things we haven’t done as the things we have done. Innovation is saying no to a thousand things.”

This essentially means identifying the true relationship between price, cost and value. If done well, relationships, loyalty and trust can be built with clients. These are the crucial factors that drive the long-term success of any business. However, even if firms manage to answer the above exam questions with flying colors, implementation will be meaningless unless they continue to cultivate a culture capable of radical collaboration and teamwork. Parts of the business will be able to move at the same time, and at the same pace.

Disruption is something all leaders and organizations need to be actively thinking about all the time. Who could take share and what is the best business model and operating structure to deliver value to the end clients? To survive and prosper, asset managers will need to be laser focused on where each marginal dollar of investment is directed. And if it isn’t going towards technology or improving customization, then that could present a problem.



¹ BCG Global Asset Management Report 2024.

Disclaimer

For professional / qualified / institutional clients and US individual investors only.

This document does not replace portfolio and fund-specific materials. Commentary is at a macro or strategy level and is not with reference to any registered or other mutual funds.

Some risks of sustainable investing

Consideration of environmental, social and governance (ESG) factors when selecting or recommending investments may reduce the investment universe for actively-managed strategies. When considering ESG factors, UBS AM may reduce exposure to certain investments or not make certain investments when it would otherwise have done so, which could adversely affect the performance of accounts. This document does not replace portfolio and fund-specific materials. Commentary is at a macro or strategy level and is not with reference to any registered or other mutual fund.

Americas

The views expressed are a general guide to the views of UBS Asset Management as of June 2024. The information contained herein should not be considered a recommendation to purchase or sell securities or any particular strategy or fund. Commentary is at a macro level and is not with reference to any investment strategy, product or fund offered by UBS Asset Management. The information contained herein does not constitute investment research, has not been prepared in line with the requirements of any jurisdiction designed to promote the independence of investment research and is not subject to any prohibition on dealing ahead of the dissemination of investment research. The information and opinions contained in this document have been compiled or arrived at based upon information obtained from sources believed to be reliable and in good faith. All such information and opinions are subject to change without notice. Care has been taken to ensure its accuracy but no responsibility is accepted for any errors or omissions herein. A number of the comments in this document are based on current expectations and are considered "forward-looking statements." Actual future results, however, may prove to be different from expectations. The opinions expressed are a reflection of UBS Asset Management's best judgment at the time this document was compiled, and any obligation to update or alter forward-looking statements as a result of new information, future events or otherwise is disclaimed. Furthermore, these views are not intended to predict or guarantee the future performance of any individual security, asset class or market generally, nor are they intended to predict the future performance of any UBS Asset Management account, portfolio or fund.

EMEA

The information and opinions contained in this document have been compiled or arrived at based upon information obtained from sources believed to be reliable and in good faith, but is not guaranteed as being accurate, nor is it a complete statement or summary of the securities, markets or developments referred to in the document. UBS AG and / or other members of the UBS Group may have a position in and may make a purchase and / or sale of any of the securities or other financial instruments mentioned in this document. Before investing in a product please read the latest prospectus carefully and thoroughly. Units of UBS funds mentioned herein may not be eligible for sale in all jurisdictions or to certain categories of investors and may not be offered, sold or delivered in the United States. The information mentioned herein is not intended to be construed as a solicitation or an offer to buy or sell any securities or related financial instruments. Past performance is not a reliable indicator of future results. The performance shown does not take account of any commissions and costs charged when subscribing to and redeeming units. Commissions and costs have a negative impact on performance. If the currency of a financial product or financial service is different from your reference currency, the return can increase or decrease as a result of currency fluctuations. This information pays no regard to the specific or future investment objectives, financial or tax situation or particular needs of any specific recipient. The details and opinions contained in this

document are provided by UBS without any guarantee or warranty and are for the recipient's personal use and information purposes only. This document may not be reproduced, redistributed or republished for any purpose without the written permission of UBS AG. This document contains statements that constitute "forward-looking statements", including, but not limited to, statements relating to our future business development. While these forward-looking statements represent our judgments and future expectations concerning the development of our business, a number of risks, uncertainties and other important factors could cause actual developments and results to differ materially from our expectations.

UK

Issued in the UK by UBS Asset Management (UK) Ltd. Authorised and regulated by the Financial Conduct Authority.

APAC

This document and its contents have not been reviewed by, delivered to or registered with any regulatory or other relevant authority in APAC. This document is for informational purposes and should not be construed as an offer or invitation to the public, direct or indirect, to buy or sell securities. This document is intended for limited distribution and only to the extent permitted under applicable laws in your jurisdiction. No representations are made with respect to the eligibility of any recipients of this document to acquire interests in securities under the laws of your jurisdiction. Using, copying, redistributing or republishing any part of this document without prior written permission from UBS Asset Management is prohibited. Any statements made regarding investment performance objectives, risk and/or return targets shall not constitute a representation or warranty that such objectives or expectations will be achieved or risks are fully disclosed. The information and opinions contained in this document is based upon information obtained from sources believed to be reliable and in good faith but no responsibility is accepted for any misrepresentation, errors or omissions. All such information and opinions are subject to change without notice. A number of comments in this document are based on current expectations and are considered "forward-looking statements". Actual future results may prove to be different from expectations and any unforeseen risk or event may arise in the future. The opinions expressed are a reflection of UBS Asset Management's judgment at the time this document is compiled and any obligation to update or alter forward-looking statements as a result of new information, future events, or otherwise is disclaimed. You are advised to exercise caution in relation to this document. The information in this document does not constitute advice and does not take into consideration your investment objectives, legal, financial or tax situation or particular needs in any other respect. Investors should be aware that past performance of investment is not necessarily indicative of future performance. Potential for profit is accompanied by possibility of loss. If you are in any doubt about any of the contents of this document, you should obtain independent professional advice.

Australia

This document is intended to provide general information only and has been provided by UBS Asset Management (Australia) Ltd (ABN 31 003 146 290) (AFS Licence No. 222605).

For professional/institutional investors only. This document and its contents have not been reviewed by, delivered to or registered with any regulatory or other relevant authority in any jurisdiction. This document is for informational purposes and should not be construed as an offer or invitation to the public, direct or indirect, to buy or sell securities. This document is intended for limited distribution and only to the extent permitted under applicable laws in any jurisdiction. No representations are made with respect to the eligibility of any recipients of this document to acquire interests in securities under the laws of any jurisdiction.

Using, copying, redistributing or republishing any part of this document without prior written permission from UBS Asset Management is prohibited. Any statements made regarding investment performance objectives, risk and/or return targets shall not constitute a representation or warranty that such objectives or expectations will be achieved or risks are fully disclosed. The information and opinions contained in this document is based upon information obtained from sources believed to be reliable and in good faith but no responsibility is accepted for any misrepresentation, errors or omissions. All such information and opinions are subject to change without notice. A number of comments in this document are based on current expectations and are considered "forward-looking statements". Actual future results may prove to be different from expectations and any unforeseen risk or event may arise in the future. The opinions expressed are a reflection of UBS Asset Management's judgment at the time this document is compiled and any obligation to update or alter forward-looking statements as a result of new information, future events, or otherwise is disclaimed.

You are advised to exercise caution in relation to this document. The information in this document does not constitute advice and does not take into consideration your investment objectives, legal, financial or tax situation or particular needs in any other respect. Investors should be aware that past performance of investment is not necessarily indicative of future performance. Potential for profit is accompanied by possibility of loss. If you are in any doubt about any of the contents of this document, you should obtain independent professional advice.

China

The securities may not be offered or sold directly or indirectly in the People's Republic of China (the "PRC"). Neither this document or information contained or incorporated by reference herein relating to the securities, which have not been and will not be submitted to or approved/verified by or registered with the China Securities Regulatory Commission ("CSRC") or other relevant governmental authorities in the PRC pursuant to relevant laws and regulations, may be supplied to the public in the PRC or used in connection with any offer for the subscription or sale of the Securities in the PRC. The securities may only be offered or sold to the PRC investors that are authorized to engage in the purchase of Securities of the type being offered or sold. PRC investors are responsible for obtaining all relevant government regulatory approvals/licenses, verification and/or registrations themselves, including, but not limited to, any which may be required from the CSRC, the State Administration of Foreign Exchange and/or the China Banking Regulatory Commission, and complying with all relevant PRC regulations, including, but not limited to, all relevant foreign exchange regulations and/or foreign investment regulations.

Hong Kong

This document and its contents have not been reviewed by any regulatory authority in Hong Kong. No person may issue any invitation, advertisement or other document relating to the Interests whether in Hong Kong or elsewhere, which is directed at, or the contents of which are likely to be accessed or read by, the public in Hong Kong (except if permitted to do so under the securities laws of Hong Kong) other than with respect to the Interests which are or are intended to be disposed of only to persons outside Hong Kong or only to "profession-al investors" within the meaning of the Securities and Futures Ordinance (Cap. 571) and the Securities and Futures (Professional Investor) Rules made thereunder.

Japan

This document is for informational purposes only and is not intended as an offer or a solicitation to buy or sell any specific financial products, or to provide any investment advisory/management services.

Korea

The securities may not be offered, sold and delivered directly or indirectly, or offered or sold to any person for re-offering or resale, directly or indirectly, in Korea or to any resident of Korea except pursuant to the applicable laws and regulations of Korea, including the Capital Market and Financial Investment Business Act and the Foreign Exchange Transaction Law of Korea, the presidential decrees and regulations thereunder and any other applicable laws, regulations or rules of Korea. UBS Asset Management has not been registered with the Financial Services Commission of Korea for a public offering in Korea nor has it been registered with the Financial Services Commission for distribution to non-qualified investors in Korea.

Malaysia

This document is sent to you, at your request, merely for information purposes only. No invitation or offer to subscribe or purchase securities is made by UBS Asset Management as the prior approval of the Securities Commission of Malaysia or other regulatory authorities of Malaysia have not been obtained. No prospectus has or will be filed or registered with the Securities Commission of Malaysia.

Singapore

This document has not been registered with the Monetary Authority of Singapore pursuant to the exemption under Section 304 of the SFA. Accordingly, this document may not be circulated or distributed, nor may the Securities be offered or sold, whether directly or indirectly, to any person in Singapore other than (i) to an institutional investor pursuant to Section 304 of the SFA.

Taiwan

This document and its contents have not been reviewed by, delivered to or registered with any regulatory or other relevant authority in the Republic of China (R.O.C.). This document is for informational purposes and should not be construed as an offer or invitation to the public, direct or indirect, to buy or sell securities. This document is intended for limited distribution and only to the extent permitted under applicable laws in the Republic of China (R.O.C.). No representations are made with respect to the eligibility of any recipients of this document to acquire interests in securities under the laws of the Republic of China (R.O.C.). Source for all data and charts (if not indicated otherwise): UBS Asset Management.

© UBS 2024. The key symbol and UBS are among the registered and unregistered trademarks of UBS. All rights reserved.

S-06/24 NAMT-1215

 [ubs.com/am-linkedin](https://www.linkedin.com/company/ubs.com/am-linkedin)

© UBS 2024. All rights reserved.

For global professional / qualified / institutional clients and investors and
US retail clients and investors.

ubs.com/am