Perspective

THE BREWIN DOLPHIN MAGAZINE SUMMER 2022

Sound investment?

Why investors are buying up the rights to musicians' back catalogues

Inflation protection

Can equities help?

The case for letters

Is there still a place for written correspondence?

Monetising the metaverse

BREWIN DOLPHIN

Welcome to the latest edition of Perspective.
Following the disruption of the past couple of years, any wishes for a calmer 2022 have gone unfulfilled. Persistently high inflation and the related interest rate shock have been extraordinarily challenging for almost all asset classes.

In this regard, on page 10 our Head of Research Davina Rich discusses how our equity selection process can help protect against inflation over the medium to long term. On page 4 our Head of Investment Strategy Ian Quigley reflects on the demanding environment for investors in the year to date, and how our long-term philosophy and portfolio construction help us navigate these difficult periods.

From the Financial Planning side of the house, on page 24 Ian Reidy gives us an excellent overview of the many pitfalls that need to be avoided by families looking to protect their wealth through the generations.
The issue of sustainability is a very important area in the investment world, and on page 20 Alex Nicholson describes how we approach sustainable investing at Brewin Dolphin.

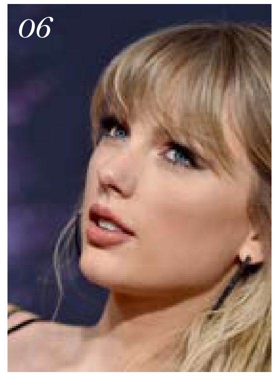
On a similar theme to sustainable investment, on page 16 we take a look at the controversial area of nuclear power and examine the extent to which it may continue to play a crucial role in power generation, as the world gradually transitions away from fossil fuels to greener renewable energy sources. On page 22 well known political journalist Adam Boulton reflects on his career in journalism in a letter to his younger self.

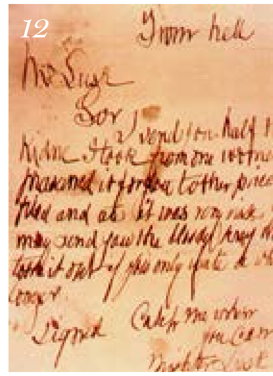
Turning to the arts, on page 6 we discuss the history of monetisation of music back catalogues, and how this mini-industry has evolved over the years. On page 12 we reflect on the place for old-fashioned handwritten letters; do they still have a place in this digital age?

Finally, on page 26 we take an in-depth look at the 'metaverse'. As we hear this term being used ever more frequently, we look at what it actually means, and what it may mean for the future.

I hope you find this edition an engaging read; as always, please get in touch with your questions, opinions, and feedback.

Eddie Clarke, CEO Brewin Dolphin Ireland





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A CHALLENGING YEAR

Ian Quigley takes a look at the investment challenges faced so far this year and why high quality companies are likely to endure over the longer term

Looking back at our view at the start of the year, we commented that we expected 2022 to be a 'bumpier' year and that there was the possibility that an inflation overshoot and a faster pace of interest rate increases could impact markets.

This view was informed by history, looking back at past interest rate cycles and noting that equity markets tend to struggle when interest rates are going up quickly.

In recognising the potential for a more difficult year, we also noted that equity market valuations looked reasonable to us and thus investors should continue to be compensated, for having to 'endure' periods of discomfort, with reasonable returns.

It is fair to say, however, that we did not envisage the severity of the decline across asset classes in the first half of the year. While it was clear that central banks were going to increase the cost of money to attempt to quell inflation, we underestimated the pace of bond yield rises in the first half.

I think it is fair to say that we have seen an interest rate 'shock' this year. The debate around what has caused the persistency of higher inflation is still ongoing and there are multiple contributory factors, including the release of pent-up demand, ongoing supply chain challenges and rising commodity prices, as a result of the war in Ukraine.

For most of last year, central banks communicated their view that inflationary pressures would subside as the economy re-opened, but we have seen a sharp change in tone in recent months.

Although supply chain challenges seem to be improving, central banks essentially said we can't wait any longer and have decided to slow the economy, via interest rate increases, in order to restore a demand/supply imbalance.

In the short term, this is a clear negative for asset prices. Fixed income or bond assets fall in value as bond yields increase, while equity valuations also fall in line with increasing discount rates and concerns over future economic growth.

Ordinarily, when interest rates start increasing it is because the economy is in good health and expanding, such that any impact from rising rates is offset by stronger earnings growth for companies.

The risk now is that the urgency to quell inflation results in a contracting economy, or recession, and earnings decline for a period.

The good news is that, thus far, we have seen earnings growth despite these challenges and, as a result, valuations for equity markets have come down very sharply. Indeed, valuations across markets look quite attractive by historic standards. For example, at the start of the year we noted that the forward earnings yield for the world equity market was c.5.5%; now it is c.7% as at July.

For the first time in years, we can also see the prospect of 'ok' returns from fixed income assets too, with the US ten-year yield now 3% in July, even if this is clearly below prevailing inflation.

This very brief analysis shows us that forward returns have increased, and that we should look forward to a recovery from this year's temporary setback and good returns over the long term.

The challenge in the shorter term for equity markets is around earnings. I think we need to be humble around economic forecasts, as most prove wrong, but it is clear that the economy will continue to slow, and the probability of a recession this year or next has increased materially.

This will clearly put pressure on corporate earnings, with cyclical sectors likely more vulnerable. Now, this has been at least partially priced in, with the US equity market experiencing a 23.5% decline since its high this year.

As ever, history is a useful guide for context. Notably, looking at declines for the US equity market during similar periods of monetary tightening and recession, we see an average decline of 22.4%. We have also seen greater than 20% market declines with no recession, with the most analogous period in the mid-1960s, when the US market experienced a c.22% decline.

However, we should also acknowledge that there have been deeper, more significant setbacks, including the global financial crisis, the aftermath of the tech bubble and 9-11 attacks, the oil crises of the mid-70s and the Covid pandemic, when on average the decline was well over 40%. While we do not envisage a similar crisis today, it is still important to recognise these periods in the analysis and that the median decline for US markets during a recession is c.30%.

"The good news is that, thus far, we have seen earnings growth despite these challenges and, as a result, valuations for equity markets have come down very sharply."

It is also worth noting that investor sentiment is very negative today, with surveys showing investors are as negative as they tend to get outside of major crises. This is usually a pretty good contrary indicator.

Putting this altogether, we have much improved valuations, a market decline that is at least partially discounting a recession and very negative investor sentiment. Historically, future returns have been quite high when we have had such a position, even if there is further downside in the short term.

Thinking about a more negative short-term outcome leads naturally to the question of robustness and resilience of portfolios. This is distinct from price performance, but more a question of the quality of the assets we hold in portfolios.

Higher quality equity assets haven't proven especially helpful thus far in 2022, as valuations have fallen due to rising rates. However, if we do see a more challenging backdrop and a deeper recession, it is likely that companies that have enduring, structural growth and durability will outperform.

This is where our focus is today and, following the declines we have seen in the first half, we are seeing quite attractive value in some of our preferred equities, equity strategies and even fixed income funds.

For example, we see really high quality companies trading on free cash flow yields of 5-6%, we see investment trusts with proven investment managers trading on double digit discounts and we see well managed fixed income strategies yielding 4-6%.

Although the near term may remain challenging, we believe that building portfolios with high quality characteristics, at these valuations, will allow us to weather challenging times, while setting portfolios up for the eventual and inevitable recovery, as we look out longer term.

BACK CATALOGUES

Musicians are increasingly selling their back catalogues to investors, who are betting that the streaming revolution has turned music into a reliable source of revenue. Is it sustainable, asks *Matt Moody*

On his 1988 record 'This Note's For You', Neil Young made clear his feelings on musicians licensing their songs for use in adverts with the lyrics: "Ain't singing for Pepsi / Ain't singing for Coke / I don't sing for nobody / Makes me look like a joke."

Last year, however, Young raised eyebrows by selling 50% of the copyright and income interests to all 1,180 of his songs in a deal worth a reported $150m. The buyer was Hipgnosis, an investment and music management business that aims to grow the value of the songs it owns by placing them in film, TV and adverts.

Young is not the only artist selling up. By the end of 2021, Hipgnosis had grown its catalogue to more than 65,000 songs – valued at around $2.55bn. Its headline-grabbing acquisitions have drawn the attention of many more investors and earned it backers, including the Church of England. But how does the business model work, and is it a sound one?

LIKE RUNNING WATER

Hipgnosis was founded in 2018 by Merck Mercuriadis, who had previously managed artists including Elton John, Beyoncé, and Morrissey, along with co-founder Nile Rodgers of the band Chic.

"Music publishers are stepping up their acquisitions: Sony Music spent $1.4bn on catalogues in a six-month period last year."

It was in the rise of streaming services like Spotify and Apple Music that Mercuriadis spotted an opportunity. Before then, the benchmark for success in the music industry was the platinum record, denoting one million sales – but in the US, for example, that only works out to one person in 360 actually purchasing it. "That immediately tells you that the average person might love music, but not enough to pay for it," he says. In the early years of the 21st century, the rise of internet piracy only exacerbated the problem. Streaming, however, presented an opportunity to "bring the passive consumer to the party", and with them, predictable monthly revenue.

Hipgnosis is not the only fund investing in music. Round Hill Music – as of last September – had spent more than $342m on a collection that includes six Beatles songs, while another UK-based company, One Media IP, has acquired the rights to songs by artists that include Glenn Miller, Cole Porter and Tina Turner.

Music publishers are stepping up their acquisitions too: Sony Music spent $1.4bn on catalogues in a six-month period last year, buying the rights to Bruce Springsteen's music for $500m and Paul Simon's for $250m, while Bob Dylan sold his catalogue to Universal Music Group for around $300m.

The estate of David Bowie, who in 1997 famously issued asset-backed securities known as 'Bowie Bonds' against 25 of his albums, sold his catalogue to Warner Chappell Music for more than $250m in January. Bowie's scheme was initially successful, and led a number of musicians including James Brown and The Isley Brothers to follow in his footsteps. By the mid-2000s, however, conventional music sales had dramatically declined as internet piracy grew more prominent, and Bowie's bonds were downgraded to one level above 'junk' status by the ratings agency Moody's. Bowie, of course, predicted both this decline and the subsequent rise of streaming, telling the *New York Times* in 2002 that music would soon become "like running water".

The reason why songs make an attractive investment, Mercuriadis argues, is because they're such an important part of our emotional tapestry. "Whether you're going through good times or bad, you'll still be listening to your favourite songs," he says. Using a streaming service to do that generates a steady income that is insulated from wider volatility.

Hipgnosis has a "two-pronged approach" to growing the value of its collection, says Mercuriadis. "We're buying catalogues at a rapid pace, and we're aggressively managing those catalogues." There's "significant value" to be realised in buying catalogues from traditional publishers, he says, because these songs are often "mismanaged" by their previous owners, who "don't have the bandwidth to manage them because they've got one member of staff looking after something like 20,000 songs". Careful placement of these songs in film, TV and adverts can increase their value as well as bring in income. "We operate with 500 to 2,000 songs per person in order to have the bandwidth to do more with our catalogue," he told the music industry and tech news blog *Hypebot* in 2020.

"An investment banker can't just knock on the door of an artist and ask to buy the catalogue. It's a much more nuanced process than that."

A MATTER OF TRUST

Mercuriadis' music industry experience is a big selling point for Hipgnosis because artists want to know their music is in safe hands. "He can talk the language," music publishing consultant Alaister Moughan told *Fast Company* last year. "An investment banker can't just knock on the door of an artist and ask to buy the catalogue. It's a much more nuanced process than that. I think Merck, having been a very high-profile artist manager, not only has the relationships to access those catalogues, but also the ability to spin a story that these catalogues are going to be looked after and that he understands the cultural legacy."

Artists can sense when a buyer will offer "little added value other than a cheque", Larry Mestel, founder and CEO of Primary Wave, told *Music Business Worldwide* last year. Primary Wave is a competitor to Hipgnosis that has acquired interests in the catalogues of Whitney Houston for a rumoured $7m; Bob Marley as part of a $50m deal; and Stevie Nicks and others since 2016. "Our financial competitors are buying catalogues and putting them in drawers," he said. "That only hurts an artist's legacy."

After the Neil Young deal, Mercuriadis said there would ›

TOP: MERCK MERCUDIADIS AND NILE RODGERS AT THE LONDON STOCK EXCHANGE

MIDDLE: TAYLOR SWIFT RE-RECORDED HER EARLY BACK CATALOGUE

BOTTOM: ROUNDHILL CEO JOSH GRUSS

"As more artists look to sell their catalogues, the likelihood of a disagreement between them and the new owner of their life's work seems increasingly likely."

"never be a 'Burger of Gold'", referencing Young's response to an (unnamed) company that wanted to feature 'Heart of Gold' on an advert, when he joked that he would've had to change its name to 'Burger of Gold'.

For some artists, maintaining control over the rights to their work is paramount. Under the terms of a deal she signed aged 16, Taylor Swift's former label, Big Machine Records, owned the rights to her first six albums. When these rights were sold – first to the music manager Scooter Braun, who Swift accused of bullying her, and then to the private equity firm Shamrock Holdings – Swift decided to take control of her early oeuvre by re-recording all six albums.

Young made headlines again earlier this year, telling Spotify to remove his music from its platform after accusing it of allowing Joe Rogan to spread misinformation about vaccines on his podcast, which Spotify reportedly paid more than $200m to publish.

However, Young's decision was not his alone to make. Once an artist has sold the rights to their catalogue, Mercuriadis explains, "they can't do anything to adversely affect the income on the catalogue, like take their music off Spotify". Young's music was removed from Spotify, but only because Hipgnosis agreed it was the right thing to do, from both an ethical and financial perspective.

"Neil is an artist that conducts himself with integrity, and that's a huge part of his popularity and the value of his songs," says Mercuriadis. "If you took an anti-war protest song like 'Ohio' and placed it in a movie or TV show with gratuitous violence, his fans are going to smell that something's wrong... their perception of the artist is altered, and suddenly that reliable streaming income is at risk."

Applying the same principle to Young's stand against Spotify, Hipgnosis took down his catalogue, and revenues promptly rose as "a whole new generation who had never heard his music before went looking for it because they agreed with his stance".

THE WINNER TAKES IT ALL

It may have worked out on this occasion, but as more and more artists look to sell their catalogues, the likelihood of a disagreement between them and the new owner of their life's work seems increasingly likely (although the Hipgnosis approach of buying directly from the songwriter or artist is designed to avoid conflict).

Music catalogues saw significant growth as an asset class during the Covid-19 pandemic, as investors looked for stability in a turbulent market, while musicians looked for a cash injection as touring revenue dried up. There were tax implications too: incoming president Joe Biden's tax plan included bringing capital gains tax in line with income tax for any asset sale over $1m – an increase from 20% to 37% – leaving musicians in possession of high-value catalogues with a window to sell that appeared to be fast-closing.

Blackstone's $1bn investment in Hipgnosis in 2021 was seen as a particular watershed moment. "Some investors believe that music has been (and remains) under-valued as an investment, so they're prepared to pay huge sums – 20 or 30 times the value of the yearly income the artist was earning – to secure these catalogues," says Joe Sparrow, editor of the music industry website Music Ally. "The maturation of the streaming market is seen to have made the returns from investments in music much more predictable, which makes it desirable as an asset."

Hipgnosis has a "two-pronged approach" to growing the value of its collection, says Mercuriadis. "We're buying catalogues at a rapid pace, and we're aggressively managing those catalogues." There's "significant value" to be realised, he argues, because traditional publishers are less able to focus on managing individual songs since they own so many. "We operate with 500 to 2,000 songs per person in order to have the bandwidth to do more with our catalogue," Mercuriadis told the music industry and tech news blog *Hypebot* in 2020.

Explaining Round Hill's approach, the company's co-founder and CEO Josh Gruss told Billboard: "If you invest in a songwriter today, chances are that even if they are successful, they are one of ten different writers on a song, so you only get a small piece of the royalties." Rather than "trying to find the guy who is going to write the next Drake hit", the company invests in older, proven material – its $240m purchase of Carlin Music bought copyrights to 100,000 hits from artists including Elvis Presley, James Brown and Billie Holliday. As well as being assets in their own right, these songs "tend to get sampled in pop and hip-hop", opening up another revenue stream.

"If you invest in a songwriter today, chances are that they are one of ten different writers on a song, so you only get a small piece of the royalties."

There are some concerns in the music industry that such an approach to investing could lead to a stratification of music, where funding is directed towards a top tier of 'proven' musicians that emerging artists find it impossible to break into. Then there's the question of whether the continued promotion of already-proven songs could reach a saturation point where they fall out of favour. Perhaps not, says Sparrow: "Listening to ABBA wasn't cool any more by the 1990s, but ABBA Gold was still one of the top selling records of that decade, because people still had – and still have – an emotional and nostalgic connection to those songs."

Could this be the beginning of an era of booming profits for investors and artists alike – or will those who've bought in get caught when the music stops?

Photography: Alamy, Getty

CAN EQUITIES PROVIDE PROTECTION AGAINST INFLATION?

Davina Rich, Brewin Dolphin's Head of Research, explains how, with inflation rising faster than it has in decades, we strive to deliver returns for clients that will outpace it over the long term

An important component of Brewin Dolphin's investment philosophy is to generate returns for clients in real terms over the longer term – in other words, returns that are above the level of inflation. After many years of benign inflation, we are all feeling the effects of higher costs as petrol prices, utility bills and food bills escalate. Goods inflation (such as food, clothes, and energy) has been apparent for a while, but we have more recently felt inflationary effects within services (such as transport and delivery providers, building contractors and leisure facilitators) as wage inflation has surfaced.

Some asset classes are known to provide protection against inflation, such as commodities, property, infrastructure, gold and inflation-linked bonds. Equities are less clear cut; some companies could face challenging times, especially if their cost base is inflated and they are not able to pass on this cost to customers. Many equities can protect against inflation, but it is important to separate the wheat from the chaff in such a challenging environment.

"After many years of benign inflation, we are all feeling the effects of higher costs as petrol prices, utility bills and the weekly food bill escalate."

Our equity selection philosophy is completely aligned with our core investment principle of real returns over the long term; we are investing in assets that themselves grow their wealth above the rate of inflation. Our equity selection team sources the most compelling investment opportunities, which we call Individual Equities. The process involves detailed fundamental analysis of the company and its positioning within its industry to ensure it has the characteristics to be resilient regardless of exogenous factors, such as inflation.

There are several company traits that help to protect against the potential adverse effects of a high inflationary environment: high gross margin, pricing power, operating cost advantage and favourable industry capital dynamics.

HIGH GROSS MARGIN

Gross margin quantifies the profitability of a company after the costs of selling the goods are deducted. The magnitude depends on a company's ability to convince customers to pay a significant premium to the input costs, typically enabled by a competitive advantage such as a strong brand. High gross margins help by providing a margin of safety that can absorb input price increases. They are often found in companies that provide luxury and branded goods such as LVMH, Diageo and Nike.

The ten-year average gross margin of the Individual Equities is double the level of the FTSE 100. Conversely, companies in cyclical industries that compete on a global basis – such as car manufacturing, cruise liner, or steel production – tend to have thin gross margins that vary across the economic cycle.

PRICING POWER

Pricing power refers to a company's ability to raise prices without reducing demand for its products. The more pricing power a business has, the easier it is to raise prices. Pricing power is generally determined by how unique or essential a product is in the eyes of customers, or the unique value it provides to customers relative to competitors. The companies mentioned in the previous section all exhibit pricing fluidity as evidenced by the long-term consistency of their gross margins. This characteristic can also be found among companies that provide mission critical services with high customer captivity or those with technological advantages. A company such as Amphenol, which provides low-cost but vital electronic components, should be able to add a few cents to the cost of its connectors without impacting demand. In contrast, companies operating within highly competitive industries offering commoditised goods and services struggle to increase prices without impacting their volumes.

OPERATING COST ADVANTAGE

Consistent with the first point, companies with an operating cost advantage, perhaps driven by economies of scale or a process advantage, can provide capital preservation. Such companies can absorb macroeconomic shocks of various guises better than competitors, which allows them to emerge stronger. Microsoft is an obvious example of this, while Nestlé is positioned well with dominant market shares across many categories, as well as through its distribution network.

INDUSTRY CAPITAL DYNAMICS

Elsewhere, it is beneficial to own companies within industries that have favourable capital supply versus demand dynamics, particularly when investing in cyclical industries. Favourable supply dynamics come about following a period of underinvestment or supply reduction due to consolidation. This has been well documented in the semi-conductor sector, which has created some attractive investment opportunities, and we are all feeling the inflationary effect of this within the energy sector. Conversely, a lot of capital has been directed to areas such as food delivery, which does not bode well for future returns.

LONG-TERM QUALITY

Companies that can generate cashflows above inflation, and reinvest these cashflows at attractive real rates, will compound returns over time and generate strong returns for investors.

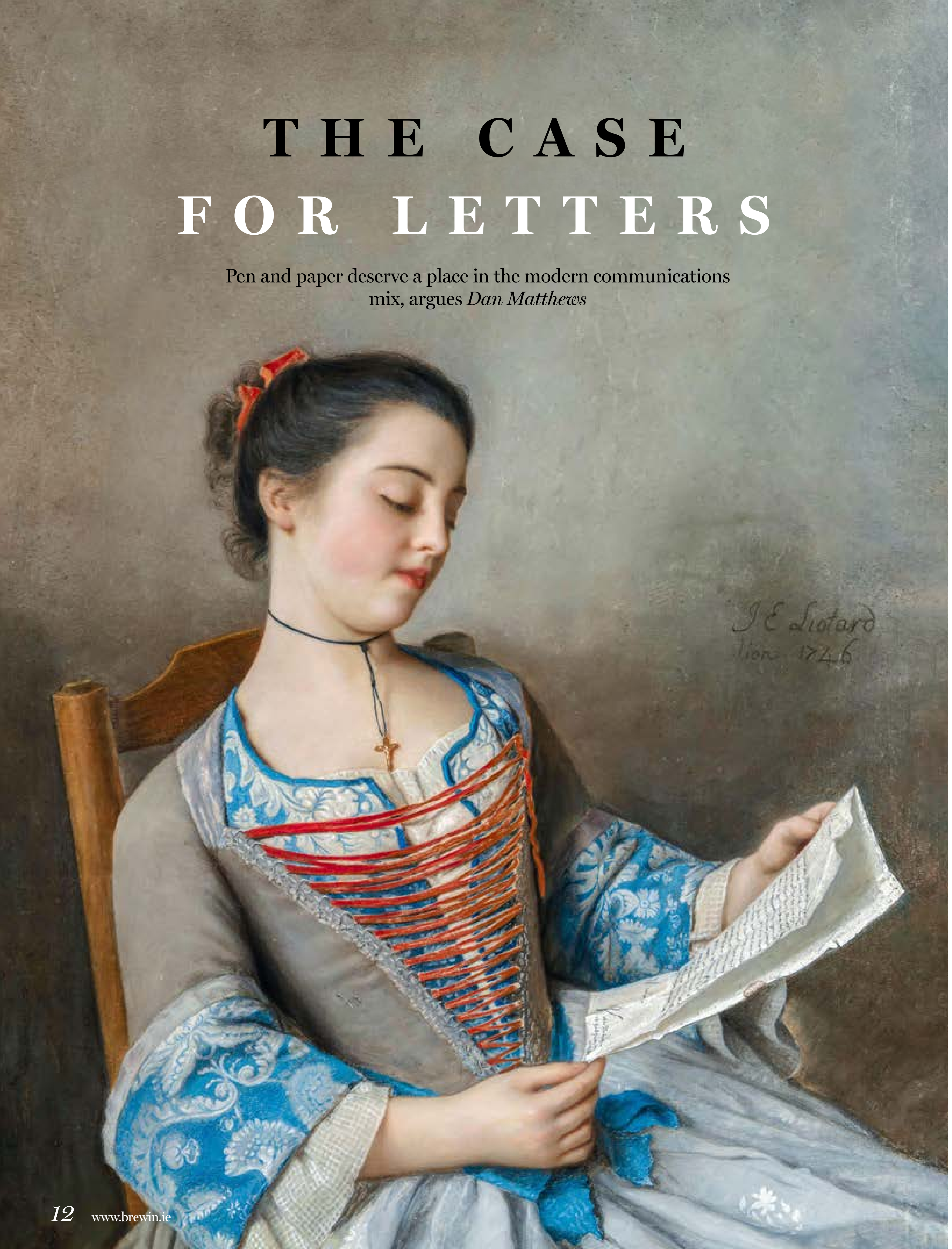
LOUIS VUITTON FLAGSHIP STORE ON NEW BOND STREET, LONDON

"Many equities can protect against inflation, but it's important to separate the wheat from the chaff in such a challenging environment."

Over the long term we are confident that these will be the winners. Bernstein produced some data supporting this theory; it shows that companies with 'quality' characteristics have not only generated higher annualised returns than the global equity market since 1986, but also have fallen less during the last three periods of crisis (2000 tech crash, global financial crisis, and coronavirus pandemic).

However, through the cycle, there will be swings in valuations depending on the value placed on these cashflows. When interest rates are low, the long tail of future cashflows is highly rewarded. In contrast and more relevantly, in an environment of rising inflation, when interest rates are expected to rise to combat it, proportionally more value is placed on cashflows that are generated in the short term (short-duration assets) which will benefit companies that pay high dividends. These are often more cyclical and commoditised companies. Conversely, valuations of the 'quality' companies where we are assigning value for cashflows further in the future, can get compressed. At the extreme this explains why speculative technology companies, where significant value is placed in the distant future, have sold off so dramatically over the last few months. We do not have stocks that meet this profile on the Individual Equity List.

There are several tools in the investment manager's toolkit to protect assets from inflation; it will be important over the coming months to use them in combination for the best possible client outcomes. We are confident, and bond yields also indicate, that inflation will come back to manageable levels over the coming year but in such an uncertain world it is inevitable that volatility will continue, and a well-diversified portfolio will be essential.



THE CASE FOR LETTERS

Pen and paper deserve a place in the modern communications mix, argues *Dan Matthews*

Picture the scenario: the post arrives and, in among the litter of circulars, bills and leaflets, there's a letter. On the front, your name and address are crafted in a cultured, articulate hand. The paper is luxurious and weighty; there's an exotic stamp and postmark.

You're intrigued, moved by a sense of mystery and adventure, the promise of something important of which you are the singular focus. Someone has taken the time and effort to write to you, not a hasty WhatsApp, text, or email, but a message in ink.

It would make a decent opening scene to a film; such is the power – and rarity – of the handwritten communiqué. Letters are treasured, kept in boxes and bureaus and, often, read and reread, held onto for decades as keepsakes, even heirlooms, proof of friendships, loves and even of history itself.

When the author Shaun Usher published *Letters of Note*, a compendium of correspondence ranging from the heartfelt farewell of a trapped and doomed miner to Queen Elizabeth II's recipe for drop scones sent to President Eisenhower, it proved an overnight success, prompting a sequel and a popular series of live readings.

Did you know that Gandhi wrote to Hitler just before World War II and again during the conflict, urging an end to the war? Or that the first recorded use of the abbreviation 'OMG' occurred, not on Twitter, but in a letter from John Fisher, 1st Baron Fisher that is, to Winston Churchill in 1917?

Letters provide insight into personalities and motivations, from a young Tom Hanks' appeal to a famous Hollywood movie producer for a part in a film to Jack the Ripper's infamous message to Whitechapel Police 'From Hell'.

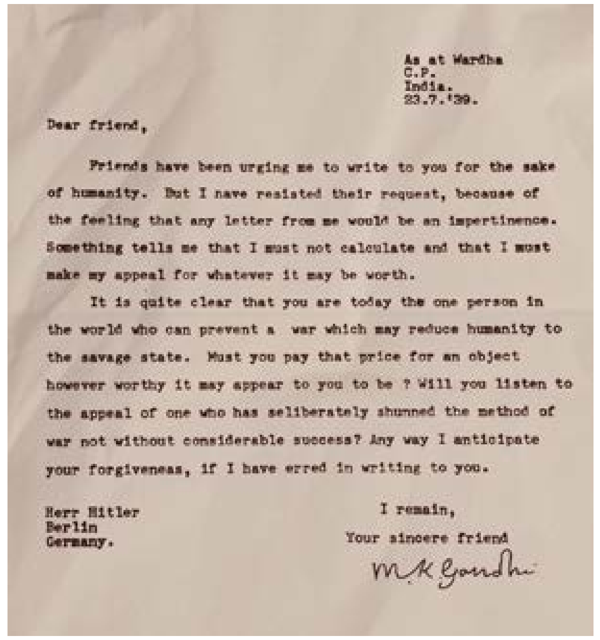
They are primary evidence of evolving relationships, some of which changed the world, of momentous events and closely guarded secrets. It's a shame, then, that so few are written these days.

A DISAPPEARING ARTFORM?

The obvious reason for the decline of letters is that digital communication is easy and instant – and that's not a bad thing in itself, according to Jennifer Bishop, founder of stationary studio London Letters and a letter writing society with around 450 members.

"It's quicker to write a WhatsApp and often you need an instant reply. We're not Victorians with only one option, so there is absolutely a place for digital." But, she adds, there's only so much you can convey online. "There's something about

> *"There's something about people's handwriting that's unique, the way they arrange the message, even if it's just a few words on a thank-you note."*



As at Wardha
C.P.
India.
23.7.'39.

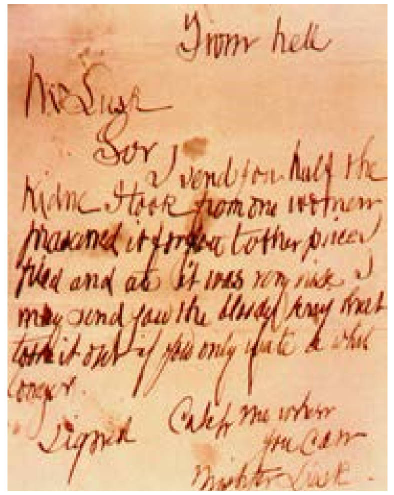
Dear friend,

Friends have been urging me to write to you for the sake of humanity. But I have resisted their request, because of the feeling that any letter from me would be an impertinence. Something tells me that I must not calculate and that I must make my appeal for whatever it may be worth.

It is quite clear that you are today the one person in the world who can prevent a war which may reduce humanity to the savage state. Must you pay that price for an object however worthy it may appear to you to be ? Will you listen to the appeal of one who has deliberately shunned the method of war not without considerable success? Any way I anticipate your forgiveness, if I have erred in writing to you.

Herr Hitler
Berlin
Germany.

I remain,
Your sincere friend
M K Gandhi



From hell

Mr Lusk

Sor I send you half the Kidne I took from one women prasarved it for you tother piece I fried and ate it was very nise I may send you the bloody knif that took it out if you only wate a whil longer

signed Catch me when you can Mishter Lusk

TOP: GANDHI'S LETTER TO HITLER URGING AN END TO THE WAR

MIDDLE: JACK THE RIPPER'S INFAMOUS 'FROM HELL' LETTER TO WHITECHAPEL POLICE

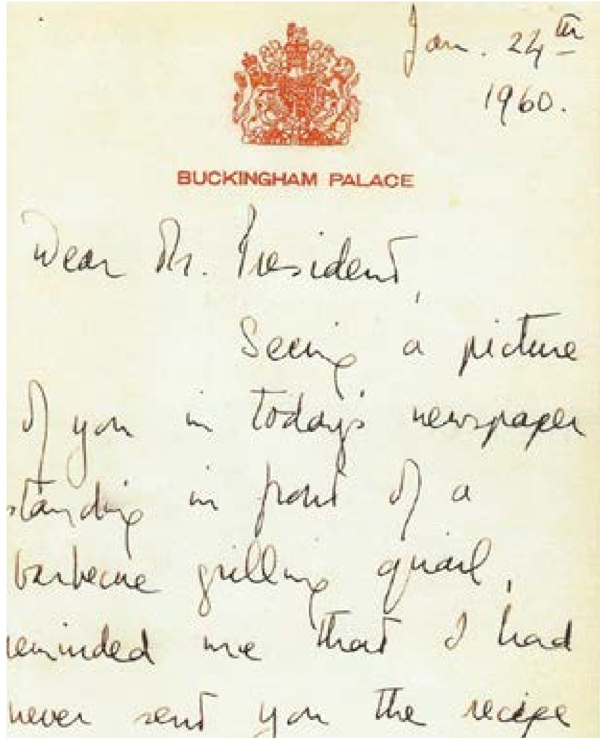
OPPOSITE: *PORTRAIT OF MLLE LAVERGNE* BY JEAN-ÉTIENNE LIOTARD

people's handwriting that's unique, the way they arrange the message, even if it's just a few words on a thank-you note.

"Tone is harder to communicate in emails. Often, I read them in a way that probably wasn't intended; it rarely happens with a letter because you get a better impression of how people have flowed the sentence, brought it together with punctuation, perhaps with little annotations. You can recreate exactly what you want to convey."

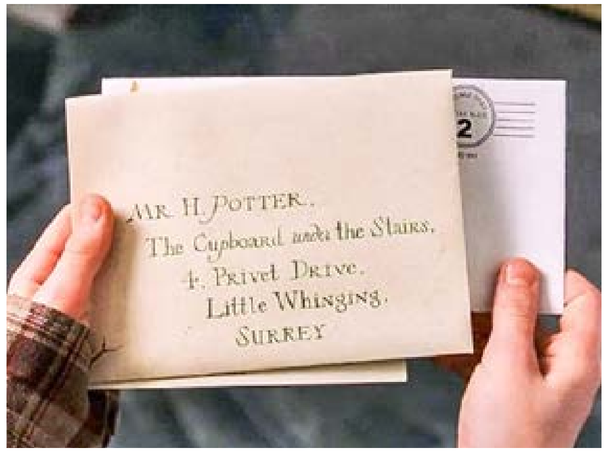
Dinah Johnson, founder of the Handwritten Letter Appreciation Society with members in 30 countries, is also a fan of digital communication, but agrees it should sit alongside paper and pen, not replace it.

"Letter writing is a different mindset to digital communication and restores a bit of one-to-one-ness that I think we are missing. Social media can be entertaining and informative, but it can also turn our friends into an ›


Jan. 24th 1960.

BUCKINGHAM PALACE

Dear Mr. President,
Seeing a picture
f you in today's newspaper
tanding in front of a
barbecue grilling quail,
eminded me that I had
never sent you the recipe



TOP: THE QUEEN'S LETTER TO PRESIDENT EISENHOWER, INCLUDING HER RECIPE FOR DROPPED SCONES

MIDDLE: THE LETTER OF ACCEPTANCE TO HOGWARTS THAT HARRY POTTER RECEIVES IN *HARRY POTTER AND THE PHILOSOPHER'S STONE*

RIGHT: A SCENE FROM 2004 DRAMA *THE NOTEBOOK*, WHICH DEPICTS TWO LOVERS SEPARATED BY WORLD WAR II WHO WRITE LETTERS TO EACH OTHER EVERY DAY OF THE YEAR

Photography: Warner Bothers, New Line Cinema

audience. I began the society to bring back a bit of intimacy into our lives."

THE TONIC FOR A FRANTIC WORLD

It could be argued we are living through a global mental health crisis, brought on not least by the speed of everything. Innovations that should have given us space have served instead to concertina life by encouraging us to pack more in.

It's why you heard people talk of the Covid-19 pandemic's silver lining: a blessed deceleration and simplification of life. Bishop thinks letter writing could be a way for people to retain some of that slowness as the economy accelerates again.

"It's a very conscious activity. You can come home, make a cup of tea or pour a glass of wine, and spend a quiet ten minutes just writing something down. You're engaged with it wholly because you would never do it half-heartedly."

For many people, another aspect of the pandemic was loneliness, a problem endured by millions in and out of lockdown. Again, the writing and receiving of letters could be part of the solution, because of the special bond it creates.

"A letter is tangible, detected by all your senses, and conveys a deliberate intent to bridge together the sender and recipient," says Karen Preston, founder of Letter Seals, a Seattle-based business offering wax stamps, sealing waxes and various letter-writing accessories.

She argues this bond endures long after people pass on. "I still have letters from my grandmother that I can detect her scent on. Seeing her handwriting and feeling the indentations on the page from her pen connect me to her hand."

WHAT NEXT FOR CORRESPONDENCE?

Letters are not just for the nostalgic. Marketers talk about cutting through online noise with search optimisation, 'stories', and clever digital tricks, but send a letter to a sales lead and you can just about guarantee it'll be read.

And it's not as if paper communication is just for boomers and above. Young people have the same emotional response as adults, because they see letter-writing in everything from the Harry Potter films to period drama *Bridgerton* to romantic drama *The Notebook*.

"The decline is not from the lack of want; I think it is the lack of exposure and experience," says Preston. "I have known young adults introduced to the idea of pen pals for the first time, and the idea is met with a great deal of excitement and fervour to explore."

"There must be something quite magical about it," adds Bishop. "Also surreal, novel and quaint, because children are used to iPhones, so I think it definitely appeals to a younger audience."

The future of letters is not yet written but, even if it remains a niche pastime enjoyed by only a few wordsmiths, they will experience benefits which no new technology can emulate.

THE NUCLEAR REACTOR ON UNIT 1 AT HINKLEY POINT C NUCLEAR POWER STATION NEAR BRIDGWATER, SOMERSET

THE NUCLEAR OPTION

Amid concerns around climate change and disruptions to Russian gas supplies to Europe, a few governments are pushing for more nuclear reactors. *Dominic Dudley* asks if the costs add up and whether the new plants will be able to produce power soon enough.

The changing pattern of electricity production is being fuelled not just by geopolitical concerns, but also by the race for countries to hit their net zero carbon emissions targets. In a meeting with nuclear industry executives across the Irish sea on 21 March, UK prime minister Boris Johnson said nuclear should be "a major part of the UK's future energy system as a clean, reliable and safe energy source," according to a government statement.

Other governments are taking similar steps. Across the Channel in Belgium, the government announced on 18 March it would keep its nuclear plants running for an extra decade, to 2035. "This extension will strengthen our country's independence from fossil fuels in a turbulent geopolitical environment," said prime minister Alexander De Croo.

At a time when there are question marks over Russian gas supplies to Europe, nuclear power appears an obvious option for many. All the more so given it is not reliant on the weather so can provide power around the clock, unlike wind or solar energy. However, it is expensive and, coupled with the risks of radioactive incidents, not to mention that much of the uranium needed for plants is in Russia, many countries remain unconvinced.

In Germany, the country has so far resisted calls to restart its mothballed nuclear power stations that it closed in the aftermath of the 2011 Fukushima nuclear disaster in Japan.

A SHORT HISTORY OF NUCLEAR POWER

Nuclear energy is released by splitting the atoms of elements such as uranium, which releases large amounts of radiation and energy in the form of heat. It was first harnessed in the 1940s. During the Second World War the focus was on producing bombs but, in the post-war years, attention turned to power generation.

The first commercial nuclear power stations started up in the 1950s and momentum picked up in the 1960s. Rival approaches were pursued by the US and USSR, as well as France, the UK, Canada, and others but, over time, a few technologies have come to dominate. According to the World Nuclear Association, today around 70% of the world's nuclear electricity generation capacity comes from

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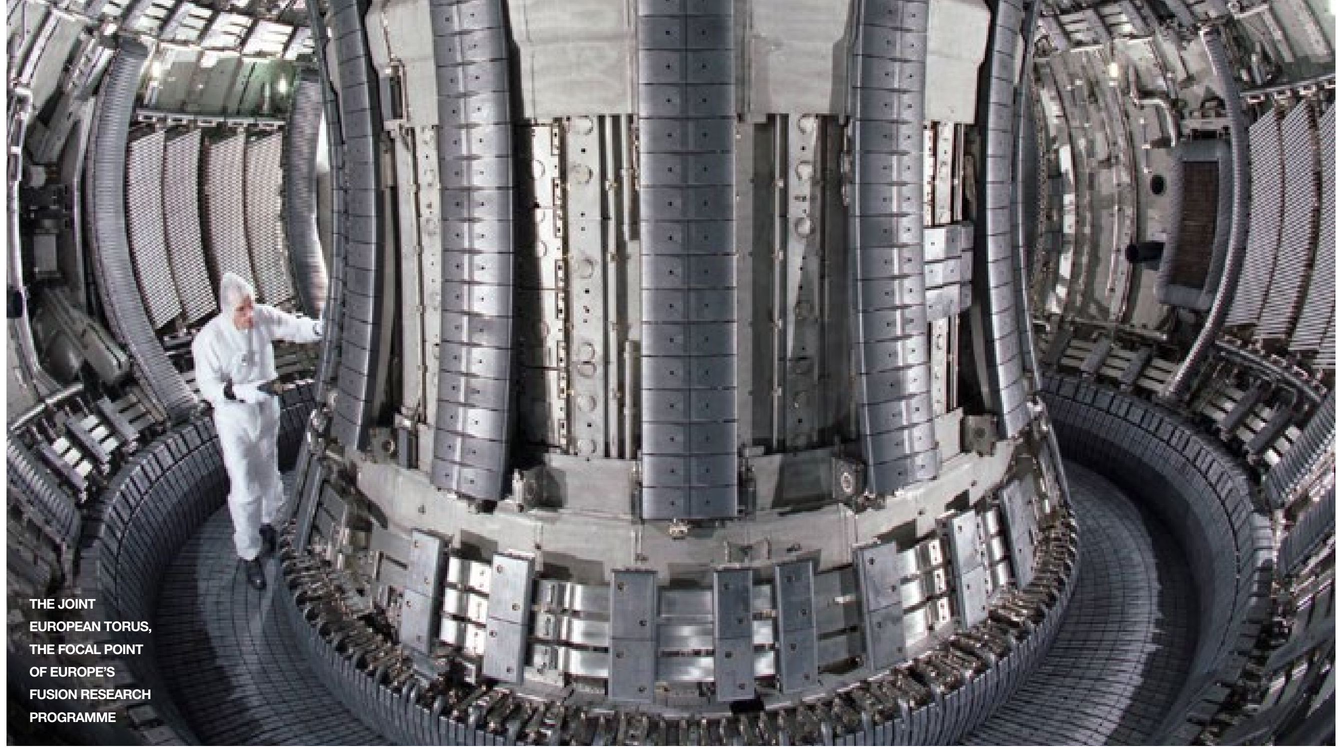


THE JOINT EUROPEAN TORUS, THE FOCAL POINT OF EUROPE'S FUSION RESEARCH PROGRAMME

› pressurised water reactors, while 15% uses boiling water reactors and a further 11% uses pressurised heavy water reactors.

There are around 440 reactors in 33 countries today, with a combined capacity of about 390GW – equivalent to about 10% of total world electricity production.

The popularity of nuclear energy has waxed and waned over the years. The initial post-war enthusiasm had dried by up the late 1970s and few reactors were commissioned from then until the turn of the century. More recently there has been something of a revival, driven by concerns around energy security and climate change. According to the International Energy Agency (IEA), nearly 60GW of nuclear power capacity was under construction globally at the start of 2021 and a further 100GW of planned projects have not yet broken ground.

"The only way for new nuclear power to move ahead is via vast public subsidies."

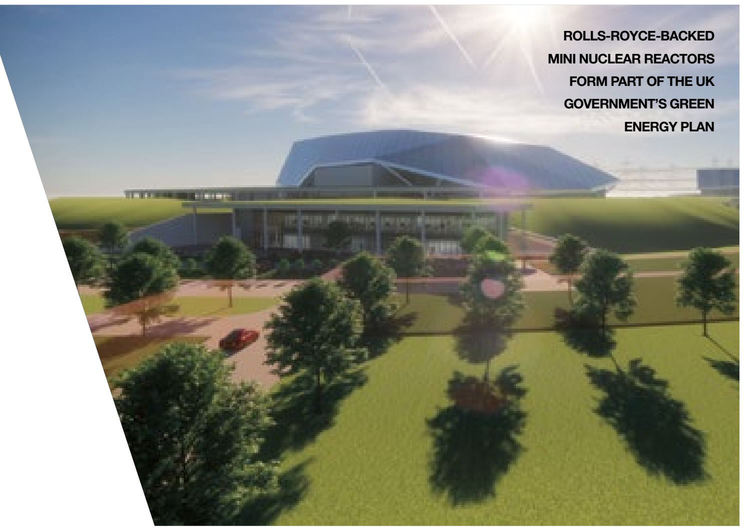
However, many existing plants are nearing their retirement age and the IEA estimates that, based on governments' current energy policies, nuclear power's share of global electricity generation could fall from 10% in 2020 to 8% by 2050. The reason why nuclear energy has struggled to expand its market share tends to come down to questions of speed, safety, and cost.

"It's too slow to develop, too costly and renewables are a safer bet," says Paul Dorfman, founder of the Nuclear Consulting Group, an anti-nuclear think tank. "The market move to renewables is ramping up and the only way for new nuclear power to move ahead is via vast public subsidies."

Indeed, the UK government has committed to provide up to £1.7bn of direct government funding to enable one nuclear project to get to a final investment decision by 2024, although it says progress is dependent on "value for money" tests and other approvals.

The cost of keeping nuclear plants running is expensive. In April, 27 of France's 56 reactors were shut down for routine maintenance or to fix defects, adding to the country's reliance on other sources of energy. While the life of older nuclear plants can be extended – as Belgium is doing now and as the UK has done in the past – eventually they must be retired. Building new plants has often proved challenging. No new nuclear reactor has been connected to the UK's national grid since Sizewell B in 1995. For the current government to succeed in building eight reactors this decade, it will have to move at unprecedented speed.

Proponents of nuclear power argue it can still play an important role in dealing with climate issues in the longer term, as it can supply power when the wind isn't blowing or the sun isn't shining. However, the development of better storage technologies and greater cross-border grid connectivity may dent this advantage in the years ahead.



ROLLS-ROYCE-BACKED MINI NUCLEAR REACTORS FORM PART OF THE UK GOVERNMENT'S GREEN ENERGY PLAN

NEW TECHNOLOGIES

Despite these issues, investors continue to pursue nuclear energy and efforts are being made to develop new technologies which could address at least some of the shortcomings that critics point to.

Two US companies – TerraPower, founded by Bill Gates, and PacifiCorp, owned by Warren Buffett's Berkshire Hathaway – are developing the Natrium nuclear reactor in Wyoming. This is expected to cost about $1bn to develop and will produce 345MW of capacity via a sodium-cooled fast reactor with molten salt-based energy storage. It aims to start producing energy in the late 2020s.

UK-based Moltex is also working on a reactor using molten salt for a site in New Brunswick, Canada, which it aims to have in operation in the early 2030s. This will use recycled nuclear waste as a fuel and is said to be safer than existing plants as its most dangerous products are salts, rather than gases which can escape into the atmosphere.

Moltex is one of several companies developing what are known as small modular reactors (SMRs). Among the others in this market is Rolls-Royce SMR, an offshoot of the aircraft engine maker. Rolls-Royce SMR chief executive Tom Samson has said its technology, which draws on well-established pressurised water reactor designs, will provide "a low cost, deployable, scalable and investable programme of new nuclear power plants".

The UK government is investing £210m in this venture, which aims to start providing power to the UK grid by the early 2030s. The company plans to keep costs down by focusing on factory-built, modular components which can be quickly assembled. In early March, UK regulators began a generic assessment of the power plant design.

Others are pushing fusion technology, which is based on atoms coming together rather than splitting apart and is the same process that powers the sun. It has long been a goal of scientists to find a way to harness the process on earth, but there have been numerous false dawns in the past and it remains far from proven at a commercial scale.

The world's largest fusion scheme, the 500MW ITER project, is underway in the south of France. This is a tokamak reactor, a design developed by Soviet researchers in the late 1960s, which uses powerful magnetic fields to control plasma in a doughnut-shaped container. For now, the world record for fusion power is held by JET (Joint European Torus) in the UK, which in early 2022 announced it had produced 59 megajoules of energy over five seconds, equivalent to 11MW of power.

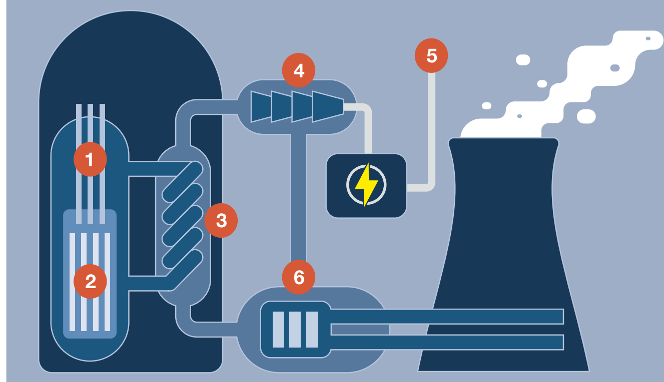
Complex new technology is rarely cheap. But even existing nuclear technology finds it impossible to compete with the steadily declining cost of renewable power. According to Lazard's latest Levelized Cost of Energy Analysis, a utility-scale solar photovoltaic power plant will cost $28-41 per MWhr, while wind costs $26-50 per MWhr. Nuclear power, by contrast, costs $151-196 per MWhr.

"The heavy lifting in the future will be done by renewables."

Such numbers mean that, in all likelihood, nuclear will only be able to play a peripheral role in the global energy mix for most countries in the years ahead. While some countries will continue to favour it, the cost will mean it is out of reach for most and safety concerns will dissuade others. "The heavy lifting in the future will be done by renewables," says Dorfman.

For others, however, nuclear energy continues to offer an important element to the energy mix. A recent report by Carbon-Free Europe said the most feasible, cost-effective pathway to net zero for the EU involves using all available low-carbon technologies, including nuclear.

How does a nuclear reactor work?



1. In a nuclear reactor, fuel rods full of uranium pellets are placed in water.
2. Inside the fuel rods, uranium atoms split, releasing energy.
3. This energy heats water, creating steam.
4. The steam moves through a turbine.
5. The turbine powers a generator creating electricity which is fed into the national grid.
6. The steam cools back into water, which can then be used over again. At some nuclear power plants, extra heat is released from a cooling tower.

Photography: Alamy, Rolls-Royce, JET

RESPONSIBLE INVESTING IS HERE TO STAY

Although the concepts of responsible investing and environmental, social and governance (ESG) risk factors have long been in the pipeline, Alex Nicholson explores why responsible investing has become a priority for both investors and investment managers globally in recent years

Is responsible investing just a bubble? A fad that will wane over time? It is safe to say that this is not the case, and that responsible investing is here to stay.

KEY SUSTAINABILITY ISSUES AND THE IMPACT ON INVESTING

Possibly the most topical element of the ESG factors, and arguably the most important, is climate change, which is undoubtedly one of the greatest challenges we face as a society.

The world has a growing (and ageing) population of 7 billion today and, according to some commentators, could reach 10 billion by 2050. The disproportionate reliance on fossil fuels and high level of consumption are anything but sustainable within the constraints of our planet's resources. And the emissions responsible for climate change have been increasing year-on-year.

Clearly these are environmental and social issues, but they are also economic issues that affect governments and corporates alike. Responsible investment is a vital element in the functioning of society, both today and in the future. While investors are not singularly responsible for saving the planet, where investors and their advisers choose to place their money can make a difference to the world.

Although investment managers have always considered ethical factors to an extent, sustainability criteria are now front and centre. Whatever an individual's view is on the future, one theme unifies all investors, which is the desire for long-term returns and capturing value. Responsible investment is important to us and our clients because not only do we want to generate long-term success, returns, and value, we also want to be here for the long term and share in building a brighter and more prosperous future for the world.

"Responsible investment is a vital element in the functioning of society..."

Typically, sustainability issues are seen as long-term problems, whereas it's human nature to focus on the short term. Historically, investors may have paid more attention to past performance and companies can be under pressure to perform for the next set of earning reports or deliver for the next dividend payout. However, when it comes to deciding on suitable companies in which to invest, we want to find long-term sustainable businesses that generate returns for our clients.

NO LONGER NICHE

Investment has evolved and expanded in recent years to include the consideration of sustainability criteria as a priority alongside financial criteria. The drivers for this include a changing world, investor and consumer demand, and evolving data and analytics.

While the concepts of sustainability are by no means clearly defined and settled, the risk of 'greenwashing', in other words spurious claims of sustainability, is prevalent. Undoubtedly there will be further regulatory boundaries established in relation to responsible investment.

Nevertheless, ESG is no longer a buzz word. It is a very real concept that companies, managers, and investors are taking seriously.

Responsible investing at Brewin Dolphin – Our Sustainable Portfolio

Our Sustainable Portfolio service offers a suite of diversified portfolios that meet a range of objectives and risk profiles, which are aligned to Brewin Dolphin's responsible investment philosophy.

The primary objective of the Sustainable Portfolio is to maximise returns from income and capital growth from a portfolio of funds that exclude exposure to controversial sectors (such as the manufacture of tobacco or armaments).

The portfolios will also seek exposure to companies that have a positive societal or environmental impact, which is subject to the primary objective being achieved.

We have designed our Sustainable Portfolios to reflect Brewin Dolphin's responsible investment philosophy:

- We believe that high-quality companies that manage environmental, social and governance risks and opportunities well, will make attractive long-term investments.
- We are committed to being a good steward of our clients' investments to enhance and protect their long-term value.
- We believe that we can deliver superior returns to clients through our tactical asset allocation and astute fund selection, while contributing positively to global environmental and social challenges.
- We believe transparency is important. This is why we use MSCI, a leading specialist independent ratings agency, to measure the positive contribution of our portfolio.

Net Zero Asset Managers

Brewin Dolphin has set a public ambition to become a net zero company by 2050 or sooner. We have joined the Net Zero Asset Managers initiative (NZAMi), which commits us to support the goal of net zero greenhouse gas emissions by 2050 or sooner, in line with global efforts to limit warming to 1.5°C. This target will tackle both the emissions of our own operations as well as those of the companies in which we invest. Recognising the need for immediate action, we will be setting interim targets for 2030.

Letter to
MY YOUNGER SELF

Adam Boulton is a leading journalist and political broadcaster. He explains why you should never suck up to your superiors – even if they're two fearsome Australian 'uber-bosses'

Dear young Adam,
You will be surprised to get this letter since I am not a great correspondent, even though I was brought up to write thank-you notes and my father insisted I "put it in writing". My advice is to make a point of writing it down, especially since email and text now make it so much easier.

I don't have many regrets about my life or even sneaking feelings that I made the wrong decisions; perhaps we've just been lucky so far. Nevertheless, here are a few tips that I think it is worth you – us – following.

"Always say good morning to the doorman" is a motto inherited from a father-in-law I never met. Try to notice and acknowledge all the people you come into contact with. You are not snobbish and hate to run the risk of being thought so by being caught up in your own thoughts.

I have worked for two very successful Australian uber-bosses – Rupert Murdoch and the late Bruce Gyngell. The Australian approach is un-hierarchical flat management. They hire good people and let them get on with it. It used to infuriate those clinging to their titles at *TV-am* that they might hear about Bruce's plans for their departments from an office driver because he liked thinking out loud and getting feedback from anyone.

Don't suck up to your bosses and certainly don't look down on those junior to you. People move up and down career ladders. I know salutary stories from real life of people in TV who've written abusive messages on leaving cards only for the leaver to return as their line manager. I only ever write 'good luck' on these cards, and I haven't read the messages on those given to me over the years.

KNOW YOUR STRENGTHS

You should be open to the unexpected but always try to do what you are best at. That way you'll avoid the dispiriting experience of being surrounded by people who you know are better at the job in hand than you. I studied science A-levels because my father wanted me to follow him as a doctor. Complete waste of time, except for the maths. As Hamlet might have said: "What's the Halogen group to me or me to the Halogen group?" I switched to the humanities at university. The many books I read have been the solace of my life. I'd advise you to get on as soon as possible with doing what you want.

As a broadcaster, I use my voice a lot. My presentation skills would be better if I'd done more acting at school rather than dismiss drama as an extra-curricular distraction. In general, you might want to try harder with 'hobbies' than I ever have. It would be nice to read music or play an instrument. Displaying some sort of interest in sport might be an idea – either as a player or a fan. It is clearly key to male bonding. Then again, you've never liked boys' clubs and have always enjoyed working with female colleagues.

Don't try to follow an establishment path. Digital technology is constantly throwing up new opportunities and killing off other careers that looked like jobs-for-life. Get in on new things at the beginning or early on.

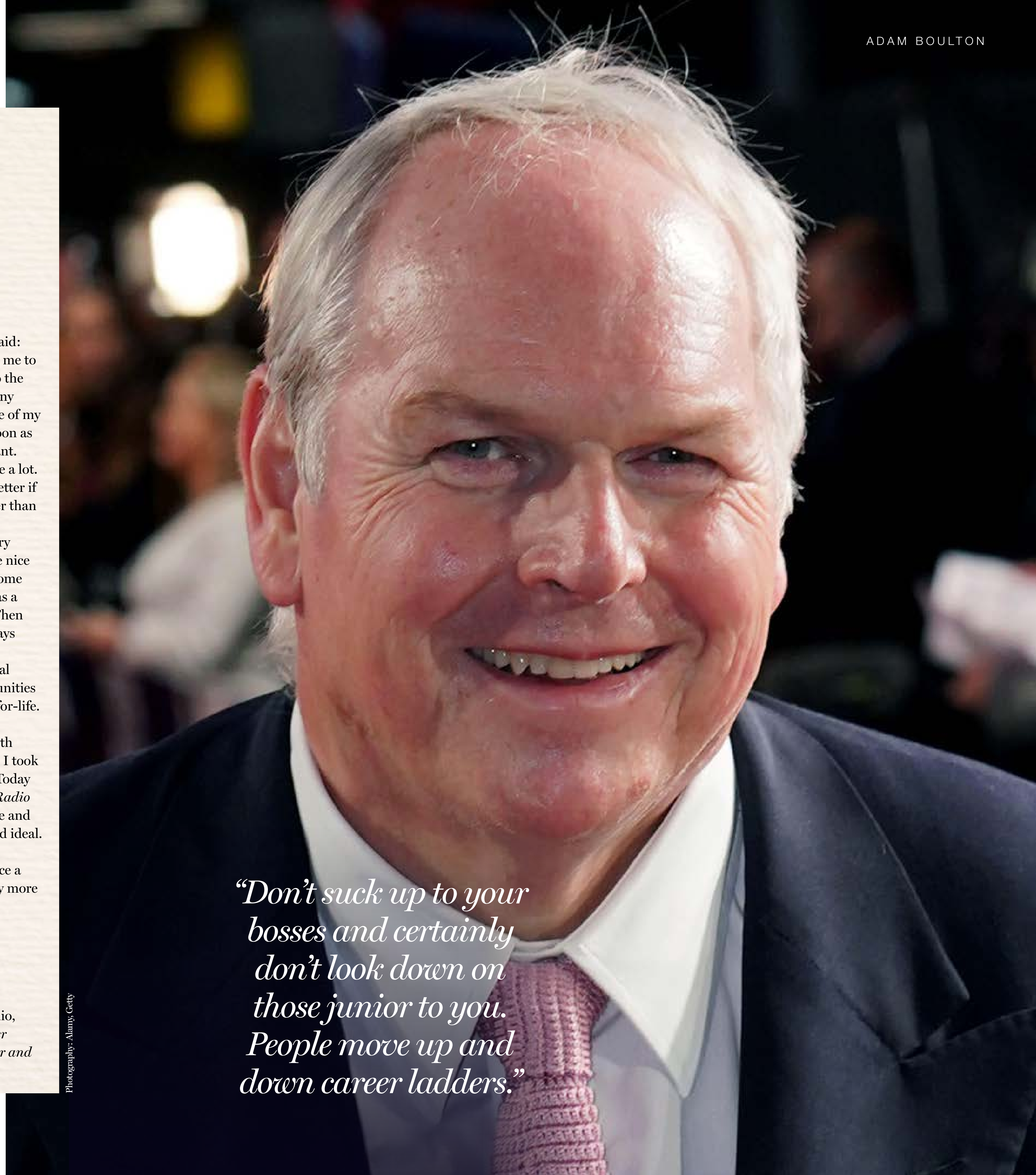
My career has been at two start-ups. I joined both *TV-am* and *Sky News* before they went on air, and I took the chance to develop an original role for myself. Today I'm still drawn to fresh starts like *TalkTV*, *Times Radio* and political consultancy Beyond 2050. Be flexible and don't reject opportunities because they don't sound ideal. You never know what they might turn into.

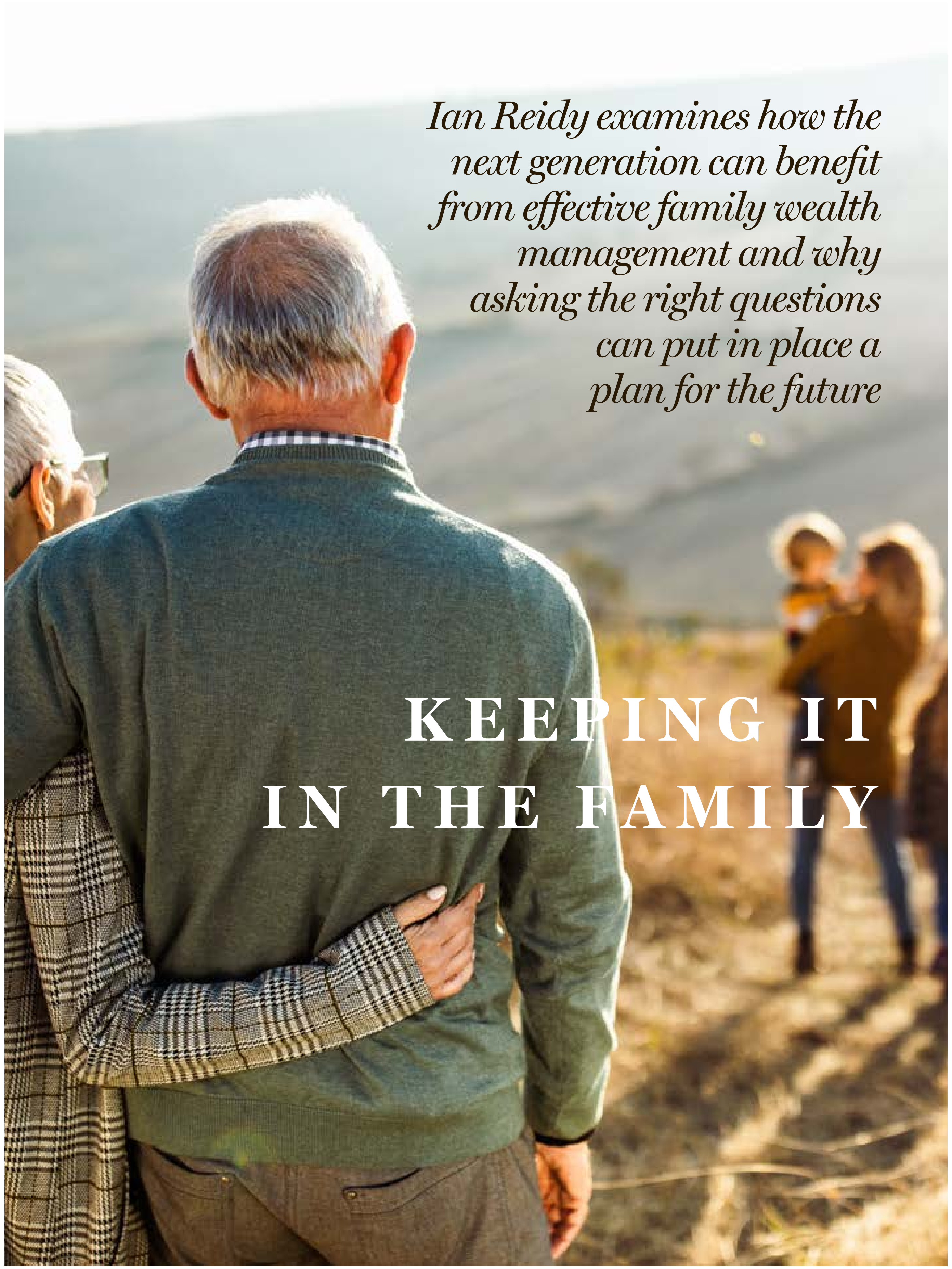
If we were starting out now, I think that we'd face a more challenging environment but there are many more tools available to try to put the world to rights.

Adam Boulton

Adam Boulton currently contributes to Times Radio, TalkTV, *Beyond 2050 and* Reaction. *He is a former chairman of the Parliamentary lobby, and founder and political editor of* Sky News *and* TV-am.

Photography: Alamy, Getty





Ian Reidy examines how the next generation can benefit from effective family wealth management and why asking the right questions can put in place a plan for the future

KEEPING IT IN THE FAMILY

I was born in the mid-1970s and I loved growing up in the 80s. I still love the music and movies from that time. Nostalgia is a great thing! What wasn't so great was that inflation in Ireland in 1980 was around 18%, and was higher again in 1981 at 20%.

People were acutely focused on watching the pennies and not wasting money. I know my parents were. It was the same in all my friends' homes. So much so that we can all relate to the sheer panic when the immersion was left on. It seems funny now; it wasn't back then.

Inflation has returned and interest rate hikes are a reality. There is speculation of energy rationing. *Top Gun* starring Tom Cruise is the number one movie at the box office...and the year is 2022.

MANAGING WEALTH

Though the 1980s and now share a little similarity, they are strikingly different when we compare overall wealth and the complexity of assets. Over the last 40 years, many families in Ireland have accumulated significant wealth. Managing, protecting, and passing on wealth to the next generation is now a key concern for many.

While worrying about the immersion may no longer be as relevant, there are clear concerns when it comes to wealth and people's assets. Inflation, for example, can reduce the purchasing power of cash over time, while tax is also a major factor in eroding wealth.

At Brewin Dolphin, we help clients to mitigate these 'wealth destruction' factors and avoid the many pitfalls. We are not tax advisers, or authorised to provide tax advice, but given the depth of our client base, we can appreciate the tax challenges faced by our clients. We often work in conjunction with our clients' existing tax and legal advisers, or we introduce clients to the required expertise in the tax and legal space.

POTENTIAL PITFALLS

When our clients ask us to sit down with them and discuss financial planning, we often see missteps. These include:

- **Waiting until death to pass on assets**
  Exploring whether assets can be passed on tax efficiently before death is advisable, particularly when inflation is high. Falling asset prices could also provide an opportunity to act now, rather than later when prices recover.
- **Not updating a will**
  What you would like to happen your assets and what may actually happen could be very different if you do not have an up-to-date will that reflects your wishes.
- **Believing that all assets will pass tax free between spouses**
  This may not be the case.
- **Believing that approved retirement funds (ARF) will be inherited tax free by a spouse**
  Again, this may not be the case. Some ARFs could face a 40% tax charge depending on how they are set up.
- **Introducing adult children into corporate structures and overlooking wills for the children**
  It's important to understand what may happen to the assets should an adult child die. What are the tax implications and how can the tax be mitigated?
- **On the sudden death of a spouse or business partner, not understanding what happens to their assets and what taxes may apply**
  This is a significant problem for company directors who may have a large pension fund and are drawing a small salary.
- **Not preparing for exiting a business, either through sale or succession**
  Could the business be structured differently to achieve a lower tax bill?
- **Lack of liquidity to pay a tax bill**
- **Getting hit with 'double tax' when it could be avoided**

ASK THE RIGHT QUESTIONS

Our advice is to consider a range of questions, including: What is the potential event? How much value do you get to keep? How much is taken through tax? What gets sold/liquidated to pay the tax? What can be done to improve the situation? These questions can prompt some excellent conversations.

Our financial planning team will explore many of the pitfalls and outline solutions that work to protect you and your family's wealth. After all, understanding what can be done is the first action.

MONETISING THE METAVERSE

The metaverse has been heralded as the future of the internet, and even as big a shift in communication as the telephone. But few people could accurately describe what it is. Is it merely an interactive enhancement to the existing internet or an exciting new virtual world, set to revolutionise the way we interact with each other and brands, throwing up opportunities for businesses and investors alike?

The first thing to say about the metaverse is that it doesn't really yet exist. And, if and when it does, no-one really agrees on what it will look like - yet millions of dollars have already been bet on the premise that it will eventually become an integral part of daily life.

Perhaps the second is that the metaverse is not a single place or thing, but rather an agglomeration of online platforms where users can play games, purchase virtual property, trade crypto assets, and interact with one another. In theory, if the technology to create them became widespread, there could be as many metaverses as there are users.

WHAT IS THE METAVERSE?

The term 'metaverse' was first used in a novel written by Neal Stephenson almost 30 years ago. Back in 1992, he published Snow Crash, a cyberpunk exploration of future tech in which the protagonist, Hiro, finds a better life in a virtual reality world dubbed 'the metaverse'.

For many of Silicon Valley's glitterati – including Amazon founder Jeff Bezos – the book was a prescient vision of the future, foreseeing how we will become addicted to portable tech in an increasingly digitised world.

So why, 30 years after Stephenson wrote about it, has the metaverse resurfaced as a key idea for the next decade?

A lot of the recent hype is down to Mark Zuckerberg. When he stood up at a press event back in October 2021 and announced that Facebook would be changing its name to Meta, it was not only one of the biggest corporate rebrands in history, but a huge gamble.

For Zuckerberg, the metaverse is a space in the digital world where people will work, play, and learn as avatars, and is the natural next step for the internet. But Meta is by no means the only company exploring the idea of a digitally replicated world where people of all ages will increasingly choose to hang out.

Right now, the best 'fit' for the metaverse is gaming. Latterly, Epic-owned battle royale game Fortnite and game platform and creation system Roblox have become huge hits with youngsters, and both are busy adding new experiences. Fortnite, for example, has hosted concerts from big names such as Ariana Grande and Travis Scott, while Roblox, which has more than 230 million registered users, not only offers games to play but provides a place for games to be created and a digital currency to purchase goods.

At a recent conference in Seoul, Epic's chief executive, Tim Sweeney, said that the next three years would be "critical for all the metaverse-aspiring companies like Epic, Roblox, Microsoft and Facebook", adding that it was "a race to get to a billion users", with whoever gets there first becoming the "presumed leader in setting the standards".

Meanwhile, Roblox chief executive David Baszucki was talking up the metaverse long before Zuckerberg. Writing in *Wired* at the beginning of 2021, he said: "We will see a shift in the way people play,

"THE NEXT WAVE OF THE INTERNET WILL BE A MORE OPEN WORLD WHERE PEOPLE CAN BUILD THEIR OWN METAVERSE WORLDS"

work, learn or simply hang out in 2021. Some of these connections will move into the metaverse, a digital place where people seamlessly get together and interact in millions of 3D virtual experiences."

Massive immersive virtual events will become the norm, Baszucki added, and push the boundaries of interactivity, changing the nature of live experiences. It is, he wrote, "arguably as big a shift in online communications as the telephone or the internet".

His words were echoed by Satya Nadella when Microsoft offered $69bn to buy gaming firm Activision Blizzard. The proposed deal is, in the near term, about accelerating its growth in gaming across mobile, PC, and console. But long term, it is eyeing the metaverse.

THE EVOLUTION OF THE INTERNET

Nadella said: "Just like the first wave of the internet allowed everybody to build a website, I think the next wave of the internet will be a more open world where people can build their own metaverse worlds, whether they are organisations or game developers or anyone else."

Microsoft sees opportunities beyond gaming. Its Teams software, which became familiar to many during the pandemic, will allow immersive meetings that will start on 2D screens, like PCs and phones, but later take place wearing augmented reality (AR) or virtual reality (VR) headsets. It will be enabled by the firm's mixed reality software,Mesh.

If the first stage of the internet – up until the mid-1990s – was about consuming content, then the second stage – up to the present day – is much more about creating it, via social media comments and user-generated content on YouTube and TikTok.

Web 3.0, on the other hand, is a vision of the web in which large corporations, like Google and Meta, will no longer have control of data. Instead, it will live, like cryptocurrency, on a decentralised blockchain.

While the concept of Web 3.0 is largely speculation about who will control the internet in the future, the metaverse aims to revolutionise how we experience it: via virtual reality rather than an on-screen browser.

Early examples of virtual worlds such as Second Life and World of Warcraft proved that people were prepared to buy virtual goods and linger for long periods of time in virtual lands, as well as just play games in them. It is this potential that the metaverse enthusiasts wish to develop further. For some, the coming together of virtual money with virtual worlds and virtual certificates is the very definition of Web 3.0.

"It's really a collision between the metaverse and crytpo that is getting all the attention now. What distinguishes these new metaverses from Second Life or Roblox or Minecraft is that they are based on Web 3.0 platforms," says Andrew Kiguel, chief executive of *Tokens.com*.

And Kiguel is putting his money where his mouth is, aiming to become the richest landlord in the metaverse. His firm is spending big – paying more than $2m for 350,000 square feet of virtual real estate in the fashion district of Decentraland in November.

The firm has since been on a spending spree and now owns land in seven VR platforms. It has leased it back to a range of retailers, including fashion brand Forever 21 and shoe firm Skechers.

"We've been hiring people from the traditional real estate side of the business to come in and help us structure our leases," Kiguel says. His company is in conversations with musicians and celebrities who want to rent land to host events, comedy shows or movie previews.

The land will rise in value as visitor numbers increase, believes Kiguel: "How much is each parcel of land going to be worth when there's 10 million or 20 million people registered as users? If you could go back and purchase a block of advertising from Facebook or Instagram from 15 years ago, who wouldn't do that?"

BRIDGING THE PHYSICAL AND VIRTUAL WORLDS

Whether we are working or playing, such worlds will need to be accessed via a VR headset – and it will come as no surprise that Meta owns one: the Oculus Quest, which was rebranded to the Meta Quest. It currently dominates the market, accounting for almost 80% of VR headsets sold in 2021.

DEFINING THE METAVERSE

The metaverse: a VR space in which users can interact with the computer-generated environment, as well as with other users

Virtual reality (VR): an immersive, three-dimensional experience that takes place within an entirely computer-generated environment

Augmented reality (AR): technology in which digital images or sounds are superimposed on to real-world environments

Mixed reality (MR): technology in which the physical world is viewed with an overlay of digital elements, and the two are able to interact

Extended reality (XR): an umbrella term that encompasses VR, AR, and MR

Platform: a piece of hardware or software architecture that serves as a foundation on which software applications can be run

Avatar: a digital character or image that represents a user within a virtual world

Headset: a device that connects to a computer to send and receive media. They range from the basic (as used in call centres) to the high-tech, such as VR headsets or helmets that give users a first-person view of simulated environments

Non-fungible token (NFT): a unique token that essentially serves as proof of ownership of a digital asset

Web 3.0: the concept of a next-generation internet that is decentralised and based on blockchain technology

But these headsets are clunky, and some find that wearing one makes them feel sick or dizzy, so it is hard to envision them being on our heads for hours at a time in their current form.

There are versions of budding metaverses that don't require headsets, such as Decentraland, which can be accessed via a normal computer browser, and there will likely be ones that use AR headsets, which blend virtual reality with the real world. AR headsets are currently being developed by Microsoft, Snap, and Magic Leap.

A virtual world overlaid on the real one might represent a "healthier type of metaverse", thinks Tom Ffiske, editor of *The Immersive Wire* and a consultant on the metaverse. "If the glasses are good enough and cheap enough, then that is the most human and the type of metaverse I'm most comfortable with," he says.

Looking further into the future, many firms, including Elon Musk's Neuralink, are thinking about whether they can create an even easier bridge between the physical world and the virtual, via interfaces that actually link our brains directly to virtual reality.

And if this sounds far-fetched, note that Snap has just bought a brain-computer interface start-up, NextMind, with a view to incorporating its technology in future versions of its AR glasses.

If we are going to be living a portion of our lives in virtual reality, then our senses will need stimulation as well as our brains.

Some firms are already thinking about how to recreate touch in the metaverse. H2L Technologies, a Sony-backed Japanese start-up, has built a wristband that would allow users to mimic physiological movement in the virtual world. The wristband uses electric simulation to move arm muscles and simulate sensations, potentially even pain.

Chip firm Qualcomm also smells opportunity. It announced in March that it is launching a $100m fund to help build the metaverse, through a series of investments in what it terms 'leading XR firms'. The firm's president, Cristiano Amon, said he thought the company was "the ticket to the metaverse".

SNAPSHOT:

GOOGLE GLASS: AN IDEA AHEAD OF ITS TIME?

The concept of physical accessories that offer a window into a virtual world is not new. Google first introduced a prototype of its Glass smart glasses, an optical wearable display in the form of a pair of spectacles, back in 2013 before making the technology more widely available in 2014, followed by updates in 2017 and 2019. The device featured a touchpad on the side, which allowed users to navigate through phone calls, photographs, and so on, and can also be activated through voice commands.

The product is generally regarded as a failure: it was clunky, expensive, and lacked clear functionality. But it could be argued that it was merely ahead of its time, blazing a trail for later-generation smart glasses offerings from tech giants such as Snapchat, Facebook, and Apple.

BIG AMBITIONS

Bloomberg Intelligence analysts boldly predict that the metaverse may be an $800bn market by 2024. Big brands are understandably salivating at the prospect. For them, the metaverse represents another platform to build brand loyalty and boost profits. And the opportunities are endless – from virtual events, concerts, and the chance to mingle with celebrity avatars, to virtual classrooms and even virtual dates and weddings. Brands can advertise their wares on virtual hoardings located in shopping malls where people will buy outfits, accessories, and other artefacts for their avatars.

For brands jumping on the metaverse bandwagon there is huge commercial opportunity. Nike now owns not only real-world trainers but virtual ones, thanks to its acquisition of digital fashion firm RTFKT.

More recently, HSBC became the first global bank to buy into the metaverse. It purchased a plot of land in the Sandbox metaverse, which it will develop to engage with sports, e-sports, and gaming fans.

And people are not just buying up land but hiring architects to design what they put on it. Danish architecture studio BIG recently designed a virtual office for Vice Media Group while Samsung recreated its flagship New York experience centre in Decentraland and hosted the launch of its Galaxy phones there.

WHO IS SELLING THE VIRTUAL PICKS AND SHOVELS?

In January 2022, the *Financial Times* reported that investors were gearing up for a "'gold rush' in metaverse hardware" – the headsets, semiconductors, sensors, cameras, and displays that will be needed to power and navigate the virtual world.

With its 2014 acquisition of VR headset-maker Oculus, Meta made its metaverse ambitions clear. And sales of VR and AR headsets are projected to reach almost 90 million units by 2025, with Apple rumoured to be entering the market next year.

Speaking to *The Verge* in 2020, Meta's Mark Zuckerberg said: "If we get to 10 million units active, then that's kind of a critical magic number. At that point, you have a self-sustaining ecosystem."

"HARDWARE CONSTRAINTS WILL BE WHAT HOLDS US BACK FROM REALISING THE METAVERSE"

But there's more to the metaverse than headsets, says Sam Douglass, Brewin Dolphin's technology analyst: "We would extend this further to also include software companies that are providing the underlying platforms and tools that have the potential to become essential in the building of digital environments.

"Businesses such as Adobe, Unity, and Nvidia (a company that straddles hardware and software) are just a few examples that are looking to develop in this space. These companies already have advanced 3D modelling, editing, and simulation products, which are likely to translate well to other companies targeting the metaverse."

Alongside display technologies, virtual worlds will require fast, accurate, and cost-effective scanning to create their landscapes and the avatars that inhabit them. And networks will need to become fast and stable enough to allow users to navigate the space in real time.

According to *Hardware Times*: "Most involved in the industry believe that hardware constraints will be what holds us back from realising the metaverse and that companies involved in its development will play a crucial role in helping to close this technological gap."

MAKING THE INFINITE FINITE

Much of the virtual economy is made possible using different cryptocurrencies (and many nascent metaverse platforms are prepared for monetisation through links to a particular crypto)

which people will use for purchases. The metaverse also provides meaning for another much-hyped term: NFTs (non-fungible tokens). In the metaverse, NFTs will act as digital certificates to prove ownership of virtual goods such as land or homes.

NFTs are digital assets that use blockchain technology to record who owns an original digital object, such as an image, video, or in-game item, and make it unique and irreplicable. The world of NFTs has exploded over the past year. In 2021, sales of NFTs reached $25bn.

In March 2021, a tweet – or more precisely, the first ever tweet, posted 15 years earlier by Twitter founder Jack Dorsey – sold for almost $3m. Why? How did it accrue such value when anyone with a smartphone could screenshot the five-word post, save it as a jpeg and keep it forever?

The answer is the power of the NFT. The purchaser of Dorsey's tweet owns not only its image, but the digital record of ownership, which exists on a blockchain and cannot be replicated.

"THE WORLD OF NON-FUNGIBLE TOKENS HAS EXPLODED OVER THE PAST YEAR"

Take Yuga Labs, a firm that created a collection of cartoon primates dubbed 'Bored Ape Yacht Club' – 10,000 ape-themed NFTs with different traits and characteristics. Yuga persuaded some high-profile celebrities, such as Serena Williams and Jimmy Fallon, to part with their cash to buy them, and was valued at $4bn in March 2022.

Yuga is planning to build a gaming-focused metaverse – MetaRPG – that will be compatible with a host of NFTs. It will make 200,000 plots of virtual land available to buy via NFTs and hopes to raise $178m. And there will be a virtual currency, too – dubbed ApeCoin in homage to its dour-faced monkeys. Recently, Adidas did a drop of 30,000 NFTs with the Bored Ape Yacht Club, which sold within hours, earning the firm a cool $22m.

But why do people want to own NFTs? What is the appeal of a digital asset as ephemeral as a piece of virtual real estate, a pair of shoes that exists only in cyberspace, or a picture of a bored ape in a sailor suit?

The same, it could be argued, as that of any piece of art – a Pollock or a Rothko, for instance – or simply a desire for ownership. Crypto expert Laura Shin, interviewed by NextAdvisor in partnership with *Time* magazine, referred to her purchase of a Kings of Leon album that was released as an NFT, saying: "I just wanted to buy it the way I want to buy anything else. It wasn't an investment. It was like an emotional thing. And that's what a lot of NFTs are."

But NFTs are not without their issues. Like crypto, NFTs can be hugely volatile. The investor who paid almost $3m for an NFT of Jack Dorsey's first tweet only received a top bid of $6,800 when he tried to sell it recently. Some critics believe NFTs, which have no intrinsic value other than the metadata that lives on the blockchain, are the internet's latest bubble – a digital example of the emperor's new clothes.

BUT IS THE METAVERSE REALLY DIFFERENT?

Some experts believe that the metaverse itself is equally over-hyped: much of it is just virtual reality with a new name, thinks Ffiske. For him, the metaverse is still very much at concept stage: "There are multiple types of metaverses, and people are just conflating them all together to one big hodgepodge," he says.

"Currently these are micro metaverses because they are not interoperable. I think there is going to be a macro metaverse in future, where lots of different universes can connect so that, say, a Gucci handbag can be used in a different platform or ownership is transferred in a particular way, but we are nowhere near that. And there is nothing that comes close to that at the moment."

But Ffiske finds it hard to see why anyone would want to work in the metaverse. "Who wants to wear a VR headset to work? The only case where I've seen it can be effective is if you're an engineer and you want to show a CAD (computer-aided design) model on a table so you can look at it all together and manipulate it. But who would want to type up a Word document in VR?"

Virtual work is a reality though. Engineers around the world are busy making so-called digital twins of products, buildings, and even whole cities. Unlike 3D models, these doppelgängers are fed data from their real-life counterparts that can inform firms how to make them more efficiently in future.

The opportunities extend beyond business into healthcare. Dassault Systèmes' Living Heart project has brought together doctors, researchers, and medical-device makers to create highly accurate, personalised digital models of the heart to learn more about the complex organ and how to treat patients with heart conditions.

A GENERATIONAL SHIFT

For Kiguel, the fact that children will be hanging out as much, if not more, in the virtual world as the real one is the key reason brands need to get on board with the metaverse.

"If you don't have a presence in the metaverse, kids are not going to know who you are," he says. "Traditionally, brands communicated with people through TV commercials or magazines, but the new generation doesn't shop that way. The only way you can access them is through social media and the metaverse is the next iteration of social media."

The children who are already building virtual worlds in Roblox will be in huge demand in a few years, thinks Ffiske.

"They have got this spatial design coding knowledge, they know how to make worlds. There will be companies who want to poach them for the work they're doing. Roblox creators will be in really high demand," he predicts.

SNAPSHOT:
VIRTUAL REAL ESTATE ACCESSIBLE TO ALL

Decentraland was the brainchild of two Argentinian developers who wanted to create a proof-of-concept platform for assigning digital real estate to a blockchain. To make the land more accessible to all, it does not require the user to wear a VR headset; instead, it can be reached via a computer browser. It currently has around 300,000 monthly active users, and 18,000 daily, according to the firm. There are 45,000 parcels of land available to buy, using its MANA cryptocurrency.

SNAPSHOT:
THE NEED FOR SPEED

There could be another very big stumbling block. The computing power needed even by emerging metaverses is huge and for some will be one of the biggest barriers to mass adoption.

Here's *Vogue* journalist Luke Leitch describing the experience of Decentraland's first ever Fashion Week: "It was often frustratingly glitchy and lag-heavy... Almost certainly, however, this was less down to Decentraland's failings than ours: basically, you need one of those weird-looking Battlestar Galactica-styled gaming PCs with a monstrous graphics card to get the best out of the metaverse."

According to Intel, building a metaverse that is accessible by potentially billions of humans in real time will require a 1,000 times increase in computational efficiency from what we have today.

Raja Kodurin, executive vice president and general manager of Intel's Accelerated Computing Systems and Graphics Group, said in a blog in December 2021 that current computing power, storage, and networking infrastructure are nowhere near big enough to enable the metaverse as envisioned by Zuckerberg and others.

AN ABUSER'S PARADISE

But Second Life and Roblox also teach us another lesson – things can go horribly wrong in the virtual world.

Roblox currently has over 4,000 human moderators, who are dedicated to policing the platform and making sure the experiences in the game don't violate the community standards. It also uses machine-learning algorithms to scan and review content that it finds inappropriate, and filters content by age level – but that hasn't stopped inappropriate content popping up on the platform.

Racism, bullying, misinformation, and hate speech are rampant on social media, and there is no suggestion that they would go away in the metaverse. In fact, it becomes even more challenging as millions of avatars are let loose on the world to chat and interact with each other.

Meta's chief technology officer, Andrew Bosworth, has admitted that moderating the metaverse will be hard, especially if different lands are controlled by different corporations which will each have different rules around content moderation.

Women visiting Meta's Horizon Worlds VR platform have reported feeling harassed or creeped out by the behaviour of male avatars. After a series of negative headlines, Meta hastily announced that it was introducing a personal space boundary for avatars.

Parmy Olson, a technology columnist for *Bloomberg*, had her own creepy experience in Horizon Worlds and remains sceptical Meta can moderate these nascent worlds effectively.

"When you are scanning text for hate speech, it's hard but doable – you can use machine-learning algorithms," Olson told the BBC. "To process visual information about an avatar or how close one is to another, that is going to be so expensive computationally, that is going to take up so much computer power, I don't know what technology can do that."

Kavya Pearlman, founder of XRSI, which was set up to promote safety, privacy, and inclusivity in immersive worlds, is also sceptical that Meta will be able to handle moderation, pointing out that it took a media outcry for it to embed an obvious safety protocol such as a personal space boundary. And this despite years of her organisation campaigning for the firm to set up safety controls.

Ffiske agrees that moderating the metaverse is going to be a one of its biggest challenges: "It's a nightmare and I really don't know what the solution is because you have two choices. Either you have a free and open metaverse where people can do whatever they want, but that means there is less policing, and abuse will be more rampant. Or you have a more controlled version but then you have less creative freedom and less privacy."

Early research suggests children may be easier to manipulate in the metaverse. A study from the Immersive Human Development Lab at the University of Texas suggested that children are more likely to do what a VR character tells them.

SNAPSHOT:
TOILET HUMOUR

The number of product launches happening in the metaverse has led to some firmly tongue-in-cheek announcements. Bathroom store Victorian Plumbing launched a virtual toilet as an April Fool's joke.

Meanwhile Heineken launched its first digital brewery in Decentraland in March, describing it as "brewed with Binary Coded Hops". It's a "combination of a large quantity of pixels, a dash of coding and many tireless nights of programming", an avatar of the firm's head of brand, Bram Westernbrink, proudly announced, adding: "It would taste great if you could drink it."

He later said the launch, which baffled attending journalists, was intended to "poke fun at us and many other brands that are jumping into the metaverse with products that are best enjoyed in the real world".

This is one of the reasons that Metapolis' chief commercial officer, Sandra Helou, thinks avatars should be linked to your real identity. "Just as email represented you in Web 2.0 so avatars will in Web 3.0," she says. "In Second Life you were able to be whoever you wanted but that led to some problems with people falsifying who they were."

This is a problem not unique to the metaverse, of course – the proliferation of bot accounts on Twitter, for example, is well known. Metropolis requires verification steps before people can unlock the full potential of their avatars, and also has safety bubbles and safe words for avatars to use if they feel bullied, groomed, or harassed.

Others are more concerned about how much of our digital data will be hoovered up in the metaverse. A study from Stanford University found that just 20 minutes in virtual reality provided more than two million unique body recordings, which could provide companies with a rich stream of information about their users. "From it you can infer a ton of data about gender, health, sexual orientation," Pearlman says.

Brand consultant Mark Evans adds: "Every move we make in the metaverse will be analysed by powerful algorithms to create powerful dopamine hits that increase the time we spend away from the real world. You could argue that human data is Earth's most valuable currency. But it's a currency we never get to spend – because Big Tech companies are rinsing it for profit.

"EVERY MOVE WE MAKE IN THE METAVERSE WILL BE ANALYSED BY POWERFUL ALGORITHMS"

"To me, the metaverse feels like the most powerful example yet of this dash for deep data – and it's deeply worrying."

When Meta announced its plans for the metaverse, early investor turned critic Roger MacNamee described the vision as dystopian and called for Meta to be banned from ever creating a virtual world because of how it handled data in the real one.

SPOTTING THE POTENTIAL

Despite the concerns, metaverse tickets are the hottest in town right now – for those who can see the vision. "People either get it and the light bulb goes on and they say, 'This is the most brilliant thing and this is going to change the internet,' or they think 'This sounds dumb,'" says Kiguel.

"When we bought land in the Fashion District, 70% of the responses were super positive and people said we were being forward looking and visionary, and 30% were like, this is the dumbest thing I've ever heard."

The metaverse might be a hard concept to understand, but the future often is. Imagine describing to someone in 1970 how we would all be communicating and buying things via tiny computers we carry around with us in our pockets? |

Illustrations by Alex Jeffries