FOR FINANCIAL PROFESSIONALS AND INSTITUTIONAL INVESTORS ONLY

Future 2024

FUTURE-PROOFING YOUR ASSET ALLOCATION IN THE AGE OF MEGA TRENDS

ABRIDGED VERSION

Technology's evolutionary revolution: What issues does it raise for investors?

Environmental changes: How are investors dealing with an inexact science?

Market construction: How are investors capitalising on mega trends?

Authored by:

create

BNY MELLON
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Acknowledgements

TWO SECULAR FORCES ARE RESHAPING THE FUTURE OF INVESTING.

One is the rise of artificial intelligence as a new heartland technology capable of disrupting every industry. The other is growing societal concern about global warming, which is set to transform the ecosystem of today's financial markets.

This research report looks at how they are already impacting asset allocation and what actions are being taken by investors worldwide to future-proof their portfolios. The report highlights the key trends, the challenges they give rise to and the actions that have been taken in response so far.

My foremost thanks go to 45 CIOs, investment strategists and portfolio managers among asset owners, asset managers and pension consultants in 16 countries who participated in an extensive programme of structured interviews.

Their insights helped to provide a fresh, down-to-earth slant to the information emerging from an in-depth literature survey that preceded the interviews. Their regular involvement in our work programme over the years has helped to create an impartial research platform that is now widely used in all pension jurisdictions.

My special thanks also go to BNY Mellon Investment Management for sponsoring the publication of this report, without influencing its findings in any way. This arm's-length relationship helped us to build on its own in-house survey of investment analysts.

I am deeply grateful to Asmita Kapadia, Kira Nickerson and Geoff Spiteri for their unstinting support and encouragement throughout the project, and for organising the design and publication of the final report.

Finally, I would like to thank three colleagues at CREATE-Research: Lisa Terrett for managing the project, Anna Godden for assisting with the literature survey and Dr Elizabeth Goodhew for editorial support.

If, after all the help I have received, there are errors or omissions in the report, I am solely responsible.

Amin Rajan
Project Leader
CREATE-Research

METHODOLOGY

This report asks:

- How are artificial intelligence and climate change currently perceived in terms of their future opportunities and risks?
- What specific investment issues do they give rise to and what solutions are being or will be adopted?
- In the process, how are the asset allocation approaches changing and what have the outcomes been so far?
- How will the asset management industry be reshaped as it advances into the age of mega trends?

The method used to answer the questions relied on two strands: a literature survey of about 400 widely respected research studies; bolstered by structured interviews with 45 CIOs, investment strategists and portfolio managers among pension plans, asset managers and pension consultants in 16 countries.

They are Australia, Canada, China, Denmark, Finland, France, Germany, India, Japan, Singapore, South Korea, Sweden, Switzerland, the Netherlands, the UK and the US.

Foreword

The best opportunity is rarely the most obvious one. For investors caught up in the day-to-day maelstrom of constant change, choosing the right path can be difficult. Compounding that challenge are large secular 'supertanker' trends, such as artificial intelligence (AI) and climate change.

The first, AI, has the potential to redefine all aspects of our lives. From the algorithms dictating our social reactions online, to cars that drive themselves; from routine process automation in our workplaces, to the disruption of traditional industry sector boundaries – the current status quo looks set to be swept away by advances in computer thinking.

As with AI, so with climate change. Rising global temperatures are already disrupting long-established weather patterns. In response, as global consensus solidifies around the human-made origins of this change, ever more people and organisations around the world are seeing the need to reduce their carbon footprints. More than ever, we appear to be on the cusp of an era-defining period of transition.

With both of these secular trends, then, there is a wider question. How should we, as investors, respond?

In this report, Professor Amin Rajan attempts to answer this question. To do so, he has undertaken extensive interviews with senior asset allocators across the world and woven their responses into an earlier literature survey along with the views from our analysts and experts within BNY Mellon Investment Management.

The conclusions he comes to are surprising. Already we are witnessing a change in the way markets operate in response to climate change and AI. Understandable, then, that asset management itself is also in the midst of its own profound evolution – not only in the way it goes about its business, but also in the way it defines itself and thinks about its own role in the world.

As that paradigm shift works its way through our industry, it's my belief that our two 'supertanker' trends will be the defining challenge not just for the current generation of asset managers but for generations to come. We hope this report shines a light into the approaching maelstrom and helps its readers formulate their own responses to the coming change.

Matt Oomen
Global head of distribution
BNY Mellon Investment Management

ARTIFICIAL INTELLIGENCE (AI) AND THE ENVIRONMENT ARE TWO GLOBAL MEGA TRENDS FOR THE COMING DECADE.

They have the momentum of a supertanker – powerful, steady and invariant. They could potentially affect all companies, markets and societies. Both of them are pathways of development that interact via complex feedback loops. Both are now acknowledged as secular investment themes, which might not seem material at the outset, but could be hugely consequential in hindsight. They form the centrepiece of this report. Please note this is an executive summary version of the main 40-page report.

1.1 THEME INVESTING IS GAINING TRACTION DESPITE BEING BESET BY UNCERTAINTY

A. Artificial Intelligence

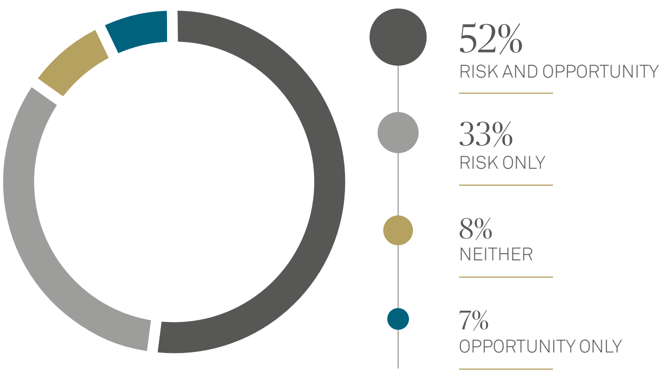
Hailed widely as being used to generate the Fourth Industrial Revolution, or Industry 4.0, AI is recognised as an all-embracing technology capable of permeating almost every activity in the value chain of all industries in a modern economy. The arrival of the electric car is one of its most visible manifestations. The other is the advent of superfast 5G wireless networks that open up a revolutionary opportunity to offer groundbreaking services such as remote surgery, while robots respond precisely to remote instructions with zero latency.

Despite these and other impressive advances, our interview participants' perceptions of AI differed somewhat, taking a forward view. 52% saw it as 'risk and opportunity', while 33% saw it only as 'risk' (Figure 1.1).

Both groups agreed on two points, though: AI is a fact of life and only a matter of time. Where they differed was on what AI will mean for investors in the febrile climate of public opinion, while populism continues to dictate the national agenda in the West.

Those citing it as a 'risk' were concerned about its societal impact on jobs: white collar as well as blue collar.

Figure 1.1
How do you view artificial intelligence from an investment perspective?



Source: CREATE-Research Interviews, 2019

In contrast, those citing 'risk and opportunity' took the view that AI has sparked an evolutionary revolution: its effect will be incremental, not wholesale.

These differing views point to broader challenges associated with AI, as investors factor it into their future asset allocation (Figure 1.2, upper panel). Over the past two decades, the twin rise of globalisation and technology delivered benefits. But on the flip side, such benefits have accrued to many people in their role as consumers, not as workers or citizens.

If anything, many Western nations have experienced a hollowing out of middle-class jobs, rising income inequalities and growing market concentration, contributing to the rise of populism. Its latest manifestation is the Gilets Jaunes (yellow vest) movement in France. Over-reliance on monetary policies in this decade has delayed long-overdue reforms in education, training and industrial policies. The turbo-charged globalisation of the past 25 years is giving way to a new age of beggar-thy-neighbour policies, raising all manner of political risks. Markets struggle to price them in until they actually materialise.

Those taking a more sanguine view, on the other hand, argued that the current rate of AI adoption was far too gradual to cause mass upheaval, if history is any guide. Governments, on their part, are also piloting a new form of social contract – via universal basic income, tax credits and skills training – to reduce inequalities while promoting workforce resilience.

Education and training will be crucial in managing what may well be a generational transition in creating a virtuous cycle of human–machine collaboration that enables humans and AI to combine their strengths and compensate for each other's limitations.

Either way, the rise of AI is seen to create four investment-specific challenges (Figure 1.2, lower panel). First, corporate lifecycles will be getting shorter, as AI creates winners and losers, as shown by Nokia, which went from hero to zero in record time when one of the earliest versions of the iPhone appeared in 2007. Second, sectoral boundaries will be blurring, as AI reconfigures an entire product; as shown by Tesla, which now straddles multiple sectors causing valuation issues.

Third, onshoring of manufacturing activities will diminish the future prospects of emerging economies, as shown by 3D printing, which is shifting the geographical centre of gravity in global supply chains. Finally, AI will be enhancing the intangible value of companies in ways that are hard to measure, as shown by Apple, whose intangible value has fluctuated far beyond its financial strength lately.

The responses to each of the challenges are listed in Figure 1.2.

B. Environment

Companies face existential threats from global warming. They are all-pervasive, affecting the physical, social, geopolitical, technological and economic fabric of our planet.

From an investor perspective, taking a forward view, 57% of our interview participants see climate change as 'risk and opportunity', whereas 36% perceive it as 'risk only' (Figure 1.3). The numbers fundamentally reflect differences in their belief about whether markets are pricing in climate risks currently, or are likely to do so in the near future.

Figure 1.2
Artificial Intelligence: the winner-takes-all dynamic

Broader challenges	Societal responses
◆ Deflationary bias ◆ Populist backlash ◆ Talent shortages ◆ Uneven adoption	◆ Adopt expansionary fiscal policies ◆ Craft a new social contract ◆ Spend more on education & training ◆ Survival of the fittest
Investment challenges	**Investors' responses**
◆ Shorter corporate life cycles ◆ Blurring of sectoral boundaries ◆ Impact of onshoring on EM ◆ Intangible assets hard to value	◆ Mix passives and actives ◆ Focus on idiosyncratic risk ◆ Target emerging innovation leaders ◆ Blend hard and soft metrics

Source: CREATE-Research Interviews, 2019

Those citing 'risk and opportunity' hold that markets are on the cusp of a once-in-a-generation transformation, as their ecosystem is being reshaped by forces with potentially disastrous consequences from global warming. Besides, the whole ethos behind environmental, social and governance (ESG) investing is anchored in the belief that healthy markets require stronger economies and stable societies. Thus, investing has to be about 'doing well' and 'doing good'.

Those interview participants citing 'risk only' accept this analysis except in one crucial respect. They are unsure whether markets are as yet pricing in ESG risks to the point where the risk–return trade-off is real. Yes, good returns have been scored up by ESG funds in this decade. But might they have been influenced by central banks' ultra-loose monetary policies? These have dampened volatility and effectively put a floor under all asset values. The ESG effect is hard to untangle from the policy effect.

In any case, they argue, the reality of both AI and ESG investing will best be judged not by the inflows while markets are artificially inflated, but by their resilience when the inevitable correction comes. ESG investing needs a long track record before it is fully mainstream. Before then, a certain degree of 'greenwashing' as a marketing gimmick is inevitable.

All interviewees agree that although ESG investing may seem simple, it's not easy. Climate change raises two sets of challenges: broader as well as investment specific (Figure 1.4, upper and lower panels respectively).

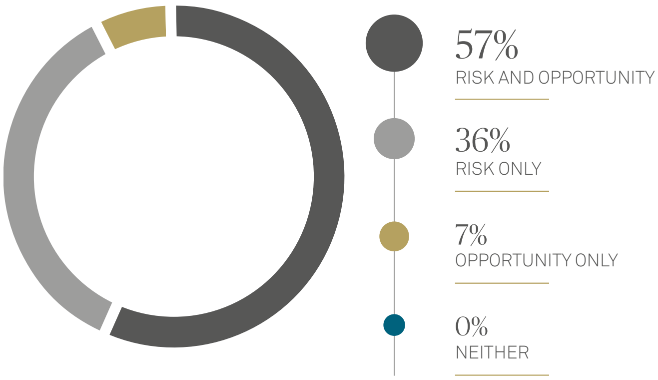
The first set of challenges highlights the lack of a reliable template – with consistent definitions and reliable data sets – that currently precludes the robust statistical modelling of investment portfolios. It also underlines the challenges in establishing a direct line of sight between climate change and investment returns, given the multiplicity of risks involved. Finally, it emphasises that the technology of renewable energy has not yet progressed enough globally to make a big dent in fossil fuel dependency until well into the next decade.

The investment-specific challenges, on the other hand, centre on areas that are unknowable, requiring huge judgement calls about the future.

First, current progress on carbon pricing – envisaged under the Paris Agreement – is so slow that investors are left to guess the point at which draconian governmental action will become inevitable in future.

Second, in that event, investors are also left to figure out what will happen to stranded assets – e.g. coal and oil left in the ground, and coastal real estate exposed to rising sea levels.

Figure 1.3
How do you view climate change from an investment perspective?



Source: CREATE-Research Interviews, 2019

Figure 1.4
Climate change: dealing with an inexact science

Broader challenges	Societal responses
Lack of a robust template Unknowns & unknowables Too many layers of risk Renewable energy is intermittent	Use multiplicity of sources Scenario planning Blend facts with judgement Promote accelerated innovation
Investment challenges	**Investors' responses**
Slow progress on carbon pricing Stranded assets dilemma Engagement issues around fixed income ESG as a risk factor	Factor in draconian measures Have intensive engagement Invest in green bonds Accept ESG as a risk-minimising tool

Source: CREATE-Research Interviews, 2019

They could suffer significant losses in value ahead of their anticipated economic life. For example, there are 1.1 trillion tonnes of proven coal reserves worldwide, equal to 150 years at current rates of production. The choice is whether to mitigate their investment risks now or later in the future at potentially higher costs.

Third, the level of engagement with carbon emitters is more difficult for investors in fixed income than in equities. Such investors are lenders of capital, not owners of shares. They have few ongoing opportunities to engage with companies via voting rights or AGM attendance.

In contrast, in 2018, under shareholder pressure, for example, Shell announced its ambition to halve its carbon footprint by 2050: with a pledge to set firm short-term emission targets from 2020 tied to executive pay. "If we don't meet them, there will be consequences to my salary and others," said the company's CEO Ben van Beurden, as quoted in the Financial Times on December 28, 2018.

Finally, there is strong debate on whether ESG is indeed a risk factor now or will be in the future, as defined by the Fama–French model. That is because any benefits from tilting towards a better-rated ESG portfolio are already captured by other long-established factors such as quality and low variance.

For now, there is consensus that ESG is not yet a unique risk factor in North America but it is in Europe, especially Scandinavia. But it will still remain a key tool for minimising hard-to-model risks – such as climate change, societal upheavals and governance lapses – that delivers a more defensive portfolio in future.

1.2 THE MORPHING OF ASSET ALLOCATION AND THE IMPACT ON ALTERNATIVES

Secular themes such as AI and climate change are becoming a popular way of profiting from the selective bright spots in the global economy. In the last decade, emerging market (EM) assets delivered stellar returns, followed by tech stocks in the current one.

They are fitting into new ways of investing increasingly adopted in the wake of the Lehman crisis in 2008: a defining moment when the traditional asset class-based diversification failed when it was most needed. Asset allocation began to morph as innovations came on-stream. Most of them had been around before the crisis. But their substantive adoption gathered speed after it. They fell into three distinct tiers: asset classes, asset allocation tools and secular themes (Figure 1.5). Here we focus only on those elements directly linked to AI and the environment in each of those tiers separately.

A. Private markets to flourish?

The first tier covers asset classes. As the search for uncorrelated absolute returns intensified after the crisis, the switch to alternatives accelerated in this decade in the seven largest pension markets: rising from 15% in 2007 to 25% in 2017, according to Willis Towers Watson's global pension assets study 2018. Our interview participants' allocation currently varies between 19% and 31%, depending upon the maturity profile of their liabilities. Those with shorter horizons have made smaller allocations. The allocations will likely rise over the next few years to achieve a more robust portfolio.

To exploit AI's risk premia, they will be investing in 'smart buildings' that blend AI and renewable energy. They will also be investing in private debt to support young start-ups.

Finally, they will continue to rely on private equity to capitalise on corporate restructuring driven by AI. This is in the belief that the value of equity investing is now best realised via either early-stage seed finance or private markets, but not public markets.

On the climate change side, they will continue to apply ESG screens to infrastructure, private debt, private equity and real estate – targeting an annual illiquidity premium of between 2% and 5%.

As for other asset classes on that first tier, both themes will rely on high-conviction strategies targeting active equities and bonds, involving 15–30% of their long-only portfolios; depending upon whether they have the necessary skill sets and governance structures.

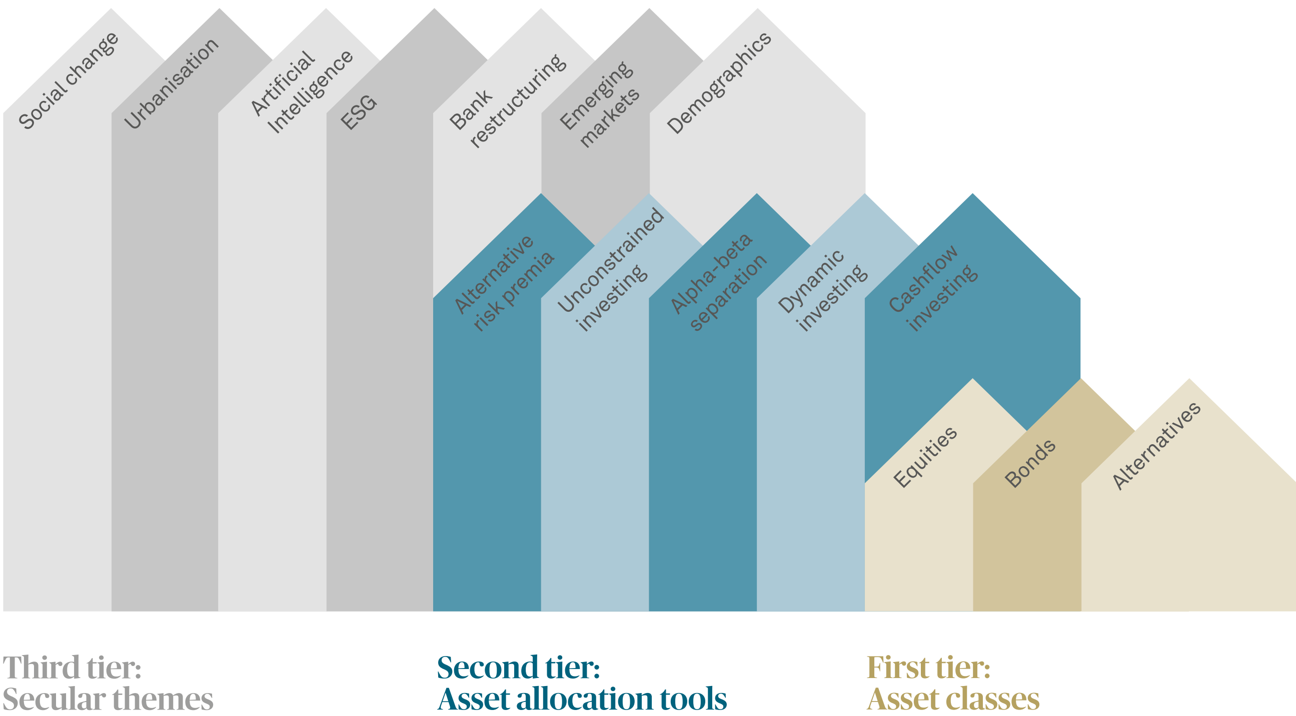
Overall, new future allocations and portfolio rebalancing will favour private markets more than public ones.

B. Alpha–beta separation will continue

Moving on to the second tier, far and away the biggest change associated with AI and climate change has been in two areas in this decade. The first one is a clear separation of alpha and beta. This has been underpinned by headlong growth in passive funds, such as cap-weighted indices, ETFs and smart beta, involving between 20–40% of our interview participants' portfolios. Globally, at least one-third of total pension assets now sit in such vehicles, after doubling in this decade. The share is expected to rise in the next decade.

Cost is one causal factor. Other equally important ones are the challenges identified in Figures 1.2 and 1.4. Beta investing – especially ETFs – allows investors to slice and dice the investment universe and exploit theme-related momentum when it is working.

Figure 1.5
How asset allocation is morphing by blending asset classes, allocation tools and secular themes



Source: CREATE-Research Interviews, 2019

The second area in the second tier that will also grow is alternative risk premia. It is based on the belief that such premia exist because of investors' behavioural biases that make them do things contrary to their best interests, e.g. buy-high/sell-low. These have been targeted via rules-based systematic strategies that rely on traditional risk factors such as quality, value, low variance and momentum. Thus, the peripheral has now gone mainstream as investors look for a third way of investing that combines the best of actives and passives. We return to this point in our third key finding.

C. Theme investing will be a new foundational trend

Finally, moving on to the third tier, it is clear that alongside AI and ESG there are other interrelated secular themes that investors are pursuing now and will likely continue to do so into the next decade.

The reason is that sub-par growth in large countries since the 2008 crisis shows all too clearly that the global economy has not reached the escape velocity that cuts it loose from its deflationary mindset. Worries about secular stagnation persist, despite unprecedented monetary stimulus from central banks. In today's markets, there is a decreased likelihood of small loss events but an increased likelihood of a major loss event.

In order to future-proof their portfolios, therefore, our interview participants are adopting a pragmatic approach to secular themes. It aims either to deepen their existing expertise, or widen it, or both. That means doing old things better, or doing new things, or both. Thus, those participants who were already operating in all three tiers in Figure 1.5 have aimed to deepen their expertise by seeking an information edge. In contrast, those who were previously operating in limited areas have aimed to broaden their expertise by venturing into newer areas in the first two tiers, while also sharpening their information edge. In all cases, asset allocation will move away from a formulaic approach as secular themes gain traction in the next decade. It will also aim to deploy the existing methods better, rather than inventing new ones.

1.3 ACTIVES AND PASSIVES WILL COEXIST LIKE YIN AND YANG

In the preceding analysis, two shifts stand out: from actives to passives and from public to private markets. Both are indicative of the reincarnation of the old core-satellite model.

In it, passives will be raising their share of core assets while actives will be focusing on satellites that dominate either inefficient markets or illiquid markets. However, our interview participants anticipate that the fortunes of actives may well reverse depending on whether central banks continue to unwind their quantitative easing over the next three years.

Historically, both actives and passives have had periods of underperformance only to rebound sharply when the cycle turned.

Passives went through a torrid phase in the 2000s as the majority of active managers delivered excess returns. But the tide turned in their favour in this decade as central bank stimulus artificially inflated equity markets and disconnected them from their underlying value drivers.

In fact, like yin and yang in Chinese philosophy, the two styles are diametric opposites, yet remain interdependent. After all, markets cannot always remain informationally efficient on account of the implicit 'index premium'. It results when companies in an index attract inflows on account of their inclusion based on their size, not their intrinsic value.

Hence, as more money flows into the underlying assets of various indices, the premium rises and markets become more inefficient. This enables active managers to buy cheap stocks and sell overvalued ones. The result is greater efficiency that helps passives. Historically, the pattern has prevailed more often than not. Overvaluation begets undervaluation and vice versa.

On this argument, actives are due to make a comeback before long, as large inflows in passives during this decade have created price distortions. Quite when is hard to predict.

The pendulum may well swing the other way in the next decade, but not too far, since passives are now accepted as a growing part of the core portfolio on account of their low cost and high flexibility in pursuing separate investment themes at different phases of the market cycle. The separation of alpha and beta is structural, especially as fees have become the North Star of the asset industry.

But the perennial question remains: beyond a certain threshold, can the rise of passives be self-defeating by harming markets' price discovery role, using the Laffer curve analogy? It argues that by raising the tax rate beyond a certain point, tax revenue actually shrinks by reducing the incentive to work.

Opinions were divided on this point in our interviews. Some thought that the threshold would be crossed when passives accounted for over 60% of global assets, which is likely before 2030, unless mean reversion kicks in well before then. Others argued that no matter how high the share of passives, so long as there are some active managers in the market, price discovery will always occur.

In the meantime, actives and passives will complement one another in an average pension portfolio and both will attract inflows on an absolute basis, as asset allocation continues to morph in the next decade.

1.4 EMERGING INVESTOR SEGMENTS WILL RESHAPE BUSINESS MODELS IN ASSET MANAGEMENT

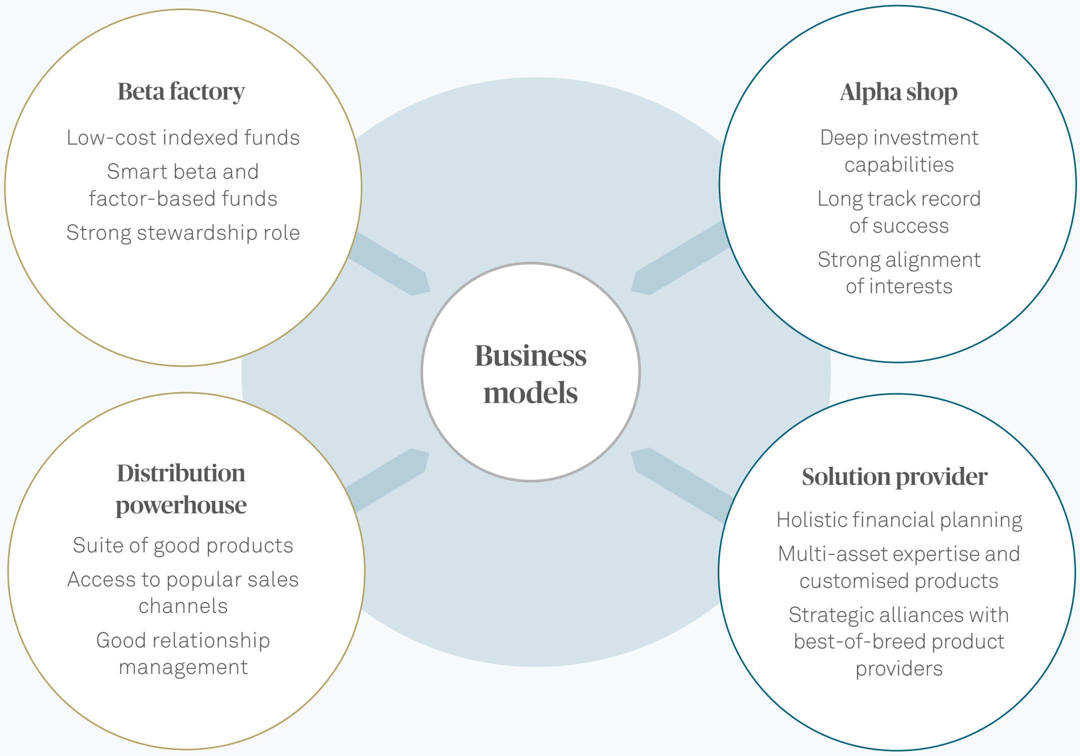
Theme investing is not new. Some trends in investment come and go, whereas others – such as the Internet – end up creating a new playbook, leaving us wondering how we did not identify them as an inflection point at the start. They have appeared material only in hindsight. In investing, the best opportunity is rarely the most obvious one. Investors are thus left to decide how to react to the simultaneous emergence in recent years of many interrelated secular themes identified in Figure 1.5.

These are driving a number of foundational trends in global asset management currently. Under them, retirement planning is increasingly personalised. Millennials and women are emerging as major client segments whom the industry sees as valuing personal tenets as much as financial returns in their investment choice. Retail and wealth channels are becoming dominant sources of new revenue, as defined benefit pension plans advance into their run-off phase. Finally, one-stop-shop financial planning – embracing retirement pension, house buying, health insurance and school fees – is set for take-off with the proliferation of smartphones and 5G networks.

The newly emerging investor segments see a clear distinction between product alpha and solution alpha. One is about beating the markets via stock picking; the other about meeting investors' predefined financial goals and personal values via a holistic package. In the next decade, success in asset management will not only be about meeting these new demands; it will also rest on servicing existing demands more cost effectively.

> “The asset industry is ripe for its biggest makeover in history.”
>
> **An interview quote**

Figure 1.6
Asset industry business models in the 2020s



Source: Boston Consulting Group, Asset Management: Doubling Down On Data, 2016; and CREATE-Research Interviews, 2019

As analysis published by The Boston Consulting Group highlighted, four winning asset management models will likely evolve and dominate the investment landscape in the next decade (Figure 1.6). Going clockwise, as its name implies, alpha shop will have a proven track record over extended periods, based on deep investment expertise and a strong alignment of interests with its clients via meritocratic fees, common investment beliefs and common time horizons – all designed to attract long-term investors.

In contrast, solution providers will have a blend of different capabilities to deliver a personalised package. Blockchain technology will be used extensively to facilitate a broad diversification based on fractional ownership of every asset class: liquid and illiquid. The model envisages alliances with best-of-breed external providers in areas as diverse as insurance, mortgage and software services. It also envisages convergence between ESG investing and solution investing. Under mass personalisation, mutual funds and ETFs will become old-fashioned.

Moving on, distribution powerhouses will favour asset managers with preferential access to end-clients on account of their ownership structure, legacy arrangement or a decent product line-up.

Finally, beta factories will remain dominated by mega indexers. Price will no longer be their main point of competition. They will also be judged on how they shed their image of 'lazy investors' by pursuing their stewardship role more vigorously in line with their clients' ESG aspirations.

Their individual distinctiveness apart, each of these four winning models will share one common feature: high reliance on AI to deliver their value proposition.

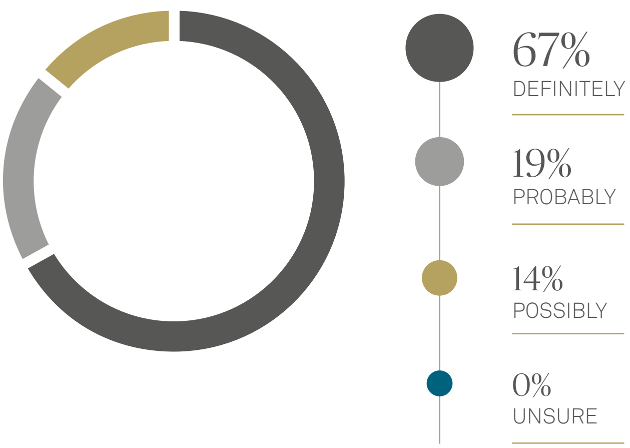
As in other sectors, so in asset management, the winner-takes-all world beckons (Figure 1.7).

AI can do things previously unimaginable with the volume, velocity, variety and veracity of big data. These can deliver an edge via investible information and actionable insights, given the extreme information intensity of all the processes and products in the asset industry.

AI is set to transform the asset industry by taking it to the third phase of its evolution. The first phase marked the craft nature of the industry with a domestic focus, followed by growing automation, as the industry expanded its global footprint in the last decade. The current phase seeks a fundamental transformation that delivers strong operating leverage via improved returns, customised client experience, lower costs, operational excellence and enhanced scalability.

The overriding message from our study is simple: the implied transformation is not a matter of if, but when. Today's asset industry may well be unrecognisable by the end of the next decade in the face of mega trends. Success is about navigating through the fog to create a new future, far removed from old connections and causality.

Figure 1.7
Will the rise of AI create a winner-takes-all dynamic in global asset management?



Source: CREATE-Research Interviews, 2019

"Asset managers' 35% margins are a mirage that has thrived on principal–agency problems and information asymmetry."

An interview quote

CREATE-Research is an independent research boutique specialising in strategic change and the newly emerging asset allocation models in global asset management. It undertakes major research assignments from prominent financial institutions and global companies.

It works closely with senior decision makers in reputable organisations across Europe and the US. Its work is disseminated through high profile reports and events that attract wide attention in the media. Further information can be found at **www.create-research.co.uk**

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