Redburn Atlantic
REVIEW

JUNE 2024

Small Gods

Divided by a
Common Language

Chips with Everything

Battle of the Brands

Rothschild & Co

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Editor's Letter

All great inventions make the world a smaller place. Whether it is the boat, bicycle, radio, jet engine or internet, each allows an individual access to a world beyond their immediate experience and broadens their horizons.

In making the world a smaller place, great inventions also increase competition by opening hitherto unreachable markets. In this sense, they are structurally deflationary.

And yet, as Melissa Davies argues in 'Small Gods', while Gen-AI will have positive effects on productivity growth, "more spending, more expensive and complex products and rising energy demand mean AI can have an inflationary, not disinflationary, influence". Moreover, she believes, "historically, technological change does not lead to mass employment culls and there's no reason to expect otherwise this time".

That competition is hotting up however is indisputable. In 'When the Going Gets Tough', Geoff Lowery details the challenges facing the major sportswear manufacturers from disruptors, while 'Battle of the Brands' by Kyriaki Koutta delineates the fragmentation in the beauty market powered by social media and influencers.

These are the advertising titans of the future. Traditionally, advertisers claimed, 'you throw everything at the wall but only 50% sticks; the problem is no one knows which 50%.' Overlooking the (considerable) likelihood they were being generous to themselves, the digital age enabled far closer tracking – and ad agencies found life commensurately harder. Social media, on which James Cordwell touches in 'The Coming of (the) Age', may not have made the world smaller, but it has certainly reduced the nuance.

Small Gods

A Closer Look at AI

Melissa Davies
Chief Economist

The impact of Artificial Intelligence on the economy is wrapped in political, philosophical, scientific and even religious questions. Moreover, the technology is often intertwined with broader political and economic ideologies and how it can shape – or threaten – the future of mankind.

In the short- to medium-term, we can ponder the prosaic questions. What will its impact be on productivity growth, interest rates and inflation? We are optimistic Generative AI, or Large Language Models (LLMs), will have a positive effect on productivity growth (Total Factor Productivity, TFP), but we should not get carried away. Even a doubling of trend TFP from 1% to 2% (as occurred in the late 1990s) won't resolve the structural issues stalking the US economy, namely high public debts and the need for fiscal consolidation for interest rates to come down. Historically, inflation and fiscal consolidation have been the method by which debts are reduced, with improvements in real GDP growth being a distant third factor.

In terms of interest rates, the sheer scale of investment needed to train and deploy LLM-type models means AI is part of a renewed capex cycle which is pushing up the equilibrium real interest rate (r*). AI is by no means the main driver, but it is a contributor. This is different to the last tech cycle, which spread the benefits of zero cost consumption via a distributed network of consumer investment in smartphones. The 'Ubiquity Now, Profits Later' model espoused by Google, Uber and Meta et al. increased price discovery and the quality of consumption. This cycle is more akin to the software investment phase of the 1990s, when r* was 2-3%.

Closely linked is the impact of AI on inflation. More spending, more expensive and complex products and rising energy demand mean AI can have an inflationary, not disinflationary, influence. Again, this contrasts with the first two decades of this century. We are sceptical AI can help the US escape from a sticky inflation environment where financial repression-lite is being leant on by policymakers to cope with higher r* and financial stability risks.

Longer term, there are potentially disinflationary effects from LLMs and Generative AI on the labour market. In 2017 ('Player Piano'), we embraced the idea AI and machine learning could 'hollow out' the Services sector, as automation had manufacturing in the 1980s and 1990s. But this is a distant prospect with the take up of AI across US firms still in low-single digits. We are now relaxed about the prospect of large-scale job losses – historically, technological change does not lead to mass employment culls and there's no reason to expect otherwise this time.

There are those arguing that AI is so profoundly different its effects will disrupt not only the labour market but the organisation and existence of humanity. Here it is important to distinguish between LLM technology and the concept (and ideology) of Artificial General Intelligence (AGI).

The former is a probability-based model, the science of which has been understood for decades, which has been facilitated by leaps in computing power. The latter remains a concept and convincing arguments can be made it will never be achieved, that it is simply not possible for a computer to mimic or exceed human intelligence. The argument AGI is the next phase of human evolution, achievable with the application of sufficient computing power, is ideological, a leap of faith. Without this leap, many of the most disruptive or transformative outcomes fall away.

Indeed, the notion LLMs can make the leap to AGI is a form of marketing hype deployed by Silicon Valley billionaires and tech enthusiasts. While Sam Altman at OpenAI talks about "magical intelligence in the sky", others are more circumspect. Yann Le Cun, chief AI scientist at Meta, recently observed LLMs had "very limited understanding of logic…do not understand the physical world, do not have persistent memory, cannot reason in any reasonable definition of the term and cannot plan…hierarchically". Indeed, AGI is a philosophical as much as an economic, mathematical and resource issue.

Even in their current form, the promise of LLMs may be greater than their capacity. The AI specialist Melanie Mitchell considers the models can be unreliable and subject to 'jailbreaks' where questions are manipulated to circumvent safety guardrails. The models require human intervention to guide them towards socially acceptable and safe responses, with an unthinking HP Lovecraft-style 'monster' (Mitchell's terminology) lurking behind the scenes.

As probability machines with refinements and guides, LLMs are far from being a complete model of human thinking. They

are trapped within the model of language, unable to interact with their physical environment or form alternative theories about how the world works. While scientists are trying to encourage AI to 'play' and explore its environment, it may not be possible for it to escape its 'flat' interaction with language or image data. Child psychologist Alison Gopnik writes about the 'theory theory' of how children learn – comparing alternative theories of how the world works like scientists – which is very different to the LLM probability machine.

> *"The biggest thing we've learned is how far away even the most impressive AI systems are from doing things every child does spontaneously... like figuring out how cause and effect works very quickly...*
>
> *AI systems are very good at... finding the statistical patterns in data, but they're not very good at taking that data and then, the way a scientist would, figuring out what's going on in the world, that is the basis for that data. Children are very good at that.*
>
> *[Also] typical AI systems are what's called supervised... Someone is telling the system at every moment, here's what you should do. Here's what a good response would be... children have much less of that kind of supervision. Children are learning through their own spontaneous exploration of the world, through their curiosity, through going out and playing with things."*

Mathematician Stephen Wolfram writes eloquently about how computers solving one difficult problem – mimicking human language – does not mean they can now do other computationally difficult things. This is a version of Moravec's Paradox (Mitchell again), whereby computers may find things easy that humans find difficult, and vice versa.

AI can't do everything

> *"In the past there were plenty of tasks—including writing essays—we've assumed were somehow "fundamentally too hard" for computers. And now we see them done by the likes of ChatGPT we tend to suddenly think computers must have become vastly more powerful—in particular surpassing things they were already basically able to do (like progressively computing the behavior of computational systems like cellular automata).*
>
> *But this isn't the right conclusion to draw. Computationally irreducible processes are still computationally irreducible, and are still fundamentally hard for computers—even if computers can readily compute their individual steps. And instead what we should conclude is that tasks—like writing essays—we humans could do, but we didn't think computers could do, are in some sense computationally easier than we thought.*
>
> *...If you had a big enough neural net then, yes, you might be able to do whatever humans can readily do. But you wouldn't capture what the natural world in general can do—or that the tools we've fashioned from the natural world can do. And it's the use of those tools—both practical and conceptual—that has allowed us in recent centuries to transcend the boundaries of what's accessible to "pure unaided human thought", and capture for human purposes more of what's out there in the physical and computational universe."*

AI's inability to replicate human 'embodied intelligence' or engage in 'second order reasoning' by considering alternative models is a huge, and potentially insurmountable, problem for the promise of the technology as purported by some tech billionaires. Even in its current state, though, it could prove to be more disruptive and volatile than suggested, by creating nonsense content. Some problems will be fixable, but at what cost? Increasingly, the argument is being made that pursuing an 'AGI' is a distraction and waste of resources, where more localised and understood technologies could deliver larger gains for society (e.g. former Google computer scientist Timnit Gebru).

The Kurzweil-type transhumanist aspiration for AI espoused by many in Silicon Valley (see Meghan O'Gieblyn) could lead the industry down a fruitless path. Outsiders must be careful these promises (and warnings) of evolutionary leaps do not lead to extrapolation of economic potential (and disruption) – and, indeed, equity value – that will not be forthcoming. For this, we should all be grateful.

The 'Neverkusen' Curse

Bayer Leverkusen vs AG

Mazahir Mammadli
Chemicals Research

It is October 2022. Bayer Leverkusen is in tatters. The Bundesliga campaign has started poorly, with only one win and five losses after eight games and the team is in seventeenth place, firmly in the relegation zone. Bayer has been knocked out of the German Cup by 3. Liga side SV Elversberg, and lost its Champions League fixture against Porto. Realising action was required, the club's management parted ways with head coach Gerardo Seoane and replaced him with Xabi Alonso, the forty-year-old retired superstar midfielder who performed in the three top leagues in Europe.

Although successful, Alonso's managerial career was not in the higher echelons of European football. He had only managed Real Sociedad B in the Spanish third tier, albeit they were promoted under him.

His appointment as manager of Leverkusen was controversial, and many expressed scepticism about someone with no experience in top-flight club management taking the helm and predicted doom. Fast-forward to May 2024, and history is being written. Leverkusen notches its first-ever Bundesliga title without suffering a single defeat in 34 matches. No club in a top-five European league has managed this feat since Arsenal's 'Invincibles' two decades ago. Bayer also won the German cup, the DFB-Pokal, and were Europa League finalists, just missing out on going an entire season undefeated in all competitions following a 3-0 defeat to Atalanta in Dublin.

With these achievements, Bayer Leverkusen has finally broken the curse and shed its nickname, 'Neverkusen'. The club gained this sobriquet in 2002, after being runners-up in the Bundesliga four times in six years between 1996 and 2002. Losing two finals in under a week in 2002 – the DFB-Pokal to Schalke, followed by the UEFA Champions League to Real Madrid four days later – only cemented its image as the eternal bridesmaid.

Given such a recent history, the successes of this season sound inspiring, but they beg the question: has Bayer Leverkusen relinquished the 'Neverkusen' title or merely passed it onto the life sciences company, Bayer AG, which owns 100% of the football club?

The parallels between the two are uncanny. Both organisations had periods of disappointing performance after which the top 'manager' was replaced by an energetic and visionary outsider. Both had such long periods of moribund performance that many people wrote them off – which is still the case for Bayer AG. And both have undergone periods of change that promised much initially, but flattered to deceive. In the case of the football club, Xabi Alonso proved his worth in no time. Despite the depths plumbed by the Bundesliga club when he took over, he led a moderately successful fightback in his first season that saw them finish sixth.

In the case of the life sciences giant, things are not so straightforward. Bill Anderson, the smart-casual-wearing Californian by heart (but Texan by birth) made his reputation turning around Roche Pharmaceuticals after the company faced a string of patent losses. With his focus on innovation and a disdain for bureaucracy, many hoped Anderson's appointment as Bayer's CEO would lead to success in putting the company back on track. Not so fast. These things take time.

Indeed, since taking over, Anderson has assessed a multitude of options, ranging from the breakup of the group into two or three businesses to using the famously unsuccessful Texas Two-Step to end the Roundup litigation. After a careful consideration that reportedly involved inviting bankers to Bayer headquarters to simulate multiple breakup scenarios, the 57-year-old decided it was not the right time to take a saw to the company. Rather, he opted to import his system from Roche to eliminate bureaucracy and increase the speed of decision-making, especially with regards to R&D and customer-facing decisions.

The resulting new system, called Dynamic Shared Ownership (DSO), is not easy to wrap one's head around, but in essence it restructures the group into agile teams capable of making quick decisions and communicating with the C-suite in a frictionless manner. Before the DSO, there were eight layers of management between the CEO and customer-facing staff. Anderson himself touts this system as being primarily aimed at increasing decision-making speed and says the headcount reductions in middle-management and associated cost savings are almost a by-product. The company has guided for run-rate cost savings of €2bn by the end of 2026, primarily in middle-management payroll.

This raises another 'Neverkusen' parallel. Bayer's track record of cost savings is extremely poor.

Should point top right

Over the past decade, whenever it cut costs in one place, it invariably added them somewhere else. Thus, the announced savings are usually nowhere to be seen in subsequent income statements. *Ergo* – Neverkusen. So, is this just one more time Bayer saves €2bn in payroll but ends up spending it elsewhere and we see no improvement in margins?

We think this time it might be onto something, especially if the new DSO achieves its primary stated objective of faster decision making, with cost savings as an added benefit. After all, the claim is it will excise many tasks that added no value (e.g. budgeting) and spend the saved time on customers and innovation.

But the bigger 'Neverkusen' question is not whether it will achieve the stated cost-savings goals; it is what happens to the company after the transition to DSO. Bayer is like a broken car. It needs to be one hundred miles ahead of where it is now. The DSO merely fixes the car so it can start running again and is just the first step. Assuming the DSO is successful in achieving its intended targets, the next step for Anderson is to ease in behind the wheel, glide on to the autobahn and drive as fast as possible to close the hundred-mile gap.

That gap is the reason you do not see Bayer in many portfolio managers' watchlists. There are two deal-breakers that make Bayer a no-go zone for many investors: the horrendous growth profile of the pharma business over the medium-term, and the litigation overhang. If investors are to trust their capital to Bayer, these must be overcome. It means the bigger question for Bayer is: will the DSO pave the way for these problems to be fixed?

Obviously, litigation is the big one. It has cost Bayer more than €13bn in payouts so far and is far more difficult to predict than any other moving part. Although DSO will do little to change the litigation situation, we think Anderson has brought renewed vigour and determination to keep fighting the cases and resort to new tools such as public promotion of the safety profile of glyphosate. That said, the second factor, the poor growth profile of the pharmaceutical unit, is not to be underestimated. With Xarelto, we are looking at the loss of a €4bn revenue stream, one with high margins – perhaps the highest in Bayer's Pharmaceuticals portfolio. There will be a permanent margin erosion of several percentage points on top of falling revenue. Will DSO speed up Bayer's innovation engine so the patent cliff is less steep? Not in the near term, as the cliff is already around the corner. But it can lead to new products in Bayer's R&D pipeline that make the post-cliff days look less gloomy and have the growth trajectory inclining upwards.

To come back to the earlier question: has Bayer Leverkusen passed the 'Neverkusen' title to its parent company? We need more than one season to come up with an answer. But what we do see is that Bayer AG may have landed its own Xabi Alonso, albeit one with a Texan drawl.

Divided by a Common Language

US versus European Oil Majors

Peter Low
Energy Research

That there is a large valuation gap between US and European Oil Majors is taken as a given by most investors. The subject came into focus again recently when Shell CEO Wael Sawan told Bloomberg he was open to moving the company's primary listing to New York and that the valuation gap with US peers was too wide. Sawan said, "I have a location that clearly seems to be undervalued".

This view was backed up by former Shell CEO Ben van Beurden, who told the FT Commodities Global Summit that deeper pools of capital in the US and a more positive attitude towards oil and gas companies created "a problem" for companies listed in Europe and that Shell shares were "massively undervalued".

On a metric like P/E this apparent valuation gap appears stark. The European Super Majors are currently trading on 7.9x consensus FY2 P/E, a 34% discount to their US peers on 11.9x. Whilst the discount has narrowed from c65% at its widest point in 2020, it would still suggest a large gap remains.

However, P/E is simply one of many valuation metrics. One of its flaws is that it inherently assumes depreciation (which is captured in the income statement and hence flows into earnings) is a good proxy for capex. In a capital-intensive industry such as energy, we do not consider this to be the case.

We therefore prefer cash-based valuation metrics, in particular free cash flow to equity as it cuts through accounting differences between companies and better reflects the lens through which we believe most investors look at this sector. Specifically, how much cash is available to pay out to shareholders.

The problem with a metric like FCF is that there is no standard definition and no long-term collected consensus that allows the production of a historical valuation chart in the manner of a more standard measure like P/E. This means it requires a bit more work to compare companies.

We define FCF to equity as the cash that is available to pay shareholders after all other recurring uses of cash have been paid, but before any movements in net debt. To calculate this, we start with reported operating cash flow and make several adjustments. We add back any movements in working capital as these typically reflect commodity price volatility rather than the underlying cash generation of the business. We then subtract cash capex, hybrid coupons for those that have them, dividends paid to non-controlling interests, interest where it is not already included in operating cash flow (just Shell) and capital lease repayments (which IFRS 16 has obscured).

If we apply the adjustments outlined above for the historical year 2023, and then take the average market capitalisation for the year, it shows the Europeans traded on a yield of 9.1% on average against their US peers on 7.7% last year. Whilst this still represents a valuation discount, at c15% it is considerably lower than the c35% implied by consensus P/E multiples.

This discount closes further if we apply the same approach to our FY24 forecasts. This shows that, despite the gulf in P/E, the Super Majors price remarkably consistently on an FCF yield basis. This suggests the European Majors are more capital intensive than their US counterparts. We believe this is a consequence of their increasingly material investments into renewables.

There has been a strategic divergence between European and US Majors in recent years, with the Europeans' commitment to net zero necessitating a gradual transition of their businesses towards renewable and low carbon areas. Whilst Shell and BP have slowed down the speed of transition in the past year, the gap to the US still exists. This is illustrated by 2024 capex guidance which, at the mid-point, implies the three European Super Majors will allocate c24% of investment to renewables and low carbon compared to just 6% at their US peers.

This has the effect of depressing group level FCF. The current cash flow contribution from renewables and low carbon is relatively small, and the high investment levels mean these businesses are substantially FCF negative. Our analysis suggests this effect depresses the Europeans' group FCF yield by circa two percentage points on average. Their decision to build out renewable and low carbon

European or American?

businesses, virtually from scratch, has in effect made them more capital-intensive.

This goes some way to explaining why organic FCF yield looks so similar despite the gulf in earnings multiples. But it also prompts the question, is that fair? In theory, increasing investment in renewables and low carbon, a sector typically more highly rated by financial markets, should contribute to a gradual rerating.

Unfortunately, this has not happened, and we see two main impediments to that changing imminently. The first relates to materiality and the conglomerate discount. The Majors have long had higher return, stable earnings streams within them in the form of their marketing businesses. But valuations have inevitably anchored to an oil and gas multiple given the upstream accounts for around 70% of group cash flow. Even for a leader such as TotalEnergies we forecast that its Integrated Power businesses will account for just 11% of group EBITDA by 2028. It is questionable whether that represents adequate materiality to force the market to rerate the shares.

The second pertains to the level of visibility on future growth. We have been using the phrase 'renewables and low carbon' to refer to investments in areas such as renewable power, biofuels, EV charging, hydrogen and carbon capture and storage (CCS), among others. Investments are varied and scattered around the globe. In the case of Shell, following a strategy reboot of which we have been very supportive, it is unclear exactly what the renewables strategy is and where earnings and cash flows could be by the end of the decade. We suspect this will follow once the initial 'ten-quarter sprint' is over and management has the confidence to set longer-term targets in this area. But in their absence is it really a surprise the market is reluctant to attribute much value to the investments?

It is clearly overly punitive simply to treat renewables capex as a cost. We attempt to adjust for this in our DCFs by stripping out renewables and low carbon from our group level forecasts (to avoid it contributing negatively) and including it in our valuation based on capital employed to date. This is undoubtedly a conservative approach but one we think prudent in the current environment.

Adjusting for the negative impact of renewable FCF shows the Europeans are still trading at a c20% discount to the US names based on FCF yield – narrower than that implied by earnings multiples, but still a gap. However, there are fundamental reasons why the US names should trade at a premium to their European counterparts.

The most significant is the differing growth profiles in upstream. Chevron's production guidance (pro forma with Hess) implies a c6% CAGR to 2027, whilst Exxon's guidance (pro forma with Pioneer) implies c3% over the same period. In Europe, TotalEnergies is targeting 2-3% pa growth to 2028, but both BP and Shell will at best keep production flat until the end of the decade. At first glance, there appears to be less

Not only a cost

of a clear transatlantic divide when it comes to reserve lives.

While Exxon is the leader at 12.4 years, TotalEnergies comes in second with 11.7 years, followed by Chevron at 9.7, Shell at 9.6 and BP at 8.5. However, we think this understates Exxon's advantage, with discoveries in Guyana providing strong visibility on where future resource replacement will derive.

We made the case above that there is poor visibility on renewable and low carbon growth and the market therefore places limited value on it. We would suggest the opposite is true of the upstream. It is the area of the business with which investors in the sector are typically most familiar, accounting for around 70% of cash flows today, and at its heart is straightforward to understand. While there are inevitable execution risks around delivering production growth, we believe the market is much more willing to give the benefit of the doubt than with renewables. It is therefore not surprising that companies with a higher upstream growth profile should command a higher multiple – all else equal.

We believe there are further sentimental reasons why the US names could claim to justify a premium valuation. The US Majors have a much greater claim to be a source of consistent, reliable and growing shareholder distributions than their European counterparts.

Exxon has delivered 41 years of consecutive annual dividend growth, whilst Chevron has not cut its payout since 1934, during the Great Depression. In contrast, both Shell and BP were forced to cut their dividends during the COVID pandemic. This was a particular blow for Shell, which had previously claimed not to have cut its payout since the Second World War.

Whilst TotalEnergies maintained its dividend through the pandemic, for which it deserves great credit, it is not entirely innocent. TotalEnergies, Shell and BP have all used scrip dividends in the past, effectively issuing shares to reduce the cash burden of the dividend. We are not convinced by arguments, made at the time, that this reflected investor preference. We rarely see scrips adopted from a position of financial strength and the effect is to dilute shareholders who elect to take cash.

The Europeans also suffer from greater earnings volatility than their US counterparts. We believe this stems from their larger trading operations. These are undoubtedly quality businesses that contribute positively to group returns. BP and Shell have both suggested trading has contributed to a c4% uplift to group ROACE in recent years. However, they also introduce more volatility to earnings.

We can show this empirically in two ways. Firstly, if we take the R-squared correlation between upstream net income per boe and the Brent price over the past twenty quarters, it shows that Exxon and Chevron have a much tighter correlation (c94% R-squared) than the Europeans (c87%). We believe this is caused by the inclusion of gas trading results for BP and Shell in particular, rather than any fundamental difference in commodity exposure. The consequence is that earnings are harder for the market to accurately forecast.

This is borne out by the frequency of earnings surprises at each company. We have used Visible Alpha data to show what proportion of quarters each company has beat or missed earnings expectations by more than 10% (data availability limits this analysis to the past eleven quarters). This demonstrates that in around two-thirds of quarters BP and Shell results have surprised by more than 10%. This represents much more frequent earnings surprises than at peers. We attribute this to the increased volatility that results from their larger trading operations.

There is not an obvious solution. The trading businesses of Shell and BP are highly profitable and enhance group returns. But they unavoidably contribute to greater earnings volatility, which is often penalised by capital markets which prefer stable and rateable earnings and cash flows.

We have sought to show that the scale of any valuation gap between European and US Majors depends heavily on what valuation metric is used and that there are both fundamental and qualitative factors justifying a US premium. It is therefore unhelpful to focus too much on listing location over fundamentals.

When the Going Gets Tough

The Future of Sportswear

Geoff Lowery
Retail
Research

All is not well in sportswear. Nike has cut revenue guidance for 2024, launched a $2bn cost savings plan and owned up to not innovating fast enough while focusing too much on selling Direct-to-Consumer (DtC). JD Sports warned on profits in January – its first downgrade, ex-COVID, in nearly twenty years. Lululemon has cautioned on slower sales trends in North America. Under Armour is resetting its top line under a new (old) CEO. VF Corp – owner of The North Face, Vans, Timberland and Dickies – has commenced a 'strategic review of the brand assets within its portfolio'. In China, the shares of Li Ning are down 55% over the past year.

The overarching theme is that the landscape is showing signs of fracturing across brands, channels and markets. Individual brand performance feels more idiosyncratic than hitherto.

North America (given size) and Greater China (given a depressed sales base) are central to the story. Specific challenges in both markets could reduce future global growth from 8% to 6%, relative to the 2004-23 trend. In an industry that has struggled to deliver cost leverage despite top-line expansion, this points to the need to re-engineer operating models to lower the cost of incremental revenue growth. But as consumer demand fragments across more brands, the challenge is to restore full price selling dynamics after a prolonged period of clearance.

Still, all is not gloomy: the market is large and 'growthy', with some iconic brands. The normalisation of inventories should drive sales and margin recovery from H2, at which point transactional FX pressure eases. The major brands will adapt, as they have done before, and re-engage shoppers. Autumn-Winter 2024 should see strong new product from adidas and Nike. Smaller, newer brands gaining outsize share is not inevitable.

All in, equity markets should be braced for lower margins than previously hoped but not, we think, lower than now; the delivery of premium revenue growth hinges on market share gain more than in years past; and lower normalised valuation multiples reflect more complicated industry dynamics.

The Redburn Atlantic Sportswear Tracker spans brands that are large (e.g. Nike) and small (for example, Saucony), apparel-led (like Lululemon and Under Armour) and footwear-led (such as Asics and On Running), mostly domestic (Anta or Li Ning in China) and genuinely global (Nike, adidas or Puma). In the years immediately before COVID, Nike Inc

(including Converse and Jordan) and the adidas brand (as distinct from the adidas group, which included Reebok until 2021) were losing share but only very slowly. Their growth almost matched the broad group – a remarkable achievement off a huge sales base. Over the past three years, however, the aggregate share of the wider group has enjoyed a greater gain in three years than across the prior fifteen.

This reflects: Anta and Li Ning doubling in size in 2023 versus 2018; adidas losing material share led by, but not exclusively resulting from, the Yeezy fallout; Nike Inc ceding modest share, with Jordan outpacing brand Nike; decent growth off an established base at Skechers ($8bn) and Puma ($9bn); outsized growth off a small base (c$2bn each) at On and Hoka (part of Deckers); premium growth off a large base at Lululemon (more than $9bn of annual revenues).

The landscape in Greater China looks very different to the rest of the world. Before 2019, the big international brands were growing revenues markedly ahead of the domestic majors, (Anta, Li Ning, Xtep, 3610). This has reversed over the past five years. Today, there is a 'big four' rather than 'big two'.

These brands are not perfectly like-for-like. All have strengths and weaknesses, operate at different price points (domestic brands typically lower) and have their own channel and category mixes. Anta, for example, is a range of brands (Fila, Anta, and others). Similarly, the international brands are heterogeneous, with Nike (inc. Jordan) sales flattish in 2019-22, much slower than pre-2019 but comfortably ahead of adidas and Puma.

This suggests a more competitive and complicated market than in the past, particularly when the likes of Lululemon are added into the mix. Unlike Nike and adidas, it was small in China pre-COVID but has grown at a CAGR of more than 60% 2019-24 and Greater China should continue to gain proportionately.

Nike, adidas and Puma are becoming more 'local' in product offer, technology and marketing, which should help consumer interactions. The renewed ability to deliver international marketing assets 'into' China is helpful. So, more recently, is the resumption of local marketing with opinion leaders, which largely ceased during 2022. We think this is enough to forecast a c10% sales CAGR beyond 2024, analogous to the total market, but given the moving parts there can only be uncertainty.

The point is straightforward. If Greater China grows 500bp pa slower than pre-COVID, and North America grows 250bp pa slower than over the past five years, the impact would be to take c200bp pa off overall Sportswear industry growth. In other words, overall global growth for our tracked brands could be c6% pa rather than the 8% pa they have collectively delivered 2004-23, which suggests that, even more than in years past, individual brand performance will hinge on the delivery of market share gain (or loss).

Stepping away from China specifically, and looking through the brand prism, there is much to admire about the way Lululemon, Hoka and On Running have grown, not to mention New Balance which, in the absence of public information, is not included in our tracker. They all have scale and momentum, which points to a material opportunity.

Equally however, there is much we do not know. For example: how effectively and quickly will Lululemon scale a DtC-led model globally? How large is the eventual addressable market for, say, Hoka and On, from a strong starting point in running footwear and with current average selling price points to the consumer of $150 or so? And there is the non-small matter of the response from industry leaders Nike and adidas to wider competition.

adidas has been a loser in recent years, which heralds an opportunity for an energetic and experienced management team, while premium growth at Nike has been increasingly reliant on the Jordan brand. Its progress has been impressive, but last year it was worth $6.6bn in wholesale equivalent revenues and c90% of its revenues are in Footwear. It is big in its addressable market.

Revenues from Nike-branded product appear to lag the wider industry, despite the travails of adidas – its single biggest competitor in many categories – and we suspect share loss in critical areas like Running and Womenswear.

Nike and adidas recognise the challenges and are responding. Nike launched a $2bn (cumulative) cost savings plan in December 2023 with the explicit ambition of reinvesting the gains to fuel growth. The group has big plans for Running, Womens, and the Jordan brand. It has explicitly flagged it intends to restrict the flow of product in important franchises ahead of a new wave of innovation. There is a thaw in its relationship with some wholesale partners.

adidas is a little over twelve months into a fundamental reset of its business. The remaining Yeezy inventory has nearly been unwound, the product line up has been rejuvenated ahead of Autumn-Winter 2024, routes to market have been refocused (in favour of wholesale) and, near term, top line prioritised over profit rebuild. In Running, a salesforce for the Speciality Running Channel has been re-recruited and the group has product across all relevant price points.

The success, or otherwise, of these initiatives is unknown. Yet, for all that Nike and adidas start from different positions and are different businesses, both have inbuilt advantages. These include cross-category credibility, global cross-channel distribution, and marketing budgets dwarfing their peers. They are single brands but not single products; they are always reinventing. If they get the right product, their top line will move ahead quickly.

The infelicities of fragmentation have been exacerbated by the well-known issues around inventory as the industry exited the pandemic. For many brands – Lululemon, On and Hoka being exceptions – the right sizing of inventory has meant a significant cost to achieve gross margin via markdown and clearance. This drag will fall away, it is starting to, but the challenge of re-establishing full price selling remains. Bluntly, we do not know how difficult or expensive this will be. There is no precedent in the past twenty years for what the industry is traversing and much hinges on the quality of new product launches and the capacity of brands to reduce product orders with manufacturers.

There is a risk to reducing orders, namely customers noticing a lack of 'newness'. This is a problem at any time, but particularly against a promotional backdrop and where a range of potent emerging brands are de-facto 'new'. This will have been a particular problem for adidas and Nike, so clean inventories should help in time.

A bonus, however, is that when this destock is concluded, even if 'sell-in' only matches the level of 'sell-out', the depressed base means it will initially generate a hefty pick up in wholesale revenues reported by brands.

So, painful as the current inventory situation is, particularly in North America, if inventory is properly cleansed in 1H24 there should be an outsized bounce back in 2H24 for the brands in wholesale.

Looking back, the major brands, in aggregate and mostly when taken individually, have not delivered positive operating leverage despite achieving an average of 8% pa FX-neutral sales growth since 2004. This is true even if we halt our analysis pre-COVID.

The longer-term reasons are many and various, including: the fixed and variable cost of DtC migration, which adds disproportionately to opex via a higher cost to serve; investment in infrastructure to access growth globally and cross-category; exposure to emerging (and developed) markets' inflation; and ongoing competition for the best marketing assets.

These dynamics, overlaid on potentially slower industry growth and greater competition for market share implicit in fragmenting consumer demand, point to opex being a source of ongoing margin erosion. And yet, consensus still expects the aggregated EBIT margin of the brands to rise to new highs, led by Nike (but not just at Nike), and including beyond the 2024 bounce back in gross margin.

It is hard not to return to the centrality of the migration to DtC in all this. Over the past fifteen years, the proportion of revenues flowing from DtC at our tracked brands has ballooned from c15% to above c45%. This reflects both the growth in DtC at traditionally wholesale-led brands, led by Nike and adidas, and growth within the overall industry mix of DtC-led brands, for example Lululemon.

There are good reasons for brands, with strong equity and the right operational skill set, to grow DtC revenues. Capturing the full sales value, building direct selling relationships and knowledge of the consumer and managing inventory flow more efficiently are all logical. Yet the experience of brands becoming retailers is thornier. The challenge for traditionally wholesale-led brands is that DtC has added complexity, costs and capital, which extra gross profits need to pay for. Experience thus far suggests mixed results, with any benefit being to absolute profit rather than margin. In addition, our feeling is via an over-prioritisation of DtC and shelf space foregone in wholesale, the megabrands have gifted too much 'oxygen' to newer, smaller brands that have leveraged it to grow scale.

There is a lot going on here. Logically, the complexity of the many unknowns points to: (1) material ongoing dispersion in individual company performance with the ability to gain share being crucial; (2) general caution towards expectations of substantial bottom-line margin expansion, particularly in the absence of premium top-line growth and/or re-engineered operating models; and (3) lower attributable valuation multiples (on normalised earnings) than have prevailed in recent years.

This has been the age of the 'sneaker'. Yet worldwide search interest in the term since 2004, as tracked by Google, peaked in early 2022. It is too early to know if this is the start of a trend, or simply indigestion following the homebound COVID explosion. The art critic Robert Hughes memorably described Caravaggio as being 'one of the hinges of art history: there was art before him and art after him, and they were not the same': one wonders if someone will one day say the same of the pandemic in the context of sportswear.

Running to stand still

Soaring Away

Airports and Politics

Isak Hirsch
Transport & Leisure Research

Airports, the gateways to travel and commerce, are by nature highly linked to politics. Their monopolistic structure and importance to sovereign economic development puts them in the sights of politicians and often they become heavily regulated assets.

Historically, governments wanted to incentivise airport investment and expansion with the promise of economic growth and increased mobility. More recently, however, there's a broadening coalition of local residents and environmentalists entering the decision-making process, with campaigns against airport expansion and noise pollution. Some political ramifications are already apparent, with noise charges on aircraft, expansion plans stopped, aircraft movements capped and taxes raised to disincentivise air travel.

In parallel, Middle Eastern leaders are seizing an opportunity to boost their hubs. Dubai, Doha and Istanbul airports are enjoying massive investment spearheaded by governments keen to boost their international clout, tourism and commerce. Their growth is impressive. Istanbul and Dubai each had ten million passengers at the turn of the millennia; today, Istanbul boasts a combined 110 million and Dubai 87 million. Doha has followed suit, growing from two million to 46 million. As their growth accelerates, their advantages build as Europe does little but weaken its hubs.

Perfectly located, Doha and Dubai are within an eight-hour flight radius of two-thirds of the world's population. With snow and ice-free runways, they are perfect hubs for efficient long-haul transfer from Europe to a fast-growing Asian market, where a majority of the population is still eager for their first flight. The current closure of Russian airspace adds a further blow to European competitors as traffic is now diverted south through the Middle East.

Added to their advantageous location, the Middle Eastern hubs have cheap non-unionised labour, no risk of strike disruption, low or no corporate taxes, no aviation tax and great size and connectivity. The biggest benefit is perhaps the airports themselves, which have massive scale with luxurious shops and charge the airlines less than half that of their European counterparts.

These advantages have allowed Emirates, the Dubai-owned carrier, to become the world's most profitable airline in 2023, to the tune of $4.7bn. Turkish Airlines and Qatar Airways are trailing and now stand ready for a chunk of upcoming aircraft deliveries. Despite its small size, the Middle East has more wide-body aircraft on order than any other region, a 30% market share for 2024-27. The growth has catapulted the Middle Eastern wide-body fleet past Europe in the aftermath of COVID, and it now boasts a 19% global share.

The airports are preparing for explosive growth. Dubai is constructing a $35bn airport with a capacity of 260 million yearly passengers, while Istanbul's new $17bn airport can handle 200 million in its final phase. To put these numbers into perspective, Delta hub Atlanta is currently the world's busiest with 100 million passengers.

Of course, there are no Middle Eastern super projects without Saudi involvement. The country has witnessed the explosive economic growth of its neighbours and wants its share. Crown Prince Salman is funnelling money into the aviation sector with a new flagship airline, Riyadh Air, planned for 2025. The airline is already making big aircraft orders with a new airport planned, aimed at reaching 120 million passengers capacity by 2030. As with any Saudi project, there's still little to show for it, as it has struggled to compete with the attractions of its more Westernised neighbours. But the sheer amount of dollars it is able and willing to throw at the sector cannot be overlooked.

The growth of the Middle Eastern carriers has rightly worried some European airlines and hubs. With little competitive help from their own governments, indeed with increased taxation and flight restrictions, European airlines are lobbying to block Middle Eastern carriers rather than competing against them. Canada imposed limits on Etihad, Qatar and Emirates flights to protect Air Canada and, by extension, its partner airline Lufthansa.

In Germany meanwhile, Emirates has been blocked from entering Berlin after multiple attempts. It is a victory for Lufthansa but another blow to the Berlin airport project, which remains heavily underutilised having opened ten years late and cost €7bn of taxpayer money against an initial budget of €2bn. No major European carrier has the incentive to grow there with Lufthansa also left plenty of space to grow elsewhere as most German airports remain underutilised. Meanwhile, Emirates is blocked by an agreement signed in

Compared to Gatwick

1994, limiting the number of German destinations to four. Emirates has long filled these slots and has been unable to grow further into Germany, as the country aims to protect its flag carrier. Qatar Airways has had more luck, albeit it has not been without controversy. An EU-Qatar deal was signed in 2021, granting Qatar Airways access to 450 million European customers. In return, EU airlines received reciprocal rights to a country of 3 million. Having been signed amid the "Qatargate" corruption scandal, the agreement has naturally turned heads. Nevertheless, attempts to block the deal, or Middle Eastern carriers in general, will prove difficult as the bilateral agreement continues to prove a highly attractive way to boost local economies throughout Europe.

That leaves many European airlines and airports to compete from an increasingly inferior position. While a blow to some, the impact will be nuanced. The aviation sectors of Spain and Greece are likely to be net beneficiaries as they do not compete for long-haul transfer traffic, while they are receiving increased connectivity to Asia through Middle Eastern hubs. Additionally, their governments are highly reliant on tourism, which renders stringent aviation regulation unlikely.

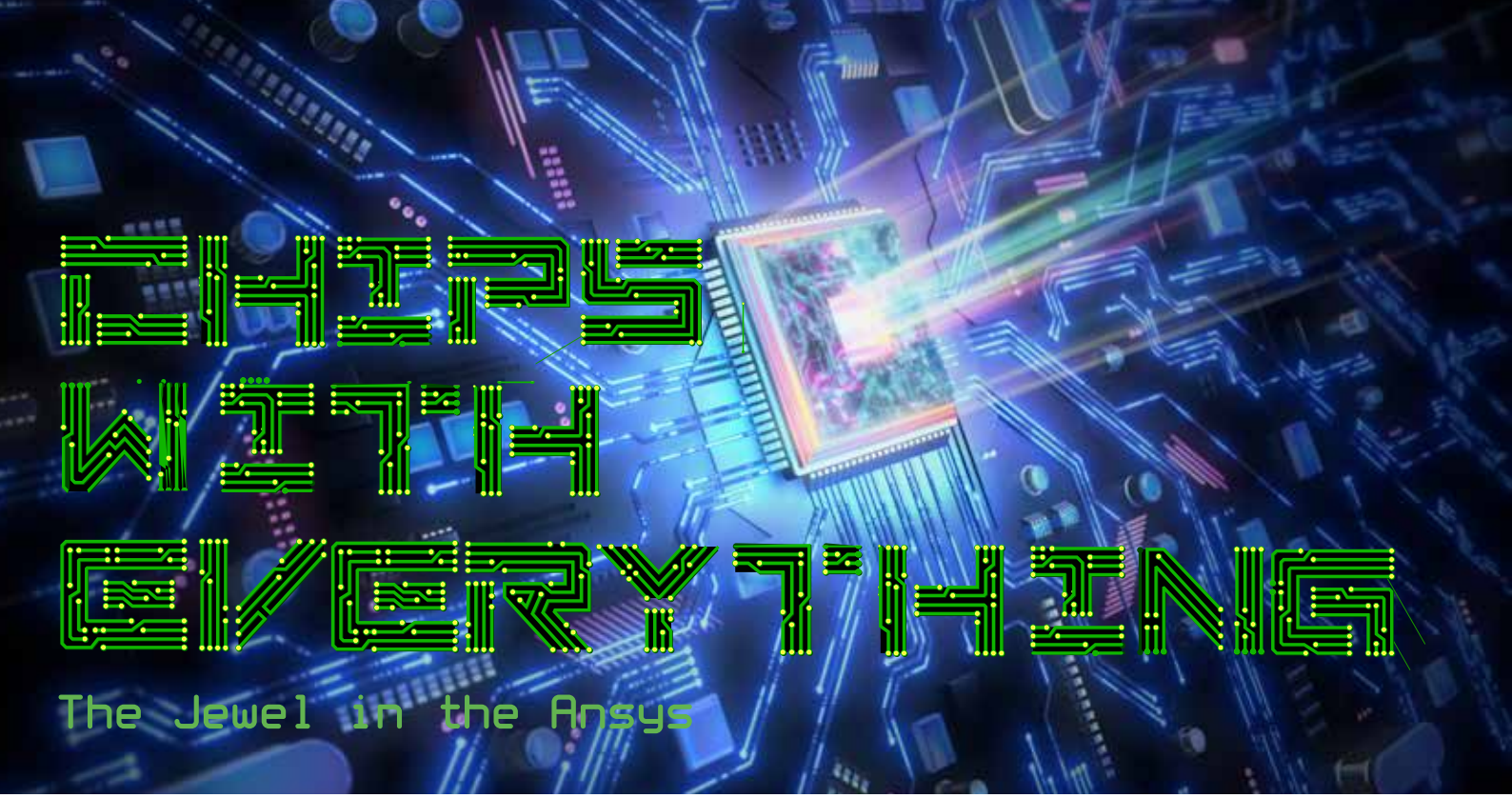
Meanwhile, France, Germany and the Netherlands stand to lose the most having built an industry out of transferring European passengers to Asia. At the same time, their respective governments are displaying increasing hostility towards the aviation sector. Last year, trying to address its inflated debt burden, France introduced a windfall tax applicable from 2024 on privately-owned infrastructure assets. The bill taxes French infrastructure concessions at 4.6% of yearly revenue. The impact on ADP, operator of both Parisian airports, has been an estimated €100m increase in operating expenses. The bill arrives on top of already high carbon and aviation taxes.

Similarly, Germany after having initially approved its 2024 budget, faced delays after a court deemed the deficit unconstitutional, forcing the government to cut spending and or increase taxes. As a direct consequence, Germany's already elevated aviation tax increased by another 22% as of 1 May. That makes it the highest in the EU, doing little to help Germany's sluggish travel recovery post-COVID, the slowest of any major European economy. European low-cost carriers have largely exited the market, citing unsustainably high taxes and tariffs. Lufthansa Group now boasts a 99% market share of domestic air travel without any incentive to grow as it squeezes the consumer.

In the meantime, the Netherlands has put a cap on the number of flights from its Amsterdam hub, Schiphol, to cut noise pollution for residents, the move being cheered by environmentalists. The government was set to reduce the numbers even further until the US government lobbied against it on behalf of its own airlines.

The growing political involvement in the European aviation sector will be closely monitored by investors. In certain situations, the heightened idiosyncratic risk might disincentivise the infrastructure investment critical for the European economy and connectivity. The popularised stakeholder capitalism adds a layer of complexity, with heightened expectations for corporate responsibility impacting operational strategies.

The global landscape is being reshaped: the political and regulatory stability of countries remains as important as ever.



Lachlan Brown
Software & Cloud Research

In January 2024, Synopsys entered into a definitive agreement to acquire the computer-aided engineering (CAE) platform Ansys for $35bn. Media reports suggest electronic design automation (EDA) peers, Cadence Design Systems and Siemens (owner of Mentor Graphics), also bid before the sale was agreed with Synopsys at a lavish 14x FY1 EV/sales. But why was there such interest from the major EDA players in a CAE platform that has grown revenue at a modest 10% CAGR between 2020 and 2023?

Ansys is the global market leader in CAE, a multi-physics engineering simulation software used to compute solutions like fluid dynamics, thermodynamics and finite element analysis (FEA). While there is overlap, it is important to distinguish CAE from computer-aided design (CAD) platforms such as AutoCAD from Autodesk, which is more focused on 3D design and visualisation.

The acquisition strategy is to accelerate growth into new, attractive verticals for Synopsys. Ansys is well established in industries like automotive, aerospace and industrial, whose systems are becoming increasingly intelligent via silicon. Given the complexity of these systems, it is sensible to establish a complete silicon to systems platform, with Ansys simulating the electronic systems that house the chips designed through Synopsys. However, there is another proposition: the rise of chiplets in semiconductors and how Ansys will increasingly support their EDA design needs.

A chiplet is a small modular chip that performs a specific function. For example, a chiplet can be a processor core, a memory block, or an input/output (I/O) driver. These need chiplet-based architecture, in which multiple chiplets are connected via a high-speed digital interface to form a complete System-of-Chips. This is achieved by using advanced packaging technology, which delivers 3D stacking, where chiplets are stacked vertically on an interposer, or 2.5D stacking, where chiplets are combined in the same plane of an interposer. Chiplets are connected via a process called hybrid bonding using direct copper interconnects. Through this method, powerful Systems-of-Chips are created by mixing and matching different technologies to create a customised system, without the need to fit all the components onto a single monolithic chip.

There are several benefits of chiplets technology. The semiconductor industry has historically been guided by Moore's Law, which states the number of transistors on a chip doubles every two years. We're currently at 3nm process technology and have a roadmap for the Angstrom (10^{-10}) era, but Moore's Law has 'slowed' over the past decade given process technology is increasingly complex and reaching its molecular limits. Chiplet technology provides alternative growth for semiconductor performance rather than relying on the perpetuity of Moore's Law.

It is also addressing the exponential rise in monolithic chip costs. In the EDA design phase, there's less time and complexity in designing a single purpose chip (i.e. processor, memory) than a large complex chip that undertakes many functions. Furthermore, higher yield is extracted from a wafer using chiplets. Larger monolithic chips have a greater surface area, which increases the likelihood of a defect, leading to the entire chip being of lower quality or even discarded.

Lastly, the demand for specialised compute capabilities is growing

with the rise of Generative-AI, the Internet of Things (IoT) and high-performance computer (HPC). Chiplet architectures address this need by combining specialised components optimised for specific tasks. For example, a System-of-Chips purpose-built for Generative-AI may require more memory dies than an IoT chip.

Chiplet-architecture technology has existed since the 1980s but was never meaningfully commercialised given advanced packaging technology was not there to support interface performance (i.e. transferring data between dies), and monolithic chip innovation was supporting Moore's Law. Hence there was no need for major investment into chiplet technology for three decades. However recently, given the cost pressures on monolithic chips and the slowdown in Moore's Law, many semiconductor companies have pivoted towards chiplet technology.

AMD is widely recognised as a leader on chiplets, introducing chiplet-architecture into its EPYC CPUs, which are server processors used in data centres. The first generation, 'Naples', was released in 2017 and had four dies, with the proprietary interconnect between the dies called Infinity Fabric. AMD's recently (June 2024) announced EPYC, 'Turin', will be launched in the second half of this year and features seventeen chiplets. Intel introduced chiplet architecture into its Meteor Lake processors, launched in December 2023. The chip has five 'tiles' (chiplets) including a CPU tile, GPU tile and an I/O extender tile. AWS first introduced chiplet architecture with its Graviton3 (released May 2022), separating the processor die from four DDR memory dies and two I/O drivers. Nvidia uses 'chiplet-like' components in its recently announced Blackwell GPU architecture (March 2024). The architecture will feature two large GPU dies, connected with a high-speed chip-to-chip link to form a unified GPU, although a spokesperson from Nvidia has noted "Blackwell is not a chiplet design".

The difficulty with chiplets is with the design and integration. Creating a cohesive system from disparate components requires complex interconnect technology. These interconnects must support high bandwidth and low latency to allow chiplets to communicate effectively, matching the performance of a monolithic chip as closely as possible.

A major hurdle is standardisation. Chiplets need interoperability, including universal standards for design, communication and integration. In March 2022, the Universal Chiplet Interconnect Express (UCIE) was formed, an open-standard for die-to-die interconnect between chiplets. It was co-developed by AMD, Arm, ASE Group, Google Cloud, Intel, Meta, Microsoft, Qualcomm, Samsung and TSMC. A challenge for the UCIE is that to form a fully open ecosystem, licensing and distribution frameworks need to be agreed upon and leaders of EDA software acknowledge a fully open ecosystem for chiplets is at least five-to-ten years away. The technology will progress proprietarily in the interim, particularly from players like AMD and Intel who can design the heterogenous chiplets in-house, through EDA platforms like Synopsys.

The solutions that Synopsys desires in the Ansys portfolio, which become increasingly relevant to chiplet design, are Ansys High-Frequency Structure Simulator (HFSS) and Anysys CFD (Computational Fluid Dynamics). They are suited for heat transfer analysis. HFSS is a 3D electromagnetic simulation software, which is used to analyse the heat sources within the silicon and how thermal radiation is emitted. CFD uses mathematics to predict the physical flow of fluids, analysing how heat can be carried away from the dies through fluids like air and liquids.

The advantage monolithic chips have over chiplets is the heat can be dissipated into the 'atmosphere' through the silicon substrate on the bottom or heat sink at the top. The problem in having multiple chiplets adjacent to each other is heat control. Thermal radiation cannot be as effectively transferred into the atmosphere as it is absorbed by other chiplets. Local hotspots can arise, reducing performance and the lifetime of the chip. This is where heat simulations from Ansys' HFSS and CFD solutions are utilised, rather than using existing verification solutions in the physical phase, which are expensive, take months to develop, and are not synchronous with the software design phase.

The other challenge with chiplets is the interconnects must support increasingly high bandwidth and low latency in an era of Generative-AI/HPC, which will eventually be limited by the capability of direct copper interconnects. Silicon photonics is a developing technology that uses light in the form of particles or photons to carry information. This is the equivalent of the telecommunication industry adopting optical fibre transmission, allowing for ultra-high frequencies and materially larger data volumes on the network. The inherent difficulty for photons in semiconductors is the silicon can't transmit light nearly as effectively as glass optical fibres; but the technology has advanced.

In April 2024, TSMC announced its collaboration with Ansys on simulation software for TSMC's Compact Universal Photonic Engines (COUPE), a silicon photonics integration system. COUPE aims to mitigate coupling loss (power loss when light is passed from one device to another), while accelerating chip-to-chip bandwidth. Ansys will provide solutions that enable photonic simulations (Anysys Lumerical FDTD), high-frequency electromagnetic analysis (Ansys RaptorX), power integrity verification (Ansys Totem) and thermal management (Ansys RedHawk-SC Electrothermal), supporting the EDA of silicon photonics.

Battle of the Brands

Indie Trends & Multinational Platforms

Kyriaki Koutta
Consumer & HPC Research

Googling 'how to start a beauty business' returns nearly two billion articles. The first two autofill suggestions below the search bar are 'how to start a beauty business with no money' and 'setting up a beauty business from home', each also returning well over a billion results. These compare to less than two hundred million results for 'how to start a beer brand' and less than one hundred million for 'how to start a snack brand'.

This is not surprising. The rise of social media and influencers over the past fifteen years, combined with a developed contract manufacturing industry, have in many beauty categories crushed barriers to entry to the extent where it is indeed, in theory, possible to launch a brand 'with no money' or 'from home'.

Contract manufacturers provide the necessary facilities in addition to formulation and packaging expertise, meaning no material physical capital investment is required to start a brand. Furthermore, the ease of marketing through social media such as Instagram and TikTok, coupled with the visual nature of beauty, have in turn democratised the barrier to influence as well as marketing access for smaller brands. This has resulted in the rise of beauty start-ups, otherwise known as 'indie brands', which in the US now capture more than a third of the market.

Indie brands have unique product offerings which align with, or in many cases create, trends. This is overlayed with strong consumer engagement through social media and physical store pop-ups, helping to build a loyal community or 'brand tribe'. From an operational perspective, the absence of lengthier and complicated processes, which often result from being within a large corporation, allows for streamlined routes from idea to shelf.

However, although indie brands win on trend, speed and consumer following, they lack scale. Indeed, the accessibility of social media marketing and minimal capital requirements for starting a brand have resulted in the already fragmented beauty market becoming ever more crowded, with new brands launching, it sometimes feels, every day. Hence scale in distribution, budgets and inventory are critical in standing out from the brand crowd.

Meanwhile, the market leaders have multi-country manufacturing and distribution platforms, advertising and research budgets which dwarf those of the indies, economies of scale and synergies across their brand portfolios.

From a channel perspective, start-up brands usually rely on Direct-to-Consumer channels, primarily brand.com, to distribute their products in the early stages. Such was the case for the former indie darling make-up brand, Glossier. However, it quickly becomes evident, and such was the case for Glossier, that expanding distribution in more accessible channels is inevitable. This includes 'The Big 5' in the US, which are notoriously complex to enter and maintain shelf space.

The power of the platform, or lack thereof, has been demonstrated on multiple occasions, particularly over the past four volatile and disrupted years. While some of the more successful indie brands have been dominating social media and gaining shelf space, this is not the full story. Survivorship bias is real.

Inevitably, not every indie brand has been a success. Closures over the past year have included Twentynine Palms, the skin and hair care brand of 30 Seconds to Mars frontman Jared Leto, and the influencer-founded Jaclyn Hill Cosmetics.

In addition to closures, we have seen country exits by up-and-coming beauty brands. Both Huda Beauty and e.l.f. Beauty have exited the Chinese market for the time being amid last year's COVID disruption. This highlights the complexities behind international brand expansions that require complicated registration processes, in addition to the already demanding manufacturing and distribution adjustments required. Hence, the journey abroad is often more easily travelled through the internationally established platforms of the beauty conglomerates.

Indeed, indie brands have often sought the solace of multinational platforms, strong inventory cash backing and retailer relationships through M&A.

Some of the most successful beauty brands of recent years, for example Charlotte Tilbury, The Ordinary and Dr Dennis Gross, have all been acquired fully or in majority by larger peers, Puig, Estée Lauder and Shiseido respectively. Similarly, the make-up brand, Rare Beauty, founded by the singer and former Disney star Selena Gomez, is reportedly looking

for exit options. The brand has forged an impressive path since 2020 when it officially launched, reportedly reaching $400m of revenues in the year to February 2024. To put into context, that is roughly 100 times smaller than market leader, L'Oréal. The list goes on and recent headlines have included names like Merit Beauty and Kosas Cosmetics.

However, when discussing the power of the platform in projecting smaller brands, we would be remiss not to mention CeraVe. The brand had not necessarily had the success of the aforementioned names when it was acquired by L'Oréal in 2017, generating less than €150m in revenues. Within five years on the L'Oréal platform the brand grew revenues more than ten times, and we estimate has been contributing circa one percentage point per annum to the group's top-line organic sales growth since 2020.

Spoilt for choice

As part of the broader L'Oréal portfolio, the brand leveraged the group's marketing and innovation resources to become a TikTok sensation during the pandemic. Impressively, it has continued to grow at elevated levels post 2021, adding almost €1bn of revenues. Through L'Oréal's strong retailer relationships, e-commerce presence and dermatologist partnerships, CeraVe has not only established itself as a leading dermatological brand in its domestic US market, but also internationally.

Dermatological skincare is one area where larger players have a competitive advantage. The marketing heavy and faster-to-market approach of indie brands better suits trend-driven categories such as make-up, while skincare, particularly dermatological skincare, requires major investment in Research & Innovation (R&I), established relationships with dermatologists and proof of concept through expensive clinical trials and influencer reviews.

R&I for dermatological skincare can be costly, yet within the context of broader portfolios can offer cross-brand synergies. L'Oréal often refers to the innovation cascade, whereby newer and more expensive to produce ingredients are introduced initially through higher margin brands and are over time incorporated in formulations for brands lower on the pricing ladder.

Therefore overall, greater access to R&I budgets and an army of white coated researchers coupled with established dermatologist networks can reintroduce some of the fallen barriers to entry for indie brands.

While indie brands are individually small, combined they are becoming an important element of the beauty ecosystem. Although the US was initially the seedbed, they are becoming a global phenomenon. For instance, China is seeing an upsurge of domestic start-up brands which are gaining popularity through innovative digital marketing and *guochao* (national wave) appeal, as they are founded locally.

Indie brands offer important lessons for the market leaders. They open windows into popular trends, effective marketing campaigns and market niches that perhaps need addressing. Ultimately, in order remain relevant and maintain their competitive advantage, the market leaders need to continue investing behind marketing and R&I.

Although acquiring a successful start-up is one avenue towards remaining competitive, investing and maintaining the relevance of the core portfolio within a crowded market is the most important.

The paramount contribution from indie brands is the diversity they introduce to the market. As they tend to have a more specialised product offering, and fill gaps inadequately addressed by the larger players, the industry becomes more inclusive, with better and wider representation.

So as the teachers are learning from their pupils, and the industry is broadening its horizons, indie brands remain the talk of the town. They may be small, but they are big enough to create market-wide trends; big enough to make beauty giants adapt; and big enough to make the beauty market a more colourful, variegated industry.

Reformulated

The State of Ultra Processed Foods

Ashton Olds
Beverages Research

I recently had a coffee with my fiancé Claudia, a devoted oat flat white drinker. At the counter, however, she threw me for a loop and ordered a flat white with cow's milk. My immediate reaction was I thought I knew everything about the girl I was about to marry, but before I could question her choice she told me oat milk is "out". It transpired she had watched a viral TikTok showing that because oat milk comes from a starch it causes a spike in glucose when consumed. By contrast, cows' milk is mostly protein and fat. Although Claudia is fairly health-conscious, this was the first time she had shown concern about her glucose levels.

While we all strive for a healthy life, knowing what constitutes 'healthy' is not always straightforward. Nutrition science is relatively new and advice from medical professionals is often confusing if not conflicting. Moreover, the proliferation of information accessibility afforded by the internet adds to the uncertainty, as people seek information which confirms their beliefs or stumble across content from dubious sources.

Today, the hot debate in the food and beverages industry surrounds the prevalence of ultra processed food (UPF). The term UPF was coined by Brazilian researchers who developed the NOVA food classification system. Per the Food Agricultural Organisation, 'UPFs are the formulation of ingredients, mostly of exclusive industrial use, typically created by series of industrial techniques processes'. In layman terms, this is food containing ingredients rarely found in a domestic kitchen, such as emulsifiers, artificial flavours, colouring, sweeteners, and preservatives. These are considered 'ultra-processed' as they undergo multiple formulation processes including hydrogenation, extrusion, moulding and packaging.

UPFs have become topical because an increasing body of academic research has identified links between UPF consumption and non-communicable diseases, such as obesity, diabetes, cardiovascular, and all-cause mortality. Moreover, researchers argue there is a distinction between UPF and foods which are high in fat, salt and sugar (HFSS), which challenges the prevailing belief that a food's nutritional value dictates how healthy it is, rather than its ingredient composition.

Public concern was raised by the 2023 Bestseller, *Ultra Processed People* by Chris van Tulleken. Google trend data for 'UPF' or the front page of popular grocery trade-press site, The Grocer, confirms the topic is gaining traction. While we can all agree UPFs are bad, the problem is, (1) our food supply chains have been built around the proliferation of UPFs, (2) the science is not unanimously agreed upon, and (3) it remains a confusing topic for consumers.

While humans have been processing food for hundreds of thousands (if not millions) of years, it is only in the past two hundred that real advancements have occurred. Preservation techniques gained traction in the 1800s with development of pasteurisation and canning, while in the 1900s chemists realised they could chemically modify ingredients to alter their uses. For example, by removing natural ingredients and replacing them with modified starches and gums, food producers could recreate the viscosity and texture of food while gaining parallel benefits, such as decreasing cost, improving shelf-lives, or reducing calories. These are the techniques which enable products like no-fat mayonnaise, a sauce normally comprised almost entirely of fat, to be manufactured for a fraction of the price of traditional mayonnaise, while increasing its shelf life.

As industrial chemistry techniques advanced, so the branded food industry thrived, delivering hyper-palatable, convenient and profitable food. Every supermarket aisle in the UK demonstrates the abundance of UPF available, ranging from packaged bread to cereals, spreads, frozen meals, powdered soups and desserts. While most consumers would say they strive for a balanced diet and only eat processed foods in moderation, UPFs make up over half the calories consumed in the UK, and two thirds in the case of British children.

With companies rewarded for growth, manufacturers are motivated to increase volume production. The food processed by major manufacturers is generally formulated in a laboratory by food scientists seeking to optimise taste, texture and aroma. This results in the formulation of products which humans are biologically hardwired to enjoy. A posterchild for UPF is Pringles crisps, which are <42% potato, and predominantly a mixture of wheat starch, sunflower oil, maize oil and rice flour. Its unique

Unique sensory experience

hyperbolic paraboloid shape provides packaging and structural benefits, but also delivers a unique sensory experience of crunchiness and mouth feel as it saddles the tongue. The development of products like Pringles is supplemented by considerable marketing, including advertising, branding, sponsorships and in-store activation. As this is in addition to the food being cheap and tasty, it is no surprise we consume so much.

The lack of consensus among researchers about UPFs stems from the complexity and novelty of the topic. Most nutritionists agree HFSS products are unhealthy, but the UPF label is far more reductive, challenging the idea it is not only nutritional issues causing the problem, but how products are formed. While there is evidence linking UPFs to various health issues, the mechanisms by which they may cause harm are not entirely understood. Some argue the processes to which UPFs are subject cause diseases by altering bacteria concentrations in the gut microbiome; others are less convinced, speculating there will be alternative factors at play.

For example, the UK's Scientific Advisory Committee on Nutrition review into UPFs found 'studies are almost exclusively observational and confounding factors or key variables such as energy intake, body mass index, smoking and socioeconomic status may not be adequately accounted for.' In other words, a variety of health or economic factors could contribute, not processing alone.

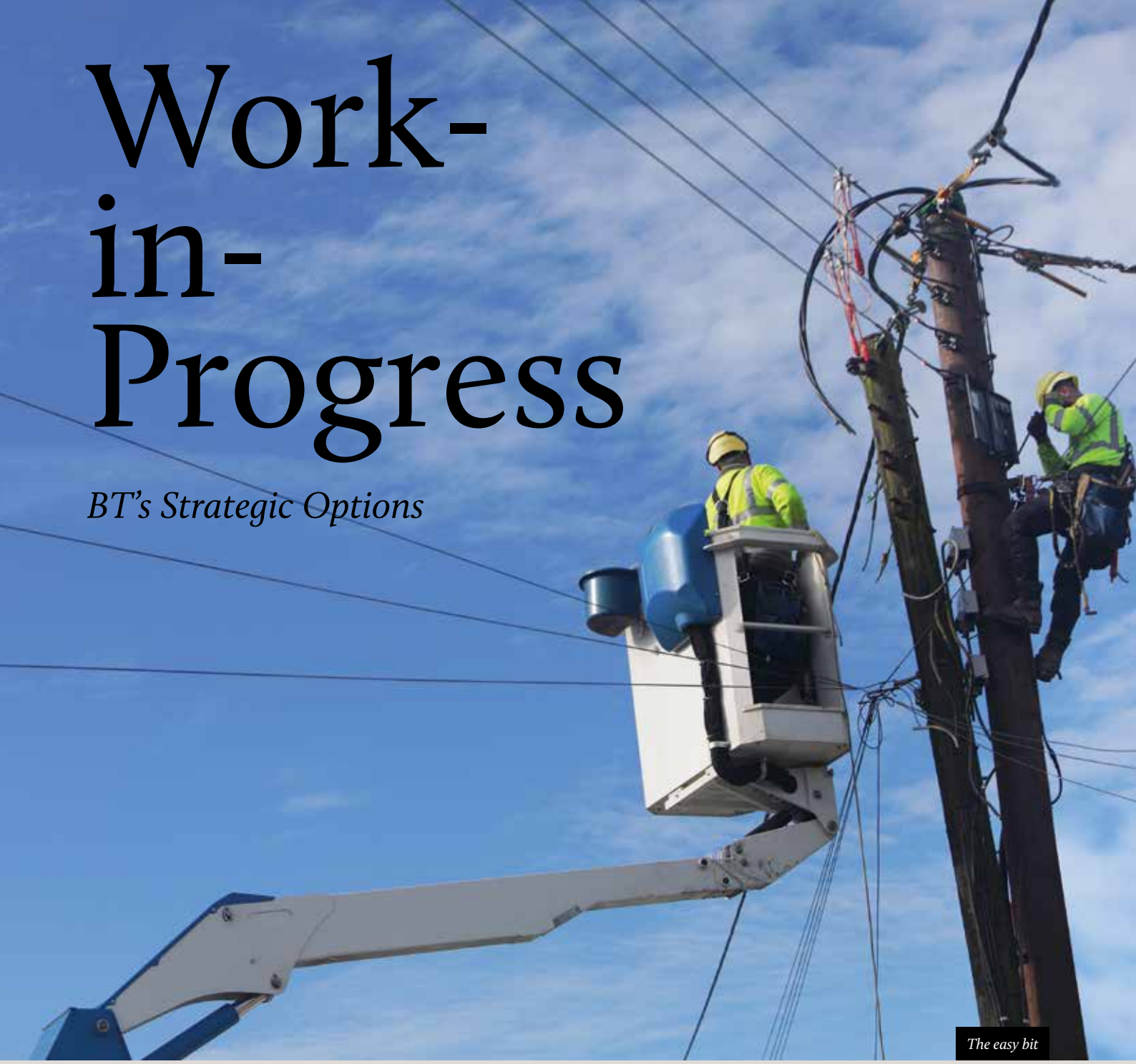
For consumers, the debate around UPFs adds a layer of complexity to making healthy dietary choices. With conflicting information and evolving science, it can be difficult to know which foods to prioritise or avoid. But if the effects of UPFs are not fully understood, the debate shines a light on the importance of minimising consumption of HFSS products as a baseline, while favouring whole foods and minimally processed options where possible. However, the convenience, affordability, and availability of UPFs mean they are likely to remain integral to many people's diets and require a balanced and pragmatic approach to consumption.

For an investor, the possibilities for food manufacturers and ingredients suppliers are unsurprisingly large. Unless consumer tastes change or governments intervene, there is unlikely to be a pressing need for change. That said, we have seen mixed responses by UK corporates. The ready-to-eat food manufacturer Greencore is trying to stay ahead of the curve by looking at product reformulation; soft drink company Britvic notes regulation as a risk in its annual report; and conglomerate Associated British Foods indicates it is awaiting further research and guidance before making changes.

However, a shift in consumer attitudes or regulatory intervention could squeeze volumes, profitability and stock ratings. Such fears are compounded by concerns over the new weight-loss drugs (GLP-1s), which could impact future growth. While there has been some decline in valuation multiples for food ingredients, soft drink and snacks companies, it is hard to maintain this purely reflects UPF health concerns. These companies are masters at tailoring their portfolios, having turned numerous historical threats (e.g. low-fat diets in the 1970s and 1980s, low-carbohydrate diets in the 1990s) into opportunities to launch new product ranges. As analysts, we argue investors should follow the signs provided by ongoing academic research and customer purchasing behaviour – and opt for cows' milk rather than oat when ordering a flat white.

Work-in-Progress

BT's Strategic Options



The easy bit

Steve Malcolm
Telecommunications Research

BT has a new CEO and, in case the news passed you by, a new Head of Investor Relations. It hardly needs writing, but both are fiendishly difficult jobs. Our former colleague, Nick Delfas, must be hoping his impact on BT's ailing share price is similar to that seen at Rolls-Royce since our former aerospace analyst moved into industry.

There are similarities between the two companies. Both have huge strategic importance to UK plc. Rolls' position as a manufacturer of jet engines and defence equipment is critical in an ever-trickier geopolitical landscape; BT will be the leading provider of digital infrastructure critical to the UK's efforts to improve its productivity. But in share price terms, they are opposites. Rolls has faced existential crises (COVID, of course) but has enjoyed a stellar recovery since its 2020 nadir and the shares have climbed more than 200% in the past twelve months. Over the same period, BT's shares have fallen 13%, underperforming the FTSE by 25%. But could BT's current strategy stimulate a Rolls-like share price renaissance?

BT is one of the most important companies in the UK, delivering connectivity directly or indirectly to 74% of homes and businesses. Its infrastructure arm, Openreach, has passed fourteen million premises with fibre, plans to reach 25 million by 2026, and ultimately will pass virtually every UK building that requires connectivity. Its four million per annum build rate is unmatched

in Europe or, for what it's worth, the Unites States. As the UK struggles to improve its feeble productivity and retain relevance on the global economic stage, BT is, perhaps, doing more than any company to drag us into the 21st century with high-speed digital infrastructure. Without it, all the perceived rewards of developments like AI (can we now consign the Metaverse to history?) will be unattainable.

Sadly, its national importance is inversely correlated with its equity performance. Its shares have been weighed down by opaque regulation, the country's largest private sector pension fund deficit, and a quantitative easing-overhang of privately and debt funded alt.net infrastructure threatening fatally to undermine its core 'Openreach' business. The shares, even after a 20% bounce, trade on 7x P/E and offer a 6% dividend yield. So, how does management translate its connectivity pre-eminence into equity performance?

Unsurprisingly, there is no simple answer. Years of punishing capex cycles delivering meagre returns (in Europe, certainly) have left investors reluctant to park their cash in any telco, let alone one in the middle of a capex up-cycle. The company would (justifiably) argue fibre is a once-in-a-hundred years investment programme and it is unfair to value it on current cash flows, which are temporarily suppressed by this outsized investment.

Sceptics (equally justifiably) will retort the history of regulatory intervention in the sector means it is generous to assume one should build forecasts around current wholesale prices, which may be materially lower when BT's 'fair bet' on fibre ends in 2031.

BT is in an invidious position. If it successfully defends itself against the alt.net market incursion, which will almost inevitably mean widespread financial collapse in that heavily indebted sector, its reward may be more onerous regulation given its implied dominance. This is not a conversation BT can have today. But as alt.net failures occur, which we think likely over the next 24 months, it must start laying the groundwork. Being the broadband provider of last resort should bring regulatory reward.

In an ideal world, BT's best strategy to deal with its multi-dimensional strategic challenges would probably be to be taken private, avoid the glare of quarterly key performance indicators and half-year free cash flow (FCF), kill its dividend, lay fibre even quicker, and return to the public markets when it has broken the back of its national fibre build. At that point it may even consider cutting the umbilical cord between Openreach and the rest of the business and allow its core access infrastructure to stand alone.

The positive rationale is to derisk itself from the loss of large wholesale customers by removing the links with their customer-facing BT Retail entities and derisking the BT group from future onerous regulation. The risk is 'ServeCo' will be poorly equipped to survive and flourish as an independent company.

The blueprint is Telecom New Zealand's separation into the Chorus 'Netco' and Spark 'ServeCo' in 2011, which has delivered total shareholder returns of c270% since the split. However, New Zealand is a far less competitive retail market and Spark is strategically and operationally years ahead of BT's retail operations. BT would be well-advised to study Spark's playbook. The NZ market leader embraced WhatsApp as a customer service tool (no chatbots, please), replaced Net Promoter Score (NPS) with zero voluntary churn as its critical customer satisfaction steering metric, abandoned blunt national marketing campaigns, and focused on younger demographics through partnerships with Spotify among many other initiatives. This has driven consistent growth.

However, in our view the go-private option is unrealistic, and BT's largest shareholder, Patrick Drahi, is not a credible suitor. His leverage-fuelled telco buy-out blueprint has faltered – for confirmation, ask SFR bondholders. Even if it were, the UK government has effectively ruled it out. Indeed, the new CEO should make his removal from BT's shareholder register a priority as his presence is unlikely to help the share price, adding volatility on results days.

BT's current stated strategy is to 'grow value for all our stakeholders' which it intends to achieve by, (1) 'build(ing) the strongest foundations', (2) 'create(ing) standout customer experiences', and (3) 'lead(ing) the way to a bright, sustainable future'. Let's review how it is doing.

The scorecard is mixed on point one. The stand-out success is its commitment to fibre deployment, led by Clive Selley at Openreach. No other telco is building past four million premises each year, its build costs have been well managed and penetration of 37% is highly respectable when compared to its UK

"BT is doing more than any company to drag us into the 21st century"

peers. BT/Openreach cannot control its competitors' build-plans, but the relatively low penetration achieved by alt.nets – figures vary but mid-teens percentages look the most likely take-up – is testimony to Openreach's rapid build. Any ISP wanting to sell fibre-connectivity to UK consumers on a national basis needs to use Openreach. And the more it builds, the less Sky, Vodafone, TalkTalk et al. need to use other network builders – particularly putative national wholesaler, CityFibre.

It is instructive that despite selling wholesale lines at a £2-3 monthly discount to Openreach, CityFibre has, to date, been unable to convince Sky to become a wholesale customer. Without a large volume commitment from Sky, we argue CityFibre, which has in excess of £3bn of net debt, has little chance of financial success.

Investors have good reason to be wary about rising telco debt piles. I am old enough to remember BT's 2001 rights issue when debt reached £28bn on the back of a dot.com acquisition spree. Headline net debt (ex-leases)/EBITDAaL of 2x may not look alarming. But if one adds the pension deficit of £4bn and deducts (recurring) restructuring charges of £400m from EBITDAaL, leverage climbs to 2.6x. This is stretched for an incumbent EU telco exposed to regular bouts of deflation and regulatory risks.

The opportunity may now have been lost, but BT's new CEO should have considered scrapping its dividend while building fibre, reducing its debt pile and ensuring sound financial foundations are a source of competitive advantage when alt.net peers begin to enter

pensions, restructuring and flatters its TNT-Sports costs, into line with its c£800m dividend burden.

Strategy point two, creating stand-out customer experiences, may be even more important in shaping BT's future. Without trivialising the undertaking, building fibre is the 'easy bit' for BT because it's an existential decision. Openreach needs ISPs to connect their customers to fibre and BT Consumer is its largest customer. In an often-confusing digital world, where low-cost rules, BT needs to stand out from an increasingly commoditised crowd.

We see an opportunity for BT to become the most trusted digital sherpa as its rivals increasingly dumbed down customer service. The Spark analogue should be analysed closely by BT's retail leadership. BT has made progress here in the past

"Boards tend to exaggerate holding on to a poorly covered dividend"

However, there are two areas where BT's foundations could be stronger. Its ailing Business division is in a permanent state of financial crisis – EBITDA declined 16% in FY24. And its balance sheet struggles to support a dividend BT borrows to fund while capex is elevated to build fibre and it needs £800m each year to top up its pension. It is easier said than done, but investors need a clear sense when the Business division will stop draining the bottom line and some straight talking on the balance sheet.

What is peak leverage? Given net debt rose £600m in 2024, when will BT's £19bn debt-pile start to decline? Guiding on a 'normalised FCF' number which was £600-700m higher than its 'real FCF'(before pension payments) in 2024 also dilutes trust in management's financial stewardship.

administration, as we think seems likely. Our experience is Boards tend to exaggerate the importance of holding on to a poorly covered dividend – the market is far more efficient at judging a company's dividend paying ability than insiders. The last time BT scrapped its dividend, in May 2020, the shares closed within 6% of their five-year lows, bumped along for five months and then doubled over six months as investors bought in to the fibre-led investment case. From the point the dividend was reinstated, the shares rose for six months and then halved over two years, despite the dividend. BT should prioritise balance sheet strength over paying uncovered dividends. So, mixed results on the construction of strong foundations. Sooner rather than later, BT needs to bring its actual cash flow, not the 'normalised' version that ignores

three years, and is now amongst the least complained-about UK fixed and mobile telecom operators. Indeed, all operators using the Openreach network are attracting fewer complaints than Virgin Media, BT's one national network rival. But if BT is to sustain or grow its customer numbers, without having to resort to discounting, there is a way to go.

The decision to stick religiously to CPI+ pricing was a mistake. BT's Consumer division is paying the price as customers who have suffered two years of double-digit price rises are able to recontract at far lower 'front-book' prices, which have failed to follow higher back-book pricing. Above all, telco investors crave predictability, and this sort of pricing approach does not deliver reliability. The BT 'app' is archaic and difficult to navigate. It regularly offers its customers 'deals' that are

En route

more expensive than their current tariffs. The migration to the EE brand makes sense, but too many consumer journeys end in a frustrating dead-end. It is also questionable whether the slavish adherence to NPS really works. We like the 'zero voluntary churn' customer steering tools adopted by the likes of Spark in New Zealand and Telenet in Belgium.

The good news is BT's competitors set a low customer service bar. As a multi-year Sky customer, I can report off-shored call centres have coincided with plummeting customer service levels at BT's major retail broadband competitor. Traditionally, Sky's customer service was pre-eminent, but Comcast's desire to boost short-term profits may be undermining that position. No doubt, BT is still groaning under an impenetrable web of customer service IT systems, but by hook or by crook, almost regardless of cost, BT needs to become UK consumers' most trusted digital partner. There is no point in Openreach building fibre if BT Consumer cannot retain and upsell to its customers. Schematically, BT's strategy can be boiled down to Openreach building fibre 'like fury' and BT Consumer finding ways to retain and add customers that do not rely solely on price. This is easier said than done, but leaning on enhanced connectivity to improve the take-up of converged services, enabling e-SIM connectivity for wearables, offering cheap(er) roaming and selling home security solutions should all be considered.

We will not dwell on BT's third strategic goal, leading the way to a bright, sustainable future, as it is a given for any corporate. However, BT must be seen to do its bit for the planet and its ESG credentials will be a vital hygiene factor in attracting the younger customer demographics it urgently needs. Delivering on its ESG commitments, alongside migration to the EE brand, are BT's best hopes of retaining consumer relevance over the next ten to twenty years.

Many aspects of BT's investment case are outside its direct control. The impact of interest rates and inflation on its pension fund, alt.net sponsors continuing to fund cash-burning builds, Sky's willingness to use a second wholesale provider, and TalkTalk's solvency will all probably impact BT's share price over the next two to three years. We would simplify BT's strategy to: 'Build Fibre, keep your customers (without having to slash prices), protect the balance sheet (and clean up FCF)'.

BT cannot be faulted on its commitment to fibre, even if it started a little late. The second part is, at best, a work-in-progress, and the third needs constant vigilance.

The Coming of (the) Age

As Tech Giants Celebrate

James Cordwell
Internet Research

It is a bumper period for birthdays of significance. Alphabet (*née* Google) moved up to the 25-34 age bracket on 4 September last year, Amazon is set to enter its fourth decade on 5 July, while Meta (*née* Facebook) is probably making plans for its twenty-first birthday celebration on 4 February 2025. Meanwhile, Microsoft is hitting the big 'five-o' on 4 April, and Apple is not far behind. I am sure it feels nothing like a fifty-year-old – or is at least in serious denial - given it's a mere nine days older than this author.

Other than discerning that if you want to create a multi-trillion market cap business, it's probably best to establish your company at the start of the month, does any of the above have broader meaning? Well, contrary to the words of comfort we offer to those approaching middle age, age isn't just a number. It is an inescapable factor that influences your character, behaviour and worldview. And as it is with people, so, we argue, it is with companies.

Like those recently out of their teenage years and still looking at the world as filled with endless possibility, Meta is always eager to jump on the latest trend. Be it Stories, short-form video, the Metaverse or AI, every time Meta is quickly 'all-in'. And, like that annoying friend who seems to be able to turn their hand to anything and everything, Meta has proven itself disarmingly adept at most initiatives it has pursued. Albeit it has the benefit of considerable wealth and extensive 'connections'. Ultimately, an investment in Meta is an investment in Zuckerberg, who, despite turning forty last month, has been instrumental in ensuring Meta continues to act like a precocious twenty-year old.

Although only five years older than Meta, Alphabet is cut from a different cloth. The company's character is reminiscent of the star pupil who sails through academic life only to find that excelling in the world of work requires a broader combination of skills. Having reached its mid-twenties, questions are also percolating as to whether the current path Google is on – namely Search – has the prospects originally envisaged, or whether a change of direction is required. For better or worse, an investment in Alphabet is a belief in the best technology, the broadest infrastructure, the brightest minds winning out, a 'build it and they will come' approach.

Once upon a time, Amazon was as cavalier as Meta in terms of jumping on trends, albeit it never quite had the same flair for riding the *zeitgeist*. However, having overextended itself in its late twenties in the property market (well, warehouses), its pending thirtieth birthday has brought a new seriousness. Scaling back some of its more speculative activities to focus on what it does best, Amazon is now earning real money and most believe it has a lucrative decade ahead. An investment in Amazon is grounded in scale, on a dedication to efficiency and rapid execution, and being able to convince yourself the freewheeling approach to spending that characterised its youth is behind it.

Any guide on how you should dress in your forties inevitably includes the advice to fill your wardrobe with fewer, higher quality, items. Apple has taken this advice to heart, curating its product portfolio in the way a forty-something might manage his or her fine wine collection. Meanwhile, ageing gracefully has enabled it to maintain the respect of 'the kids', but there are question marks over whether it really understands youth culture given its obsession with privacy and its misplaced understanding of what Meta does with user data. An investment in Apple is the hope that the iPhone is a hybrid of Birkin bag and Colgate toothpaste, a luxury good everyone will need forever.

A 2020 paper by David Blanchflower of the US National Bureau of Economic Research supported the commonly held view that happiness peaks in your twenties and declines through to your mid-forties, before improving into old age. Such a trajectory roughly mirrors that of Microsoft's stock, which peaked relative to the S&P 500 in early 2000 when the company was about to turn 25, before steadily underperforming until the company was entering its fifth decade in 2015. Since then, it has all been upwards and to the right. Furthermore, just as happiness in old age correlates with maintaining friendships and having a broader and more diverse set of experiences, an investment in Microsoft is predicated on its strong corporate relationships and well-rounded portfolio of capabilities, a formula that has been working well of late.

The only problem is genius has no respect for age. In February, an eight-year-old Indian-born Singaporean, Ashwath Kaushik, became the youngest person to defeat a chess grandmaster. Kaushik was born in

Game of thrones

August 2015, which means he is four months older than technology's own 'child prodigy', OpenAI. Founded on 11 December 2015, the startup has already reached a valuation of $80bn and is almost singlehandedly responsible for the current mania for all things AI.

With OpenAI, the characteristics of child genius are coupled with the wild abandon of youth. Regarding the former, the company has been responsible for two of the most breathtaking product announcements of the past ten years. First, ChatGPT changed our perception of what was possible with computers, and then last month the announcement of GPT-4o displayed an almost Jobs-ian knack for capturing imaginations (and newspaper headlines) with technology.

On the business front, the company has shown astuteness beyond its years, finding itself a rich benefactor in the form of Microsoft, while allowing itself to be taken under the wing of Apple.

Regarding the wild abandon, there are positives and negatives. Positively, it appears to be inheriting Meta's mantle in its ability to pivot, shifting from non-profit to profit and from being focused on the enterprise to increasingly prioritising the consumer over the short eight years of its existence. More negatively, last year's machinations around corporate governance serve as a reminder there is a certain amount of growing up still to be done.

Returning to Kaushik, while the story of the young chess maestro is interesting, the real human intrigue seems more in his opponent, Jacek Stoppa. Surely there is a psychological impact to becoming, at just 37, the chess grandmaster defeated by the youngest ever opponent, and recovering from it in an area where cool mental calculation is required will be fascinating to watch. Drawing the obvious parallel, in technology the interesting story from here might be less about OpenAI's journey through adolescence, and more how the mercurial company impacts the ageing process of its larger tech peers.

Will Microsoft and Apple regret tying their fortunes to the unpredictable tween? Will the company's chatbot prove to be a classic case of a disruptive innovation for Google Search, inferior for Search's main use case of searching the web but superior on a previously underserved dimension, human-like chat? And will Meta's competitive large language models commoditise OpenAI's business opportunity, or will the company stay one step ahead, turning Meta's AI efforts into nothing more than a money pit?

Finding the answers to these questions is something that will ease the ageing process for this author – along with his happiness going upwards and to the right.

Labour's Love's Lost

Highway or Railroad?

Oliver Holmes
Transport & Leisure Research

The thought of being a truck driver might not strike you as 'living the American Dream', but cruising on the open road is not only often a passion but a job for 3.5 million Americans, roughly 1% of the total population. Trucking is the beating heart of the US, moving 11.4 billion tons of freight and generating $940bn of revenue in 2022.

Historically, becoming a truck driver has been one of the most accessible paths Americans can take to achieve what the Declaration of Independence defines as 'life, liberty and the pursuit of happiness'. The accessibility and allure of being your own boss has created one of the most fragmented markets in the US, with 95.8% of fleets operating ten or fewer trucks. Highlighting the low barriers to entry, truckers are 80% less likely than the wider work population to have a Bachelor's degree or higher. Despite this, the average heavy and tractor-trailer truck driver earns a similar amount to the average American (c$60k pa).

However, the allure of becoming a truck driver is diminishing as the public's perception of the American Dream is increasingly reflected through the prism of social media. The age dispersion is heavily skewed to the right with 72% aged over forty while only 9% are between twenty and thirty. This trend is evidenced by the average age of a trucker (46) being 9% higher than the US mean. Furthermore, this dynamic is deteriorating as the average age rises.

Exacerbating the problem, there has been a shift in driver preference post-COVID for short- over long-haul, enabling drivers to leave and return home each day.

However, more positively, there are visible improvements in diversity. Female participation has risen from 6.8% to 9% since 2010, while Hispanic or Latino (20%) and Black or African American (14%) comprise a large portion of the workforce. These trends are more prevalent among the younger cohorts, with c50% of 25-34-year-old drivers identifying as non-white compared to less than 30% for 55 to 64 year olds. Nevertheless, the issue of being perceived as unappealing by the younger generation needs to be addressed.

The obvious way to ignite interest is through wage increases, which offers a segue into the potential for truck to rail conversion. A customer's decision on which mode of transport to use is based on two metrics, price and service. But given trucking has greater exposure to wages (c34% of total cost) than rail (c20%), clearly wage increases designed to entice the younger generation will drive cost curves in favour of rail and support truck to rail conversion.

Carbon adds another negative layer. Rail is four times more fuel efficient than trucks. This imbalance, which the International Energy Agency expects to persist until 2040, pushes the cost curve in favour of rail. In essence, the incremental cost per mile associated with carbon tax is four times higher for trucks, driving a modal shift to rail. In an attempt to maintain market share, truck rates will necessarily decline, squeezing margins, profitability and wages, further reducing the appeal for new young entrants.

However, the path ahead is not entirely smooth for railroads. Labour has been the key to its success but also presents a challenge.

Precision Scheduled Railroading was the brainchild of Hunter Harrison, the legendary railroader. He first implemented his theory on network fluidity in 2001 at Canadian National. It was later adopted at Canadian Pacific in 2011, CSX in 2017 and Union Pacific and Norfolk Southern in 2018. Precision Scheduled Railroading is primarily focused on redesigning railroad operating models, enabling superior service (reduced dwell times, higher train velocity and on-time deliveries) through optimising network fluidity. As a by-product, railroads underwent cost base rationalisation, through the reduction of headcount. Headcount declines of 20% were not uncommon at US railroads in the late 2010s, driving material margin improvement.

The allure of expanding margins and shareholder approval drove railroad management to fixate on margin expansion. The requirement to improve margin at any cost resulted in railroads rationalising volumes in low-margin end markets, namely Intermodal. This was most prevalent at CSX, which, over a period of two to three years, cut c15% of its Intermodal franchise.

This fixation on cost reduction, primarily through headcount reduction, left the railroads vulnerable to unexpected exogenous events, such as COVID. At the onset of COVID, railroads furloughed employees to try to right-size for the collapse in demand. This, although necessary, caused major operating issues when c50% of those furloughed did not return to work.

Hard labour

The COVID-induced labour shortage was further impacted by a decline in culture and a rise in attrition. Labour negotiations in 2022 had caused unrest among incumbent employees and thus produced a poor work environment for new joiners, driving attrition rates above the historical mid- to high-single-digit range.

This had serious ramifications. Structurally, labour is the first pillar of railroading and requires the right headcount and culture to drive good service (the second pillar of railroading), and one of the two barometers customers use to choose which mode of transport to utilise. As a result, good service propels the third pillar of railroading, volume growth. The latter is the engine of strong financial performance owing to incremental EBIT margins north of 60%, and multiple expansion.

The inability to hire and retain employees materially impacted rail service during COVID, generating volume share loss to trucks. However, labour contracts were signed and headcount growth picked up in 2022/23. This in part reflected a shift in rhetoric. There are four new CEOs among the five Class 1 listed railroads, and three are more commercially-focused than operationally, i.e. equally, if not more, concerned by volume growth than margin expansion.

As a result, railroads have built additional headcount, carrying more weight than in the Precision Scheduled Railroading era. Moreover, some management teams, such as CSX, have improved culture by holding carnivals on Saturdays for employee's families. You may ask, 'why is culture so important?' The simple answer is there is much unsupervised work on railroads. This, in combination with a workforce demotivated by poor pay and other elements such as no paid sick leave, results in subpar output.

Our view is railroads will continue to implement Precision Scheduled Railroading but less aggressively while adopting Digital Scheduled Railroading (DSR). The key to DSR is layering technology across the network to enhance employee productivity. The difference is that employee productivity increases through driving the numerator versus cutting the denominator, as was the case under Precision Scheduled Railroading.

The best way to reduce volatility in a company's love, level of loathing and lack of labour, is by reducing reliance on it via the adoption of automation – whether vehicular, in sortation centres, or back-office processes.

With regards to vehicle automation there are barriers to mass adoption, both technological and regulatory. The current technology trucks use relies on road markings being read through a series of cameras, producing an automated driving output.

However, there are limitations, most evident being bad weather (snow, ice, fog, rain) impacting the ability to process road markings. The issue of staying in lane, navigating roundabouts or T-junctions is mitigated by the adoption of rail tracks. From an operational and safety standpoint, rail is ahead in the race to vehicle automation but, for regulatory reasons, has not yet widely adopted the technology.

A reduced reliance on labour is a primary cost-out strategy for parcel, warehousing and logistics players. For example, UPS under its 'Smart Package, Smart Facility' initiative has seen throughput increase 30-35% at its facilities. Additional reduction in labour reliance can be driven by adopting supply chain software. These tech stacks streamline all processes from initial shipment, to import customs and returns.

Nevertheless, it seems that labour is the oil that greases the wheel – for now.

STRANDED

Notes from Airport Security

Maggie Schooley
Capital Goods Research

As many analysts will aver, marketing research around the world brings an opportunity to meet investors, debate ideas and make connections. It is enjoyable, a change if not quite a rest. After the work of thinking through and writing one's thesis, modelling, assessing the risks and trying to find an angle, the opportunity to debate our views makes it highly rewarding.

Alternatively, site visits to our companies' facilities give us the chance to understand them in greater detail. Seeing how their products are designed and manufactured, talking to divisional managers and generally adding knowledge to give us an edge.

The downside to these opportunities is undoubtedly the effort necessarily expended in reaching investors or companies' facilities, wherever they may be located. Post-COVID, there has been an explosion in travel as a pent-up wanderlust has been unleashed. Airports are packed, planes are delayed and there is rarely a quiet time to travel. But before you can even squeeze into that overcrowded departure hall and onto an ever more efficiently configured aircraft with an ever-increasing number of seats, you have to run the gauntlet of security.

Admittedly, I am short on patience at the best of times, but the queues at airport security are often enough to leave me close to breaking point. However, I do also recognise that I am the nightmare traveller, because every time I go through an airport I geekily question the operator on when they are scheduled to receive their impending hand baggage scanning technology upgrade.

One of the perils of being a Smiths Group analyst is the obligation (personal, not company mandated) to interrogate all security staff on the timing of the arrival of the next tranche of kit.

Depending upon the answer, I wonder whether the schedule matches company guidance (as if guidance was that detailed) and, if it has been installed, I question how it is working. Is it slow? Are there false positives? If it breaks, does the manufacturer promptly fix it? There is a litany of questions that must be asked every time I pass through security, even if I happen to be travelling with my family, all of whom are simultaneously inured to, and mortified by, the routine.

Whoever is behind me must think I am unhinged and is clearly praying I don't sit by them in the lounge or, more importantly, am not on their flight. However, my family and fellow passengers are failing to recognise how pertinent the questions are to their future travelling experience. It may be hard to believe, but I am looking out for them.

For those readers unfamiliar with Smiths Group, it is a UK Industrial conglomerate whose Detection division has, inter alia, a leading position in the design and manufacture of hold baggage and hand luggage X-ray and CT scanning.

Baggage and passenger screening is undertaken to keep passengers safe from the transport of banned goods (materials, plants and animals), contraband, explosives or other harmful elements. They also ensure such products do not enter the destination country, appear in the airport or emerge while the aeroplane is in transit.

Anyone who has ever been sucked into watching *Border Force* understands there are some unusual items passengers try to transport. The Australian version is particularly fascinating, partly because passengers seem to consider trying to smuggle 90% of the world's thirty deadliest animals out of Australia as a bagatelle. One person tried to move a taxidermy armadillo with 'an armadillo-sized hat and little armadillo gun holsters', according to thetravel.com.

The Transportation Security Administration, the US government entity responsible for the protection of US transportation systems, has an Instagram account overflowing with examples of items packed in passenger luggage, including a live four-foot boa constrictor confiscated at Tampa airport, a five-foot long pair of ceremonial ribbon cutting scissors in Nashville, and an antique cannonball from Kahului airport, which was live. In such a world, firearms and drugs are little more than background noise. The packing of the constituent parts of a handgun in jars of peanut butter took some effort, though the one stuck in a raw chicken lacked a little flair.

With the structural increase in passenger traffic, airport operators must assess sophisticated risks while keeping passenger queues flowing. Hence airports globally are upgrading security screening to the latest technology, enhanced computed tomography. These upgrades are predominantly government-funded.

CT is a similar technology to that used in medical applications. It employs algorithms to detect explosives and other potentially harmful threats through 3-D scanning. Each image shows a thin section of the object in detail which is then combined to create a 3D image that can be rotated 360 degrees by the technician to view all angles.

Smiths often refers to its capability to 'unpack a bag digitally'. This eliminates the need for travellers to remove liquids, gels and electronics from carry-on baggage. Such advances, while speeding up throughput in security checkpoints, also reduce the number of rechecks needed. Furthermore, it allows the mining of data for operators and authorities to understand evolving threats and bad actor behaviours.

The reduction of false positives and enhanced algorithms is essential in speeding up queues, but also to ensure logical decision making. This also requires the application of common sense. The *Daily Mail* recently highlighted the plight of one traveller who was forced to wait while law enforcement officers tested her child's Play Dough to ensure there were no traces of C4. Another woman had her earrings confiscated because they resembled bullets and were therefore considered a threat – in the circumstances, an unwise choice of fashion. However, although annoying to the traveller and grist to the *Mail*'s take on the modern world, such checks are necessary.

In Smiths Group's latest results, the company noted that the global CT upgrade for hand luggage was c40% complete. Upgrades to airport hand luggage screening started around 2019 but, owing to the disruption of COVID and subsequent surge of travellers' post the lifting of travel restrictions, roll-outs globally have been delayed by approximately a year.

Roughly speaking, most major airports should have the new machines installed and operational by late 2026 or early 2027. Anyone travelling through London City should use the far-right security lane as it has been upgraded, which means from empirical experience it is much less hassle to go through.

The continued development of technology is essential in ensuring passengers remain safe. Smiths Group spends c7-9% of divisional sales on R&D to support embryonic technologies, which should in turn enable the group to maintain its leading position. Beyond CT, it has recently released its next generation X-ray scanner powered by diffraction technology for the identification of suspect substances based on the object's molecular structure. The machines can detect compounds in powders, liquids and solid forms to detect explosive and narcotics.

As we head into the summer travel season, it is inevitable there will be queues and delays (most of which will feature in 'holiday misery' stories), but I look forward to travel being marginally less stressful. A secondary benefit, as two of my older children embark on gap years and post university travel, is I feel comforted by the thought they are a little safer.

Sign of the Rhine

Where Next for European Chemicals?

Tony Jones
Chemicals Research

In the March 2023 Redburn Atlantic Review, I argued the European Chemicals industry, like the UK in the 1990s to mid-2000s, faced potentially insurmountable challenges. The diversified commodity suppliers were experiencing grisly demand, painful feedstock costs, prolonged destocking, limited export opportunities, deflationary pricing and cheap imports. These were exacerbated by unwieldy conglomerate structures and the expense of meeting sustainability legislation.

By the end of 2023, output was roughly as low as in the Great Financial Recession, and companies such as BASF reported negative earnings for upstream petrochemicals. The output in Germany, the European bellwether, suffered double-digit declines in 2022 and 2023. Strategic reviews have been announced and assets will be closed. The shape of the industry is untenable.

A year or so ago, there was a fear Europe would become a net importer of chemicals, especially from China. This has not proven to be the case – yet. However, on average, net exports are lower than hitherto, which chimes with CEOs noting Chinese imports are reaching unprecedented levels. The capacity expansion in Asia, particularly China, continues, and lower-than-expected local demand is offset by exports. The high-cost position in Europe means many countries, like Germany, are an easy target for Chinese chemical companies.

If there is a silver lining, it is that little new capacity has been constructed in Europe. For example, there has been no greenfield petrochemical cracker asset built since BASF's Antwerp development fired up a new cracker in the 1990s. Only INEOS has plans for a new petrochemical cracker, and despite various delays it should be ramping production in 2026.

But despite limited new capacity, poor demand and production rates have caused plummeting utilisation. With this drifting between 60% and 70%, production economics have collapsed. Indeed, for several months in H2 2023, BASF idled certain facilities to prevent further earnings erosion.

Given high costs and limited expectation of a sizeable demand recovery, several European management teams, or those in North America with a material European presence, are hinting some higher cost, subscale assets need to be permanently closed.

When we reviewed the global petrochemical cost curve in 2022, the massive rise in energy costs – fuelled by natural gas shortages – had uncomfortably inflated cash costs for European producers.

One of the problems is that the main feedstock is naphtha, a refined cut from oil. Many blend this with propane or butane to optimise costs and the output product mix. However, this is more costly than using ethane, a by-product from NGL extraction and the raw material of choice in North America and the Middle East.

A few companies, for example OMV and INEOS, import ethane to provide a local cost advantage. But for companies like BASF, which rely less on the ethylene produced from ethane, instead aiming to maximise the generation of co-products such as propylene, the ability to shift to ethane is limited.

Until recently, the prevailing view has been that Asia, China in particular, had slightly higher petrochemical costs than Europe. The cash cost curve from 2022 tended to support this conclusion. However, industry consultants and some of the more exposed petrochemical companies have recently suggested there is no major difference. BASF management confirmed on its last earnings call that China not only has surplus capacity but has lower cost assets than Europe.

Given this, we have rerun our proprietary cost modelling work. The output indicates Europe has lost its cost advantage relative to China. There is not a major difference for any of the regions which primarily use naphtha or other oil derivatives, but the vast scale of the facilities constructed over the past decade, and with more to come, means China's profitability will be improving relative to Europe.

There are two more subtle points worth considering. One appears structural, the other is harder to call.

Structurally, China's petrochemical capacity is expected to increase 40-50% between 2020 and 2026. There is always room for error, with projects being delayed, but the scale of the expansion is so vast oversupply has become inevitable. Whereas a world-scale petrochemical cracker used to be around one million tonnes of production output at maximum loading, many of the projects in development have theoretical

There's a light...

capacity of between 1.5 and almost two million tonnes. This shifts production economics dramatically.

Moreover, industry consultants ICIS Analytics estimate c40% of this new China capacity is using ethane as the primary feedstock, imported from North America and the Middle East. This further improves the cost position for the most modern sites in China compared to their ageing European equivalents.

BASF is expected to start up its new steam cracker in Zhanjiang, Guangdong province in 2026. This asset will be one million tonnes and probably consume naphtha and butane as the main input mix.

The second point relates to China stepping up access to cheaper naphtha. Although it is harder to determine whether this procurement strategy has become a structural advantage, it has certainly delivered another cost advantage for petrochemicals and intermediates.

Although Russian oil extracted in East Siberia has often traded at a slight discount to Brent, as quality variances ensure demand is not always as robust, recently there has been a more sizeable arbitrage.

Sanctions, price caps and other trade barriers have limited exports from Russia to many regions. In lieu, volumes have increased to China via the East Siberian-Pacific Ocean (ESPO) pipeline network. Data shows Chinese imports of naphtha have materially increased since 2022. With the cost of this feedstock highly correlated to oil, it seems inevitable that it has created another lever of cost optimisation.

Is this change to feedstock procurement strategy likely to be permanent, therefore ensuring a plentiful source of lower cost raw materials? We believe so, at least for the next few years. China is keen to diversify its raw material and energy supplies, especially at a lower cost than in the past. And Russia benefits from channelling oil fractions into a country with a long history of cooperation and less interference from western policy.

None of this points to a rosy future for the upstream petrochemical industry in Europe. Some of the oil majors may prune operations here and there but petrochemicals and plastics can serve as a hedge. Cash flows are derived, whilst chemical margins erode sharply, when energy prices are high. Conversely, the opposite is hardly a shock but can mark the moment in the cycle when destocking fades. Once chemical prices have crashed, whether as a result of energy cost pass-through via lower prices or chronic oversupply, which is what has occurred over the past few years, it is often a pertinent time to revisit the investment case for deeply cyclical companies.

So, what has happened to the upstream European chemical industry over the past year or so? Not much capacity has been shuttered, but we argue there will be an acceleration in permanent asset closure. And yet, there has been a huge divergence in regional capex.

In North America, the latest wave of petrochemical capacity expansion has ended. There is no doubt the region has an advantaged cost position and our favoured way to invest is via LyondellBasell. But inventories have been high for several years and recent capacity additions need to be absorbed.

It is also increasingly hard to sanction new upstream capacity there owing to the conflict between size and sustainability targets. Capex and opex for new assets will rise as energy intensity needs to be reduced and carbon emissions restricted. This has resulted in few new assets being planned.

Although capex in North America has remained robust, we predict a mix shift. Fewer upstream complexes will be constructed but, instead, capex will be deployed to boost blue and, to a lesser extent, green hydrogen. Incentives are powerful but also a portion of the capital deployed will be used to enable the energy transition and capture CO_2 output for existing sites.

We also expect further collaborations. OCI, the nitrogen fertiliser operator, has teamed up with Linde to produce clean ammonia for conversion to easier-to-handle farming inputs. The carbon dioxide will be piped and captured by ExxonMobil, with an existing network of storage options and tremendous expertise.

...a certain kind of light

In Asia, underpinned by the Chinese government's policy to become self-sufficient in commodity chemicals and plastics, expansion has been gigantic. But we think the pace of growth from 2026 will decelerate as focus shifts from chemicals to semiconductors. Indeed, we may be reaching the cyclical low point in the region. Capacity is underutilised but that could change as major end markets return to growth.

European capacity is contracting, and we do not expect a return to growth. Project One, the INEOS cracker set to start in two-or-three years' time, will be more than offset by closures elsewhere, e.g. the smaller petrochemical unit at BASF's headquarters at Ludwigshafen, Germany. This is subscale, old and high cost. It makes no sense to continue production and make it carbon compliant when the resulting base chemicals can be imported at lower cost from Middle Eastern majors.

We also see potential for M&A and strategic alliances. Covestro has been approached by the Abu Dhabi National Oil Company (ADNOC) and there is the reinvention of OMV with the same Middle Eastern energy giant. Upstream suppliers gain access to less cyclical downstream business models and the European companies' cheaper inputs with near-guaranteed supply. The only sticking point is the potential geopolitical risk.

As BASF nears crisis point in Germany and (most) options are on the table, a Middle Eastern energy major could potentially take a cornerstone shareholding in return for advantaged feedstock costs. If executable and acceptable to all stakeholders, particularly the German government, this could solve several of BASF's problems. We are not overly concerned with growth continuing to decline. Indeed, we increasingly believe a V-shaped recovery could develop at some point in 2024, with further growth unfolding in 2025. However, the company's multi-faceted cost problems need tackling. It may be necessary to pitch a strategic alliance with one of the Middle Eastern energy majors as the only way to prevent German job cuts, disruptive restructuring and major assets being closed.

Meanwhile, many European Chemical companies have launched ambitious savings programmes. Whereas Novozymes' plans largely relate to the synergies expected to result from the merger with Christian Hansen, Solvay is targeting €300m cost reduction post its separation from Syensqo, via asset optimisation, moving to a single ERP platform and standardised processes (albeit 50% of the planned gains are from sales synergies).

Other notable cost reduction strategies include €2bn at Bayer to tackle overly complex corporate structures and superfluous layers of management. Time will tell on the net retention, as prior programmes have not resulted in easily observable savings in financial results. Similarly, Air Liquide has set margin expansion targets requiring a focus the company has never achieved in the past. Cultural change is underway.

BASF has announced another programme, aiming to increase the €0.5bn in savings by end-2026 by €1bn. This looks modest as a percentage of group sales given the vast upstream business, but as a proportion of EBIT it is material. Historically, these savings programmes have been masked by costs added elsewhere, and hourly wages for unionised German workers have risen almost 20% since 2019.

We also understand there is scope for material employee attrition at BASF, and probably at Bayer, Evonik and Lanxess. The average age of employees, especially in manufacturing functions, is at record highs and plenty of full-time employees (FTEs) may be willing to take redundancy packages.

In terms of EBIT per FTE, two points are observable. Firstly, in 2023, the growth/speciality businesses outperformed. The exception appears to be the new Solvay, which may be over-earning in soda ash. Although limited new capacity means asset utilisation may remain high for a while, the commodity nature of this business means suppliers may be incentivised to invest.

Generally, value or commodity companies fared worst. Destocking, lower prices and higher costs plagued earnings. DSM-Firmenich is a speciality business which could be under-earning. In our new benchmarking work we have repeated the exercise using reported results from 2017, a different year to 2023 when value companies approached peak earnings. BASF and Covestro outperformed. If the cycle turns and costs and corporate change are managed, we expect some recently overlooked companies to surprise positively.

There is nothing like a crisis to encourage stakeholders to accept change. This is a crisis, but there are changes that could materially improve financial results over the next cycle. Those that embrace it should do well; those that do not face becoming uninvestable.

Pollock (2000)

There is a long, and not entirely storied, history of biopics of artists. Invariably a celebrated Hollywood actor or filmmaker with a passion for a particular painter has sufficient commercial clout to indulge his obsession. Ed Harris' *Pollock*, which he directed and in which he starred as the eponymous Abstract Expressionist, is one such.

Unfortunately, if unexpectedly given they are both visual media, painting does not translate well onto the big screen, offering an experience akin to looking at a reproduction in a book. It is hard to transform art into art. Moreover, like writing, the process of creating art is not generally a spectator sport, even if Jackson Pollock's modus was more instinctive and mobile than most.

No matter. There is always the life and this, more than the art, is what attracts the moviemaker. It is no coincidence there have been four films about Van Gogh. *Lust for Life* (1956), *Vincent and Theo* (1990), *Loving Vincent* (2017) and *At Eternity's Gate* (2018) all starred the Dutchman, allowing Vincente Minnelli, Robert Altman, Hugh Welchman and Julian Schnabel the opportunity to rehearse the well-known tale of decline and fall and to scratch their fanboy itches.

In so doing, they perpetuated the Romantic Fallacy of the tortured artist pouring out his genius in a bare attic (or room in Arles) and so conflated the life and the art. But how much do we need to know about the artist to appreciate the art? The short answer is nothing. Or everything. It doesn't matter. The art stands on its own, at a distance from its creator.

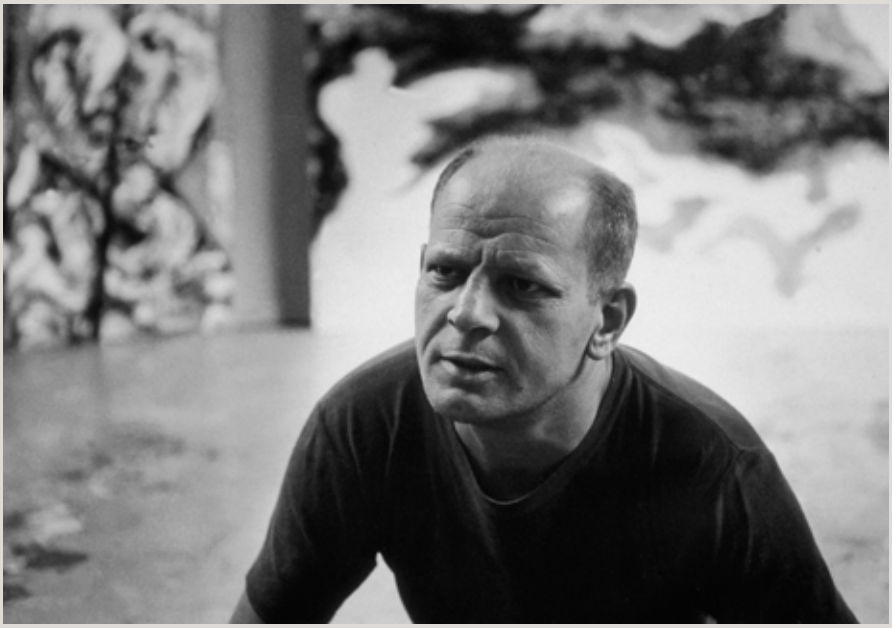
If anything, art requires the suppression of personality, or enlargement. As Northrop Frye observed, the only evidence we have of Shakespeare's existence apart from the plays and poems is, "the portrait of a man who is quite clearly an idiot".

In the case of Jackson Pollock, the bar tabs tell the story. An alcoholic and depressive from an early age, Pollock's life was a drunken mess, barely held in check by his long-suffering wife, Lee Krasner, who subsumed her artistic career to his many needs. After a long and largely unsuccessful gestation painting totemic animals, Jungian archetypes and human figures, Pollock exploded into the public consciousness with his epochal 'action' paintings of 1947-51 and a hagiographic spread in *Life* magazine.

The Pollock legend of the tortured genius was nurtured by the critic Clement Greenberg, who acted as champion and Svengali, and Hans Namuth, who documented the artist at work in his Long Island studio. Having laid his canvas on the ground he swooped and darted around it, dripping, lobbing, dribbling and poking paint, creating magisterial works such as 1950's *Autumn Rhythm* (*Number 30*) and *Lavender Mist*. Redolent of Monet's waterlilies and the epic spaces of the nineteenth century American landscape artists, they had no discernible centre but contained multitudes, shallows and depth, shifting light, infinite movement.

But modern art trails another problem for a filmmaker: his audience. How much knowledge can be assumed? It is a tricky line to draw (or drip) as didacticism is the opposite of drama. Harris and his screenwriters are not always surefooted, for example when Krasner stares at one of her husband's paintings and exclaims, "This isn't really Cubism, Jackson, cause you're not really breaking down the figure into multiple views".

But if Pollock's bawdy life and urgent technique lends itself to dramatic profile rather more than, say, Frank Auerbach standing at his easel 365 days a year, there remains the unavoidable and simplistic conflation of art and artist. Pollock lived an elemental life and there was much that was elemental in his work. But correlation is not causation, and despite his own relatively restrained performance it is not obvious Ed Harris understood this. Great art is great art because it is universal, not particular.



Letter from America

Trading Places

Emily Henderson
US Sales Trading

I am a sixth-generation sales trader. Before traders spent their days in front of a wall of screens, my Dad and his four brothers were all traders, with three of them working on the floor of the exchange as specialists at Henderson Brothers, making markets in companies like Ford Motor Co, American Express and Fairchild Camera. They too were following the many in my family that came before them.

The Henderson family roots on Wall Street trace back to William T Henderson. William became a member of the New York Stock Exchange in 1861, buying a seat for $500. My Grandfather Peter Henderson (aka 'Pop') and his brother Charles F Henderson worked on the floor of the exchange under the leadership of their father, John C Henderson. In my research I stumbled on a video of Charlie in the exchange in 2008, describing how he "had many stocks that were quite wild, and Parke-Davis was one of them". On one particularly memorable day in 1962, news broke that, "they had a birth control pill that supposedly the Pope was going to approve, which of course he never did". Of all the things that have changed over the years, 'buy the rumor, sell the news' certainly hasn't. For many years Pop served as President of Henderson Brothers while Charlie was Chairman, and they presided over the company while three of my five Uncles worked as specialists there.

Uncle Jim described a lively, human-centric scene. As a specialist, Jim stood on the floor in the same place every day under a panel listing which stocks he was making a market in, while behind him two clerks were charged with recording every trade accurately as floor brokers came and went. He reminisced that while manning his post, "there was a brother three feet to your left, and another brother three feet to your right" as he worked alongside my Uncles Peter and Goose (or Chris, but no one ever calls him that).

He described a world that feels alien in the modern age of technology, explaining that records of trades were kept on slips of paper, and over the course of the day so much paper would build up that Wednesdays had to be a half day so clerks could catch up on the paperwork and the janitorial staff could sweep up all the scraps detailing recent trade information.

When I asked Uncle Goose, he remembers the floor as "a melting pot of American society where street smarts would get you further than a college degree". On one of his first days as a trader, a mentor asked Goose over the roar of traders, clerks, and floor brokers running around in the name of price discovery, "Son, do you hear that noise?", following up with, "That's the sound of money". Money certainly sounds quieter today with traders sitting in different rooms across the globe, connected solely by a Bloomberg terminal.

Though I am a sixth-generation sales trader, I'd be lying if I said I always felt it to be the right place for me. When I arrived at college, I was appropriately naïve and ready to jump into studying the subject I have always found most fascinating: people. I wanted to major in sociology, but I quickly learned through a mandatory microeconomics course that

Henderson Brothers

Principles don't change

economics and finance is as much a study of people as it is of money. The magical, ever elusive, balance between supply and demand determines the direction of almost everything. Behind every screen, behind every tick of a stock on my screen, there is a person, greedy, hopeful or fearful. It's one of the things I find most interesting hearing about working on the floor of the exchange: you had to look directly into the eyes of the person you were buying from or selling to.

I spent the next four years taste-testing my way through multiple internships. I worked in asset management for a small family office, remotely for a young Venture Capital firm, and in Real Estate at a bulge bracket. I also joined an honors program focused solely on honing students for a strenuous career in Investment Banking, but ultimately felt what I had to offer perhaps lay beyond the scope of an excel spreadsheet. More than that, I wanted to work with people. I applied to work at Redburn on Christmas Eve, 2022, and in my short tenure here I have had the opportunity to work closely with people and learn from them every day.

I still have much to learn about the world of trading. But I do think I have an interesting perspective to share. I was surprised in talking to each of my uncles and my grandfather about their time as specialists on Wall Street, so many of their stories resonate with me as a more modern sales trader.

Best execution and the maintaining of a fair and orderly market remain paramount, and the responsibility of the sales trader hasn't changed. I don't mean responsibility in terms of day-to-day tasks, but the genuine trust that must be earned and built with both clients and coworkers and renewed each day. On the floor, specialists had to commit capital to make a market, taking immense personal risk and the responsibility that came with it. A ticker tape may have occasionally run ten or twenty minutes behind, but every trade had to be reported with accuracy and accountability. Technology has helped to plug some of those gaps, but possibly created others through its nuances and complexities.

I may not have a Henderson brother to my right and left, but I sit on a desk that is majority female, an attribute that was certainly lacking on the floor of the New York Stock Exchange. But arguably the most material shift in trading – one Uncle Jim credits with the demise of specialists and floor brokers – is decimalization. When trading moved to increments of just a penny it became too hard for specialists and the human-centric trading floor to keep up, allowing technology to cement its foothold in the industry. It never looked back.

Yet I would argue that the human, specialist, mentality of "if you think you stink" in trading has not changed so much as evolved, complemented by technology and its near-infinite capability. But to take the other side (cheesy, I know, but relevant), in my Uncle Jim's opinion there is an argument to be made that the move to pennies may have hurt more than its helped, for, as he mentioned, "there's a reason buses don't stop on every block".

I have this thing about change. Call it nostalgia, but I am enchanted by the past. Everyone loves to talk about the future, the next best thing that's just a stone's throw away, but as much as things change, they often stay the same in sneaky fashion.

And there's a very good reason for this: human nature doesn't change as much as our circumstances do. Risk and reward drive traders and investors today as surely as they did in the days when the New York Stock Exchange shut on Wednesday afternoons to clean up the trades and tickertape, the physical manifestation of their greed, fear and dreams.

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30 May 2024

Diabetes Technology

Sugar Rush

Material opportunity exists in Diabetes, where advances in continuous glucose monitoring (CGM) and automated insulin delivery have transformed disease management. Rising penetration drives a 15% CAGR for the $14bn market. The most attractive area is insulin pumps, where increased penetration will be supported by the shift to patch pumps. While the volume opportunity in CGM is seductive, we see heightened deflationary risks, with growth increasingly reliant on cost-conscious markets.

Lachlan Brown

Descartes Systems Group, Kinaxis, Manhattan Associates, SPS Commerce, WiseTech Global

14 May 2024

Supply Chain Software

A Logistical Dream

Supply Chain Management (SCM) platforms have benefited as enterprises pivoted to digitise and take control of supply chains following disruption. This trend should persist, meaning the SCM market will grow to $42.7bn in 2026 from $28.2bn in 2023. Within SCM, Supply Chain Planning should be the fastest-growing vertical. Although Supply Chain Execution will be slightly weaker, its solutions are deeply integrated into supply chain assets and sit closer to the data. Gen-AI should be a neutral thematic.

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11 March 2024

Keep the Aspidistra Flying

Opening a Garden to the Public

Hamilton Faber
Media
Research

Growing up, I never thought I'd even consider opening my garden to the public. My parents discussing plants and plans for their own could not have been more boring. But as time progressed and I inevitably turned into them, I could feel botanical interests rising.

Having lived in Clapham for twenty years, a garden was more a social space than a place to allocate meaningful thought. As long as there was a barbecue, table and chairs and a few plants around the side, that was fine. The garden was just somewhere pleasant to drink wine on a summer's evening.

The beginnings of change began when, in 2015, we decided to look for a house in the country. Dorset seemed a sensible target given family connections and some of England's most beautiful countryside. We were lucky, quickly finding a cottage in Netherbury, a village near the coast in the west part of the county.

The cottage had a small well cared-for garden. There was a variety of shrubs, each pruned into balls and blobs of different sizes. It felt like a child's version of a garden with all sharp edges carefully removed. However, at the top was space for a vegetable patch, which was where my horticultural interests began.

I had never imagined the pleasure and satisfaction to be derived from growing vegetables. We started with courgettes and potatoes and no matter how spindly or deformed they were, it was a start and we had grown them.

Every year Netherbury, like many villages in the area, encouraged residents to open their gardens. Visitors would pay £7 or so and could visit ten or more gardens around the village over a weekend, generally in early June when England is at its most floriferous and before weeds have taken hold and everything starts to look unruly. The proceeds would be used for village purposes, a large part going to the church, a truly beautiful example set on a hill with views across the countryside, its size representative of Netherbury's past as a successful hub of rural enterprise.

Visitors were further enticed by lunch at the village hall, being offered a single main and dessert choice, coronation chicken and strawberry pavlova duly selected. Multiple mutations of these two dishes were displayed around the hall, allowing residents and visitors to engage in a favourite English pastime: judging. The room was full of mutterings of, "Who on earth made that?" and, "At least she tried".

The previous owner of our cottage had opened the garden and, given our desire to fit in with our new neighbours and village life, we felt we should do the same. What was less obvious was how much effort would be required to get it ready. We spent hours every weekend weeding and perfecting the roundness of the shrubs. At least, we felt, committing to opening our garden meant we would not be expected to produce a dish for lunch, something at which I felt sure we were bound to disappoint.

A few weeks before the grand opening, disaster struck. An *elaeagnus*, a word that did not exist in my vocabulary prior to this event, died, leaving an ugly brown clump and irregularity amongst our beautifully formed verdant balls. Sensing an opportunity to compound our concerns, a mole promptly invaded, creating evenly formed brown mounds across the lawn. There was nothing to do but to maintain a stiff upper lip and carry on, hoping visitors were distracted by other areas.

The big day arrived, and we were given a variety of yellow laminated signs to put up, indicating the garden number, arrows to direct the flow of visitors, and the all-important health and safety notice. Once these were up, I felt ready to go albeit with the overriding concern somebody might ask me a question to which I did not know the answer. At this stage, I only knew a handful of plants by name, so the likelihood of this happening was high.

As 1pm struck, people started to trickle in, the first a jolly couple from Poole. It rapidly became clear the demographic stood solidly over sixty, with the main reason for visiting being the attendant opportunity to have a good nose. Comments such as, "Oh, I do like your windows", "Have you thought about painting that boarding a different colour", and "Maybe you could convert your garage into a B&B", seemed unrelated to the garden, the supposed focus of the day. It was also a chance to distribute advice, whether sought or not. "Yes, well you'll need to water that a lot more if it's going to work", and, "I've seen this before – overplanting is a common mistake for amateur gardeners". We hadn't escaped the judging. The gardens were the main dish after the appetiser of the village hall lunch.

After two afternoons of accepting this commentary with forced


WFG

smiles and polite chuckles, we were exhausted, but had done our bit. We were fully fledged members of the community, contributors to village life. We had participated, around £7,000 had been raised, and the church was safe for another year.

Working to present the garden in its best light had sparked our horticultural interest and we were inspired to take it to the next level. It was time to move on from blobbed shrubs and create something new, organic and, essentially, more beautiful. Conscious of our limitations, we sought help.

The first designer suggested something modern and stark, not in keeping with our 200-year-old cottage, and his budget increased with each meeting. We moved on and engaged a well-known designer with several medals from Chelsea under his belt. Chelsea Flower Show is the pinnacle of horticultural excellence in the UK, where designers from around the world present an array of pristine and elaborate gardens in the hope of winning a gold medal, a stepping-stone to widespread recognition.

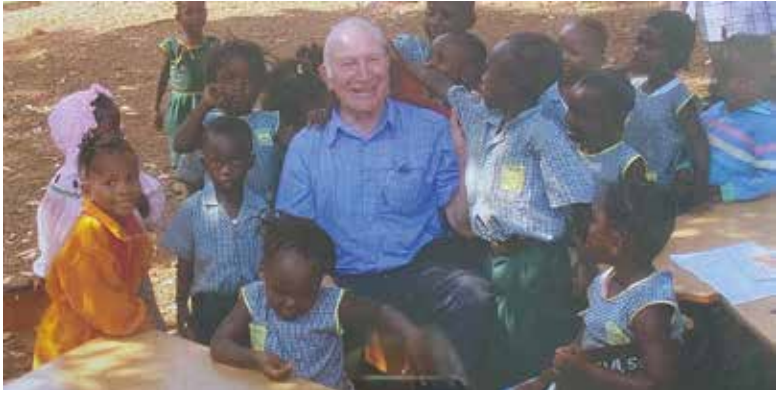
We loved his design which was sympathetic to both the location and the house. What we didn't love was the price, with landscape gardening expense exceeding our highest expectations – by about three times. That said, our garden is stunning and brings pleasure all year round. Without a designer, there would never have been a cannon of flowers throughout spring, moving from magnolia to amelanchier to apple blossom with beds of complimentary tulips and alliums. This succession continues each year through summer with a mass of roses, lavender, grasses and hydrangeas. Truly, it is magnificent, a source of intense enjoyment.

In the following years, we opened the new improved garden to raise funds for the village. Not every year, as the preparation and pressure is considerable, but regularly. The pinnacle of success was reached during our most recent opening when, out of nowhere, a woman with a small yellow National Open Garden Scheme (NGS) badge appeared. The NGS is a charity which encourages gardeners across the country to open their gardens. You are not asked unless you are deemed to have reached a sufficient standard – we'd hit the big time and were going national. However, after careful consideration, we decided opening for the village was more than enough, but for NGS to have asked was a major vote of confidence.

It is amazing how our interests have changed and how fervently we have embraced horticulture. Nor did we realise how much we were going to enjoy it until we put in the work. There's no doubt gardening is hit and miss, that it's 90% disappointment when a plant or positioning doesn't work, and 10% satisfaction when it does. But it's the 10% that makes it worthwhile.

Ever Ready

In the Footsteps of Civil War



Harry Read
Software & Cloud Research

My grandfather, Dr Laurence Read, having graduated with a degree in Zoology & Botany and taught Biology in London, moved to Sierra Leone in 1967 to help those less fortunate. There, he became Principal of Peninsula Secondary School in Waterloo. Situated roughly twenty miles east of Freetown, it is the country's sixth largest city.

Sierra Leone is about the size of Wales and has a population of 6.3 million and a long association with Britain, having been a settlement for freed slaves in the eighteenth century. 23 languages are spoken, reflecting settlers from across Africa. It achieved independence from the British Empire in 1971.

After teaching for several years, my grandfather returned home and studied medicine at St Bartholomew's Hospital, London. He became a consultant in paediatric orthopaedics, pioneering a treatment for congenital club foot. One of the first patients to receive his treatment subsequently competed in the Paralympics and carried the Olympic torch through Worcestershire in 2012 in recognition of his achievement.

In March 1991, civil war began in Sierra Leone. Rebels sought to overthrow Joseph Momoh's government and seize control of the 'Blood Diamond' – gemstones mined under brutal conditions – trade. They seized diamond-rich areas, using the proceeds to finance insurgency. Approximately 20,000 children were forcibly recruited for combat and mining. During the late 1990s and early 2000s it was estimated 4% of the world's diamond production comprised Blood Diamonds from Sierra Leone. Notwithstanding, GDP per capita fell to $174 in 2001.

On 6 January 1999, rebel forces murdered, mutilated and raped thousands of civilians in Freetown. It took three weeks for West African peacekeeping troops to restore order. Aided by a UN mandate and Guinean air support, the British Operation Palliser finally retook the capital. In January 2002, President Kabbah declared the civil war over.

It had claimed 75,000 lives, caused 500,000 Sierra Leoneans to become refugees and displaced half the country's population. Waterloo suffered particularly, owing to its strategic position. During the war, Sierra Leone was anointed the world's poorest country by the UN, reflecting the breakdown of authority and services including medicine and education. Life expectancy fell to 41.8 years and 1,270 primary schools were destroyed. By 2001, 67% of children under sixteen were not in education.

Laurie Read retired from the NHS in 2005. On an exploratory visit to Waterloo with his wife, he found houses torched, people murdered, and Peninsula Secondary School ransacked by rebel soldiers who had burned desks, chairs and books and stolen anything useful.

During this visit, to their surprise, a member of staff in their hotel – a student he had taught forty years before – exclaimed, "Dr Read, you came back". News spread, and the following evening dozens of former students appeared to reminisce over beers and discuss the atrocities and cost of repair.

Returning to the UK, Dr Read founded the Waterloo Schools Charity to redevelop nursery, primary and secondary education through three associated schools. The charity works through local organisations including the District Council, chiefs, and elders of the township, the schools' boards of governors and the Peninsula School Old Student's Association (POSA). Many members of POSA were students when Laurie was Principal and hold important positions in Waterloo and Freetown.

When I was a child, my family and many in the Worcestershire community where my grandfather lived filled containers with classroom equipment to be shipped to Waterloo. Later, my sister visited with my grandfather to teach, and overheard one man say to another, "I think I may propose to the new pretty blonde teacher". His friend replied, "Ask the other lady, not her; she is Dr Read's granddaughter and off-limits".

Laurie returned to Sierra Leone, working as a trauma and orthopaedic surgeon for two years, and offered his services to the Cambodian 'Killing Fields'.

His charity receives income through direct debits and ad hoc fundraising. The donations have funded clean-water pumps, teachers, learning materials and a nursery playground.

When my grandfather died in 2014, his widow and other trustees established the Dr Read Bursary, which supports Sierra Leonean children through university. One beneficiary, Kenneth Kromanty, is now one of the charity's trustees.

We are keen to continue the Waterloo Schools Charity. More information can be found here: **waterloo-schools.org**.

POLE POSITION

The Greatest Formula One Driver

Chris Luyckx
Transport & Leisure Research

Who is the greatest Formula One driver of all time? The question has fuelled endless debate, and while acknowledging it is unfair to compare different eras owing to changes in car technology, track design and racing conditions, certain individuals stand out. To shed light on this enduring mystery, we analyse the careers of six iconic drivers: Lewis Hamilton, Michael Schumacher, Max Verstappen, Alain Prost, Ayrton Senna and Juan Manuel Fangio.

In terms of race starts, the modern era's increased number of races per season sees Lewis Hamilton leading the pack with 339. When the world championship began in 1950, there were seven races, 76 registered drivers and one winner. Today, the F1 grid comprises twenty drivers and ten teams competing over 24 races per season.

Hamilton also leads in podium finishes with just shy of two hundred, showcasing his ability to consistently finish in the top three. Schumacher follows, reflecting his dominance during his peak years. The starts-to-podium ratio adds another layer, with Fangio's ratio notably high, emphasising his ability to secure podium finishes despite fewer starts. Yet, one could argue Hamiliton holding the second-highest ratio over the longest career is even more impressive.

Pole position, the most advantageous starting spot on the inside of the front row, is earned by posting the fastest qualifying time. It is testament to a driver's speed and skill, with pole position drivers winning 49% of races.

Fangio leads the pack with the only starts-to-pole ratio above 50%. While Fangio and Senna had exceptional starts-to-pole ratios, their lower pole-to-win ratios suggest converting pole into victory was more challenging in their eras. In the modern age, Verstappen has a near 25% spread over Schumacher in converting pole position into race win.

For race wins, Hamilton again tops the list with 103 victories, cementing his place among the greatest. Schumacher's 91 wins underscore his achievement with Ferrari and Benetton. Verstappen, with 59 wins in a shorter span, is rapidly climbing the ranks and could challenge historical records if his trajectory continues. Fangio's 24 wins in 51 starts highlights his extraordinary dominance in the 1950s.

While race wins are impressive, the pinnacle of the sport is the Drivers' Championship. Thirty-four drivers have been crowned World Drivers' Champion across 74 F1 seasons. While seventeen have won multiple F1 championships, Schumacher and Hamilton lead with seven titles each.

Hamilton's contract with Mercedes was due to expire at the end of 2025. However, he will leave the team after the 2024 season to replace Carlos Sainz at Ferrari. Although approaching the end of his career, he could race for several more years. Schumacher retired at 43; Hamilton will start the 2025 season at forty. One more Drivers' Championship would solidify his status as the greatest F1 driver.

However, Verstappen, at 26, is leading the drivers' standings for the 2024 season, with six race wins. If he maintains this performance, he is likely to secure a fourth title. Starting the 2025 season at 27, Verstappen could theoretically compete for at least thirteen more years, or roughly 312 race starts.

Verstappen's youth affords him an advantage in pursuing GOAT status. He has the potential to surpass Hamilton and Schumacher and set new records. His current trajectory suggests he should dominate for many years, provided he remains competitive and avoids major injuries or career disruptions. However, he appreciates surpassing Hamilton and Schumacher will require luck, too. There are many variables, including whether he chooses to remain with Red Bull beyond his current contract, which expires in 2028.

The debate over who is the greatest F1 driver will continue as new talents emerge and records are challenged. Hamilton, with his unmatched consistency and numerous records, is the incumbent. However, Verstappen's youth, success and potential mean he could eventually claim the title.

The future of F1 promises exciting developments as these two extraordinary drivers continue to push the boundaries of what is possible in the sport.

A Wedding or a Mortgage?

Cara Muttiah
Banks
Research

"I was misled in all of my rom-com experiences," said young couple, Liz and Evan, in one of Netflix's most depressing series yet: *Marriage or Mortgage*. "How do we pick between the day that we deserve and want, and the future," asks another potential groom. A dilemma indeed. Thankfully, there are two opposing advisors with vested interests, a wedding planner and a twice-divorced estate agent, to help them navigate this decision. Watching this episode in 2021 with both marriage and mortgage yet to be ticked off my bucket list, I remember (spoiler alert) how disappointed I was when Liz and Evan chose to spend their $35k budget on their wedding rather than a family home in Nashville. Is this the stark reality that millennials and Gen-Z face? Surely we can have both?

Weddings don't cost that much I naïvely thought. Now I'm a couple of months away from the Big Day, I can confirm as soon as you utter the word 'wedding', extra noughts are added to the bills. A National Wedding Survey by planning website Hitched revealed the average cost of a wedding in the UK in 2023 was £20,700 for eighty guests. This is 12.5% higher than 2022's average spending of £18,400, and almost 20% above 2021's £17,300. The rise from 2022 to 2023 was 3.3% more than peak inflation. The increase has been largely attributed to caterers (c30% of the budget) and venues (c45% of budget). The average wedding venue cost in 2023 was £8,800 (up from £8,400 in 2022). Catering costs have increased to £6,400 for eighty guests (a £10 per head increase).

The venue cost excludes hidden extras that take all couples by surprise, for example paying 'corkage' on the wine you bring. Many venues

charge additional fees for caterers outside their recommended supplier list – while failing to provide a diverse range of recommended caterers to suit all religions and ethnicities. At the early stage of planning, I spoke to one venue who told me if I had more than seventy guests, I'd have to provide my own marquee, porta-loos, electricity and a pop-up kitchen for caterers. So, for a large base fee, my guests would simply enjoy the exclusivity of walking in their gardens.

The quest for the perfect wedding extends beyond the venue and the meal. Attire, particularly the bride's dress, is another area where costs have ballooned. The average wedding dress in the UK costs around £1,350, with designer gowns running to two or three times more. This partly reflects the influence of celebrity weddings and social media setting high standards and aspirational benchmarks. Grooms are not spared, with bespoke suits and accessories adding to the financial burden. Additionally, couples are also spending more on their honeymoons, with spending rising 13% to £4,300.

A 2023 Barclays survey found 38% of newlyweds and upcoming brides and grooms go over budget on their special day. 51% of these blamed the rising cost-of-living and 44% suppliers being more expensive than anticipated. 36% stated their overspending was to make the most of a 'once-in-a-lifetime' event – a categorisation not entirely borne out by rising divorce statistics. Those going over budget are spending an additional £5,034 on average. 25% of couples spent more than £25,000 on their wedding, and 7% exceeded £50,000.

The Bank of England's 1Q24 Agents' Summary of Business Conditions report revealed that more couples are shifting to midweek wedding dates. Similarly, wedding planning app Bridebook reported that for the first time, less than half of weddings took place on a Saturday. Holding wedding celebrations on a Tuesday has seen the highest increase in popularity, up 42% in the past two years. On average, couples who marry on Tuesdays or Wednesdays spend over 20% less than those betrothed on a Saturday. Apparently, many couples also avoid Friday the thirteenth as it is considered unlucky, so bigger discounts are offered.

Similarly, those who are married in off-peak months save substantially. January weddings cost approximately 25% less than in the summer months. Spending extra to be married during the summer months is a gamble given the unpredictable British weather. Many couples have resorted to following silly superstitions such as burying a sausage in your garden the night before your wedding to bring out the sunshine. If that sounds far-fetched, there is a video of a bride doing just that on TikTok. It has 500,000 views.

An alternative way to cut costs is to trim the guestlist. Since COVID, the burgeoning trend of intimate weddings is proving to be a prudent choice for many couples. By curating a more exclusive invitation, couples can materially reduce their expenses without sacrificing the elegance or sentimentality of their special day.

There is not only the cost of the day. Hitched reported that over a quarter of couples are saving to buy a house while budgeting for a wedding. £20,700 is a material contribution towards a 10% deposit for the average UK house, which was valued at £285,000 in December 2023 according to the Office for National Statistics. The implications of spending this on the big day are high. Ramit Sethi, a *soi-disant* personal finance advisor, shared that he had started saving for his wedding at 24, several years before he even met his now-wife. Most people are not adequately prepared for this future expense. So how do people find cash for both?

The prevailing view is that the average millennial has much less wealth than the average boomer at the same age, which allowed boomers to afford both a wedding and a mortgage with less difficulty. While this is true, it masks the enormous wealth inequality between millennials today. How have the richest millennials become so rich? Mainly via huge wealth transfers from their parents, often in the form of help with that first housing downpayment. The Institute for Fiscal Studies reported that more than a third of young UK homeowners received help from their family. Among those who received help from their parents for their first property, the top 10% received an average of £170,000. The average millennial received nothing. Moreover, Hitched has reported in 2023, 70% of couples were given money by their family towards their wedding, up 7% on 2022.

Unlike the contributions to weddings, house transfers are not a one-off but compound over time. The greater the help with the deposit, the lower the loan-to-value ratio and monthly payments. It now takes almost thirty years to save for the typical downpayment for a house in London. Without financial support from parents, and with house price growth outstripping real wage growth over the past decade, it is likely to be a struggle to fund a wedding or a house purchase, let alone both.

In the grand scheme of life, the choice between marriage and mortgage reflects deeper societal and economic divides. While the dream of a perfect wedding day is compelling, it may trail a cost that could jeopardise long-term security. Conversely, prioritising a home affords security, but might mean delaying personal milestones and celebrations.

For millennials and Gen Z, navigating these choices requires balancing romanticism and pragmatism. As we face rising living costs and economic uncertainty, the hope is that with careful planning and perhaps a little compromise, the modern couple can have their (wedding) cake and eat it too, celebrating their union without undermining their future.

César Menotti

22/10/1938 – 5/5/2024

When the long-haired, magnificently lapelled, left-wing Argentinian national soccer coach César Menotti observed, "I maintain that a team is above all an idea, and more than an idea it is a commitment, and more than a commitment it is the clear conviction that a coach must transmit to his players to defend that idea. So my concern is that we coaches don't arrogate to ourselves the right to remove from the spectacle the synonym of festival, in favour of a philosophical reading that cannot be sustained, which is to avoid taking risks", it is not certain that all of his players understood.

But if they did not necessarily understand the philosophy behind Menotti's brand of football, they bought into its application with such zest that in 1978 in the Estadio Monumental in Buenos Aires they defeated the 'Total Football' of Holland 3-1 and lifted the World Cup.

It was probably fortunate for their philosopher-manager that they did. For his progressive politics – first encountered when he was jailed aged fifteen for spraying graffiti on the stadium of his own club, Unión América, in protest at the cost of tickets – sat uneasily with the military Junta which had seized power in 1976 and begun the process of torture, murder and disappearance with which it subjugated its citizens until 1983.

But the coach, who was sometimes accused of being a collaborationist, had a symbiotic relationship with the hard-right government of Jorge Rafaél Videla. The Junta wanted to promote national pride by winning the World Cup and they appreciated the chain-smoking, heavily sideburned Menotti was the best man for the job.

A tactician ahead of his time, and a seminal influence on Pep Guardiola, Menotti was determined to rid the national team of the pragmatic or "right-wing" 'style' it previously espoused. In the 1966 World Cup, the England manager, Alf Ramsay, had described the Argentinians as "animals" after a brutal quarter final in which the Argentine captain, Antonio Rattin was sent off but refused to leave the field; in 1974, despite monumental fouling, the team had lost to a Cruyff-inspired Holland, 4-0.

Time for change, and Menotti provided it. Inspired by his time as a player at Santos when he befriended Pelé, he aped the free flowing *la nuestra* football of the Argentinian team of the 1930s. Increasing the tempo, he unleashed the virtuosity of players such as Mario Kempes, Osvaldo Ardiles, Daniel Passarella, Alberto Tarantini and, most famously, if not in 1978 when the manager considered him too young, Diego Maradona.

Having kicked off with wins over Hungary and France, after a scoreless draw with Brazil, Argentina needed to beat Peru by four goals to stay in the competition. Amidst considerable scepticism, and accusations of bribery, they won 6-0. In the Final they defeated the post-Cruyff but still immense Dutch 3-1 after extra time to take the Cup.

For Menotti, this was a victory for the people not the state that oppressed them. The success allowed him latitude to make trenchant statements that would have ensured his disappearance had he not been untouchable. Yet no one should belittle his bravery in making veiled criticisms of the leadership – famous artists disappeared for less.

Fortunately for the manager, by the time he failed to defend the title after a fractious, ill-tempered campaign in Spain in 1982, the Falklands War had been lost and the Junta's power was in decline.

Having resigned, he began a peripatetic managerial career that began with Barcelona, where he signed Maradona, and took in Mexico, Uruguay, Italy and his native Argentina, finally becoming a consultant and elder statesman to the Lionel Messi-inspired team that won the 2022 World Cup. There were successes and there were failures, but throughout he adhered to his fundamental belief, which was, "to be a footballer means being a privileged interpreter of the feelings and dreams of thousands of people."

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