

# Redburn Review

MARCH 2026



**Rothschild & Co | Redburn**

The Joy of Fission

Evolving

Trump and Thucydides

MARCH 2026

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# Editor's Letter

W elcome to the twentieth anniversary edition of the Redburn Review, which has been hosting the stock, sectoral and industrial – not to say random, personal, and occasionally downright whimsical – thoughts and ideas of Rothschild & Co Redburn analysts since the days the firm was named Redburn Partners.

This edition is no different. The content includes, but is not limited to, nuclear physics (Simon Toyne), AI in space (Skye Landon), Asian crypto casino money laundering (Andrew Tam), hyperscalers' capex (Alex Haissl), the risks of smart glasses (Issie Kirby), lessons from Thucydides (Joe Orchard), the complexity of selling Luxury goods (Emily Cooledge), health pressures on large food groups (Charlie Higgs, Brandon Henderson), and being an Englishman raised in America (William Rice). Too often the world seems divided by a common language.

The founder of Redburn Partners, Jeremy Evans, was fond of quoting Blaise Pascal from 1654: "All of humanity's problems stem from man's inability to sit quietly in a room alone". As stockbrokers, we obviously appreciate a certain restlessness on the part of investors, if not always the events themselves that roil markets.

The responses are writ large in the prices fizzing and popping on the screens. They are not simply symbols of 'greed and fear' as parlayed in popular culture, but an expression of that common language, which is our humanity.

# Needs Transparency

## Smart Glasses Are Here



**Issie Kirby**  
*Medical Technology  
Research*

Every generation has a transformative device. From the introduction of the light bulb in 1879 to the advent of the smart phone in the 2000s, technological innovations have reshaped daily life.

Smart glasses, wearable technology that turns traditional spectacle frames into an assistive tool capable of translating a menu, live streaming content or tracking fitness activity, may well be a transformative device. With over 1.5 billion people globally requiring vision correction, the demand for spectacles is substantial and is expected to grow, driven by ageing populations and the myopia epidemic, with heightened screen time resulting in deteriorating eyesight from an earlier age.

While the launch of the Ray-Ban Meta glasses in 2024 marked a turning point for a technology previously considered fringe, Google and Snap having been largely unsuccessful in building a user base. Capitalising on the iconic Ray-Ban portfolio, Meta, in partnership with eyewear giant EssilorLuxottica, has led the charge in the commercialisation of smart eyewear. Over seven million pairs of the Meta frames were sold in 2025, from two million in 2024, with further exponential growth expected in 2026 owing to the success of the Oakley range.

Competitive launches from Apple and Google by 2027 are expected to accelerate market adoption of

this novel technology. Despite the growth seen in 2025, smart glasses remain in their infancy and are still searching for the 'killer app' which could make them indispensable. Early data suggests they are being adopted primarily by a younger, largely male audience.

Yet their emergence has coincided with a notable shift in attitudes towards social media and time spent in the online realm. A conscious push to reduce screen time has emerged among the heavier users, with GWI analysis highlighting a marked reduction in the number of hours spent on social media platforms by the 16-24-year-old cohort, albeit down from roughly three to two hours per day.

This declining appetite can also be associated with a rapid shift in the content being consumed. Evolving algorithms have transformed platforms like Instagram from ones capable of facilitating human engagement with friends and family to ones on which short-form content has become the cornerstone. Meanwhile, AI-generated content has perforated peoples' 'For You' feeds at a staggering rate.

Smart glasses may be symptomatic of this decline in traditional social media. They allow users to seek time away from screens without fully detaching from the level of connectivity and convenience to which we have become accustomed.

For example, the features currently enabled on Meta's Ray-Ban platforms in many ways encourage a more passive, spontaneous form of content creation without the need to pause and grab your phone – taking a video of your loved ones on holiday on your Ray-Ban sunglasses or recording

your ski run with your Oakleys. The resulting imagery is often unpolished and raw – and differentiated from the increasingly synthetic and homogenous content flooding online platforms. There is appetite for this form of content creation and posting. One looks towards the rise of the Instagram 'dump' – a selection of typically random, unedited images – as an indicator of a desire to reject the overly curated feed and embrace the un-aesthetic. In addition to enabling a more passive, organic form of content creation, smart glasses are currently optimised to facilitate connectivity while curbing access to the more addictive components of social media. While display functionality is improving rapidly, smart glasses remain an audio-focused device, keeping eyes on the physical realm and out of online feeds optimised for attention capture.

While smart glasses may be emblematic of a growing desire to step away from the small screen, they are unlikely to supplant the smart phone anytime soon. Adopting fully fledged screen functionality remains a challenge, with trade-offs between optics, battery life and design becoming apparent. While waveguide technology – used to project images onto the eye – has improved, there remains the risk of eye strain. In addition, smart glasses' developers must strike a balance between the desire to adopt display functionality and interacting with the real world. The success, or lack thereof, of the VR headset category highlights how the consumer may not actually desire transportation into the metaverse, particularly at a moment when screen time is being rejected. Both Meta and



You lookin' at me?

Apple have deprioritised investment in headsets in favour of smart glasses.

While smart glasses encourage a more organic form of content creation and sharing, the evolution of image and video capture presented by the devices, which often bear close resemblance to their analogue equivalents, has rightly raised alarm bells around privacy and surveillance. Despite the category being in its relative infancy, high profile examples of privacy violations have already emerged tied to intimate relationships or the covert filming of strangers. News around the potential introduction of facial recognition technology into smart glasses from Meta and Apple has raised further alarm around the implications of widespread facial image capture.

It may not be the notion of having images of yourself captured that troubles people when it comes to smart glasses, as facial recognition is already a mainstay of modern law enforcement, border control and digital passkeys. In this sense, privacy is not necessarily violated by the flow of information. However, it poses a challenge when considering contextual integrity – the notion that privacy is tied to appropriate information flow and how that is shared differently in different contexts. Smart glasses can capture

imagery and audio or identify an individual without their consent. There is an awareness asymmetry with information capture. Although Meta glasses have a recording light to indicate when image capture is taking place, it is hardly akin to a phone being raised or a camera being pointed directly at the subject.

While smart glasses are currently used largely by individual consumers, there is an increased focus on their potential in applied situations. EssilorLuxottica recently highlighted several projects underway with banks, consulting firms and healthcare institutions, opening up “sometimes unexpected market opportunities”. Amazon is exploring the use of smart glasses for its delivery personnel, highlighting their potential as a productivity and safety tool for package scanning, navigation and hazard or error alerts. The appeal of smart glasses to corporations is clear, leveraging them as both a productivity and a safety and compliance tool, but further raises questions around contextual integrity and enhances risks around inappropriate information sharing, this time in the professional realm.

As the technology evolves, particularly with the deployment of more advanced display capabilities,

smart glasses will offer users a way to enhance their connectivity and productivity while reducing screen time and being more present in the real world.

However, with regulation behind the curve with respect to their use, we expect concerns around privacy and surveillance to grow with the category. While the introduction of facial recognition technology may soon force the issue to be more closely addressed at the government level, as we have observed with social media, regulation is likely to be retroactive, enacted in response to an accumulation of harm occurring.

There are early signs of self-regulation by the developers. While full functionality is yet to be unveiled for Google’s smart glasses, media reports highlight that they may process all audio, images and conversation data on the device themselves, not sharing with Google. This is unlike Meta, which no longer allows users to opt out of storing their voice recording data on the cloud as it is used to improve its internal AI systems.

Privacy may become a differentiating factor. Offering a consumer wearing the online world the ability to disconnect may become a unique selling point of brand, functionality and design.

# Fatal Attraction

## The US Food Industry's Death Spiral



**Brandon Henderson**  
Specialist Sales  
(Consumer)

Is food as we know it in the US 'dead'? It's quite a question, and probably too extreme a conclusion to draw, but having spent a week at the annual Consumer Analyst Group of NY Conference (CAGNY), I can't help but wonder.

Two years ago, at CAGNY 2024, I spoke to a US Food analyst who was equally struck by how nonchalant executives seemed about GLP-1s and the harm they could cause to bottom lines. I asked him which companies he considered interesting from an investment perspective. His reply: "None. They're in so much trouble and the worst part is they have no idea."

He was foreshadowing where we are today, and it is not a pretty picture. The truth is, as one CEO admitted, "Food companies are slow movers. Executives are there to preserve cash flow and not screw anything up; because of that, they miss opportunities and have become complacent".

This is our new reality. It's no secret the industry is structurally weaker since the pandemic, but the magnitude can still shock. It has been a perfect storm. After COVID, when the housebound over-indulged, inflation afforded extraordinary pricing opportunities. Companies became greedy, over-indexed on price and volumes began to decline. Then GLP-1 drugs arrived.

Where does this leave us? We assess the landscape through three lenses: the price/mix equation; the

Better-for-You (BFY) movement; and the GLP-1 impact.

From 2021 to 2024, 'Big Food' top lines were enhanced by pricing, shelf increases, reduced promotional support and favourable mix, while unit volumes deteriorated. This era has ended.

US CPI decelerated to 2.4% YoY in January 2026, while 'food at home' growth has moderated to 2.1%, meaning incremental list price hikes will meet stiffer resistance. In foodservice, menu-price inflation remains higher than grocery at 4% but it is easing too. The implication is clear: if anyone is relying on price to carry FY26-27, they are in trouble.

Elasticity is reasserting itself. Consumers have entrenched habits. They are buying fewer items, focusing on quality, switching to generics, cherry-picking promotions. Such habits do not reverse quickly, if at all.

This year's CAGNY belatedly reflected this reality. Executives conceded they must revive volumes, especially as consumers increasingly buy on promotion or trade down (or out). General Mills tied its softer category performance directly to deal-seeking and GLP-1 adoption. Pepsi has commented on "price

reinvestment", as has Kraft and many others.

Two structural challenges intensify this trend: private label (and premium) and GLP-1 penetration. In the US, private label took a 21.3% dollar share in 2025 and continues to rise as shoppers normalise store brands. The GLP-1 'problem' is growing faster than expected. Brazil, where the obesity rate is greater than 20% and over half the population is overweight, is expected to be the next big adopter post the patent expiration. Pack size and nutrient density will become more important.

Companies have started to respond with price investment, sharper price-pack architecture and value packs. Winners will align pricing with clear functional benefits, protein, fibre and cleaner labels, and deploy retailer media and loyalty data to target promotions precisely. This naturally brings us to the second lens: Better-for-You.

In the context of BFY, value does not mean cheap. It means worth paying for. Consumers believe BFY products justify a premium. Mac-and-Cheese is a prime example: Kraft's legacy version is being out-positioned despite low pricing.



NBFY

There is a holy trinity of positives supporting the BFY movement. Firstly, there is consumer pull. This is not a fad. It is a baseline for Gen Z and Millennials, who over-index on protein-rich, lower-sugar and 'clean label' products.

Next, there is the policy push. If the US food industry once assumed it was shielded from the strict HFSS-style (High in Fat, Sugar, and Salt) regimes of the UK or Europe, 2024-26 nixed that. Three converging forces – state-level legislation, Food & Drug Administration (FDA) scrutiny, retailer-driven 'No-No' lists – are dragging the US towards a *de facto* BFY regime.

The regulatory fracture of the US market is no longer a tail-risk, it is reality. Following California, Illinois and New York have banned five primary additives, including Red Dye No. 3 and Titanium Dioxide, from retail food. Because manufacturers cannot efficiently regionalise supply chains, these state-level mandates are forcing a national clean-label reset.

The pressure isn't just bearing down on companies, it's also hitting the wallets of low-income consumers. The Supplemental Nutrition Assistance Programme (SNAP) provides monthly funds to help low-income individuals and families purchase nutritious food – the word nutritious is now doing a lot of heavy lifting. New SNAP restrictions on sugary products such as fizzy drinks and confectionery came into effect across eighteen states in January 2026, with the aim of steering purchases towards healthier options. Within that group, five states have gone further, adopting broader bans that extend to ultra-processed prepared desserts, including biscuits and cookies. Federal pressure has reached an inflection point. In early 2026, a 'ban' on artificial petroleum-based food dyes was announced following an agreement between major manufacturers and federal health officials to phase these out by year end (see Cheetos NKD for the byproduct).

In effect, US grocers have assumed the role of the FDA. By implementing internal standards for shorter ingredient lists and higher nutrient density, retailers are weaponising private label brands as the default healthy choice. This squeezes national brands between a pricing cliff and health-perception gap.

Finally, there is the ultra-processed food (UPF) reckoning. The American research ecosystem has reached a consensus on the harm of UPFs. A landmark February 2026 study found adults with the highest UPF intake faced a 47% higher risk of heart attack or stroke. This mirrors NIH findings that UPF diets drive an involuntary 500-calorie daily surplus owing to hyper-palatability and disrupted food matrices.

In short, demand is no longer a lifestyle trend but a scientific and legislative mandate. Companies treating BFY as marketing will find themselves delisted by retailers or regulated out of existence by state-level additive bans.

On GLP-1s, the mood music has shifted. At CAGNY 2024, many food companies virtually dismissed the weight-loss drugs. That was naïve. The science is clear: GLP-1 receptor agonists reduce appetite by affecting central hunger pathways and slowing gastric emptying. In layman's terms, your brain doesn't tell your stomach it's hungry, you eat less, *et voilà*, weight is lost. GLP-1s are projected to become a +\$100bn category by 2030. This is not a minor behavioural nudge, it's pharmacology.

At CAGNY 2026, the shift from denial to action was visible. Companies are now earmarking capex for portion-size experiments and reformulations. Clinical evidence confirms weight regain can be rapid upon stopping therapy, meaning GLP-1 usage must be treated as a long-term consumption shift rather than a transient diet.

Manufacturers conceded GLP-1s are depressing volumes in traditionally inflation-proof categories, such as sweets and large-portion snacks.

To combat the lean mass loss associated with GLP-1 use, clinicians are advising patients to prioritise protein density. This has sparked a 'satiety race' among manufacturers. General Mills' protein-forward cereal portfolio has doubled in size over the last year, reaching \$200m in retail sales. PepsiCo launched its 'Simply NKD' line, removing artificials and repositioning legacy brands such as Lay's and Gatorade as 'natural products' to align with the new satiety-seeking consumer. There is a structural shift towards mini-meals and smaller pack sizes. This allows brands to maintain price points while reducing volume, protecting margins in a world where the average appetite is lower.

The volume recovery story for Big Food depends upon reformulation velocity. If your product line does not solve 'satiety per calorie', it is a stranded asset. The winners at CAGNY 2026 were those companies that swapped managing revenue for managing biology.

So, in answer to the question we asked at the start of this piece, food is not dead, but the old algorithm (raise price, cut promo, downsize pack, assume sticky habits) is. Price/mix benefits have faded; BFY is table stakes under a rising regulatory and scientific tide; GLP-1s are rewiring demand at the portion and occasion level.

Companies that optimise for yesterday's behaviours will bleed units to private label and to competitors who reformulate faster and design for satiety and transparency. The path forward is not mysterious, but it is uncomfortable because it requires real product change, not simply revenue management wizardry.

At CAGNY 2026, we saw the first cohort pivot towards increased capex for reformulation and packaging, tighter revenue growth management, explicit GLP-1 strategies, clearer health-benefit narratives. Everyone else is running out of time. It is the consumer who will benefit.

# Agentic Commerce

## One Month Later



**Dominic Ball**  
Fintech  
Research

Agentic commerce dominated almost every earnings call across payments and commerce, from Shopify to Visa, Amazon to DoorDash.

The market response has been binary. The perceived AI ‘winners’ – OpenAI, Anthropic, Stripe, Google/Gemini – have been rerated, while much of the broader software and payments ecosystem has derated materially.

Equity markets tend to compress complex structural shifts into simple stories. The current narrative assumes AI platforms capture value while the surrounding ecosystem loses it. Our view remains the outcome is likely to be more nuanced, and this is where the opportunity lies.

Our original thesis, published in ‘Agentic Commerce: Fragmenting Discovery’ (January 2026), centred on three observations. First, AI search fragments discovery rather than expanding online consumption. We received pushback. Second, this structurally favours small and medium business (SMB) merchants over enterprise brands. Again, we received pushback. Finally, the payments layer, particularly the card networks, becomes embedded rather than disintermediated. There was not much pushback.

After a month of discussion with investors, those observations remain broadly intact. However, several developments – Amazon’s positioning with large language

models (LLMs), speculation around OpenAI pulling back on in-ChatGPT checkout, the acceleration of autonomous agents – have increased uncertainty around how value ultimately distributes across the ecosystem. Here we address the primary areas of debate.

To begin with the view that agentic commerce is probably in majority cannibalistic, and only minority incremental. The starting point remains how discovery in ecommerce has evolved. Each structural shift has expanded demand online.

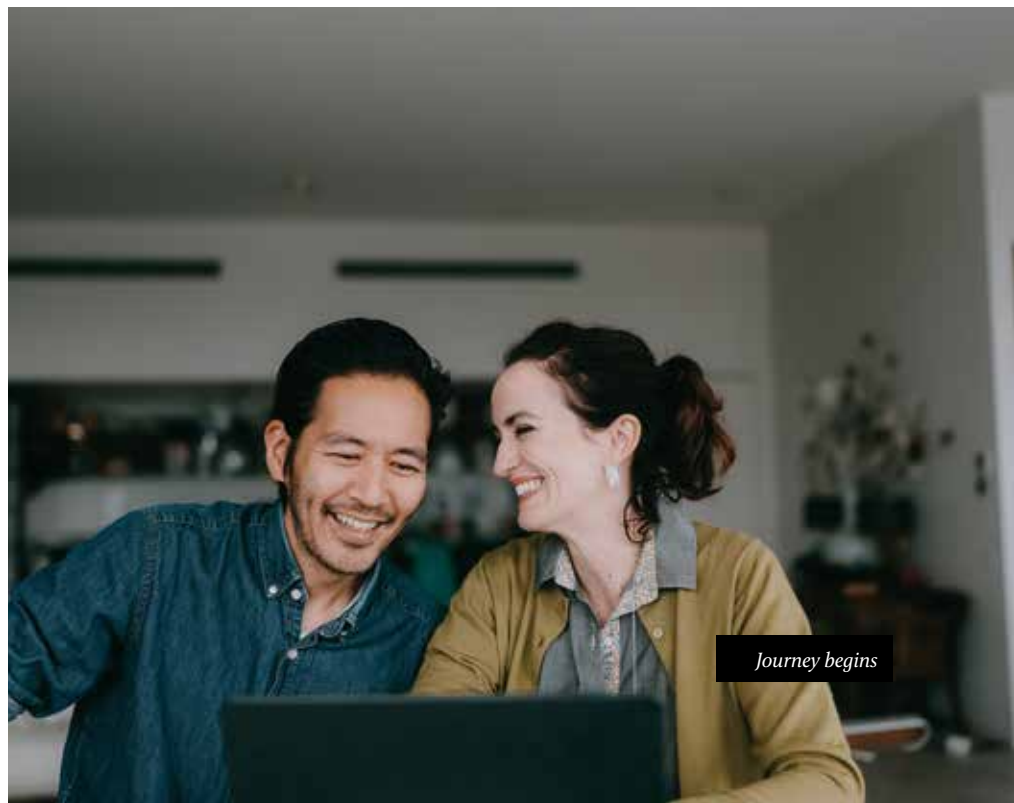
The first phase was Google search. The second was applications built on top of traditional search, such as Amazon, enhancing trust via fulfilment and payments. The third arrived with social commerce – Instagram, Facebook, TikTok, Pinterest – which increased the amount of time consumers spent online and pushed ecommerce

penetration materially higher.

Social media did not cannibalise existing discovery, because it expanded attention and time spent online. The consumer was cross-sold an ad and ‘accidentally’ bought something.

AI search is much more akin to traditional search than social media. Consumers do not spend more time online due to LLM models (ChatGPT or Gemini), so instead the structure of search(ing) is changing. Queries are longer, more contextual, less brand focused.

Even if conversion rates improve in certain categories such as ‘functional’ goods – goods which historically required a specialist advisor, accounting for 23% of total commerce – the incremental demand is unlikely to represent entirely new ecommerce activity. Generally, the model simply becomes the starting point for discovery, which would previously have occurred through



*Journey begins*

Google or Amazon. This is unlike social commerce, which enlarged commerce, and with minimal cannibalisation of traditional commerce (Google and Amazon).

In practice this redistributes where purchase intent originates, not the fact interest is created.

The second part of our thesis builds on a structural trend already visible: the gradual shift in power from enterprise to smaller merchants.

Shopify remains the clearest example. The company holds a c45% share of the US SMB ecommerce market. Shopify's merchants' same store sales growth accelerated from c12% in 2024 to c16% in 2025, while overall ecommerce growth moved from c6% to 7%. With Amazon growing c10%, enterprise merchants account for the remainder, and thus are slowing to low-single digits, barely above in-store growth. Agentic commerce accelerates this dynamic.

One datapoint illustrating the shift is that c95% percent of AI purchase prompts do not contain a brand name. On Google, this number is closer to 50%.

Consumers interact with AI differently. Instead of typing a specific product search, for example 'Nike running shoes', prompts tend to describe attributes or constraints: 'Find me running shoes for marathon training, I live in the UK so it will probably be raining, I'm fairly new to running, and keep it under £100.'

This results in the brand being bypassed, with the LLM model solving more for tailored requests.

Instead of embracing this opportunity like Shopify SMB merchants, enterprise merchants have begun raising concerns. Adyen is an enterprise payment processor, which we calculate has c50% of all European enterprise merchants with global reach. At its recent investor day, the company noted many large enterprise clients are focused on the risk AI search weakens brand differentiation. If a model presents multiple visually similar products side by side – one carrying a brand

premium, another without – the purchase decision is increasingly driven by product attributes and price, rather than brand.

Furthermore, Shopify is the only direct-to-commerce platform with the architecture to integrate into emerging AI commerce protocols. Our industry discussions suggest it took roughly a year to develop and implement these capabilities.

Enterprise merchants use legacy enterprise platforms such as Salesforce Commerce Cloud, Adobe Magento, Oracle ATG and SAP Hybris, all of which operate on customised merchant deployments. Integrating those systems into new commerce frameworks is substantially more complicated given the technical debt built into those stacks.

We remain confident SMBs will continue to take share from enterprise merchants who have historically struggled with new sales channels – social commerce being the obvious example. Agentic commerce displays similar frictions as enterprise brands fret about brand dilution. They also lack the technical capability to integrate quickly.

The third part of our thesis, and a focus for debate, is around whether the AI platforms' commerce protocols disintermediate the card networks, Visa and Mastercard, within the payments' ecosystem.

The developer documentation for both OpenAI's Agentic Commerce Protocol and Google's Universal Commerce Protocol suggests the opposite.

Visa and Mastercard's authentication technology (identifying the purchaser, rubber stamping the transaction), via tokenisation is written into the protocol layer. Therefore, the agentic payment protocols are powering the agentic commerce protocols rather than being in competition.

The agentic commerce protocols are in competition, given this is rerouting search engine optimisation (SEO) into AI-SEO and each protocol has

slightly different specifications in terms of how it receives and presents data, and the type. However, this should not be mistaken for replacing the payment layer.

As the gap between consumer and merchant widens, the potential for fraud increases. So too does the reliance of the ecosystem on the trusted, scaled, four-sided network effect players, Visa and Mastercard. Recent roadshows with management teams of the card networks have only reinforced this view.

This conclusion occasioned several recommendation changes earlier this year. We upgraded Visa to Buy alongside Mastercard, reiterated our Buy call on Shopify, but became substantially more cautious on enterprise-exposed processors such as Adyen and PayPal. And yet, there are always new developments to embrace.

Amazon accounts for c50% of retail ecommerce. Thus, what it does (or doesn't) do has profound consequences for other players. Its role within an agentic commerce environment has become one of the most intense areas of debate.

Amazon is in a Catch-22: either it integrates into LLM models, maintains market share but loses incremental advertising revenue; or it maintains its current 'walled garden' approach but keeps its incremental ad business. Recent earnings calls suggest it is increasingly open to integrating with third-party LLM models, and speculation around a potential collaboration between Amazon and OpenAI has only amplified discussion.

Whilst many investors disagree with our core thesis – believing Amazon's integration into AI discovery would drive material incremental ecommerce volumes – the challenge we highlight lies with merchant incentives. Amazon historically created value through two mechanisms: demand generation and logistics. If discovery shifts outside its ecosystem, the first advantage weakens materially. There

is historical precedent for how this plays out.

TikTok Shop expanded rapidly in 2023-25, from \$1bn to \$20bn of sales, despite regulatory headwinds (tariff removal of *de-minimis*). In 2024, Shopify merchants represented c75% of TikTok's platform sellers. When Amazon integrated its marketplace sellers into TikTok in the summer of 2024, analogously to how it may integrate into one of the LLM models (ChatGPT), most observers expected the balance to shift quickly.

Yet Shopify's share of TikTok Shop sellers increased to c80% in 2025.

Merchant economics largely explains the outcome. If demand originates through TikTok – and potentially now ChatGPT – merchants have little incentive to route transactions through Amazon's marketplace and pay c10–15% in fees before logistics, when the same transaction can be completed through Shopify for c3%. Amazon logistics can also be used alongside a Shopify website. In a world where LLMs drive demand, the merchant incentive is clear: route the transaction through Shopify rather than Amazon. Given the precedent seen with TikTok, we would expect a similar dynamic for ChatGPT or Gemini.

A second debating point, during and following Shopify's Q4 earnings call, was the possibility of 'ChatGPT Pay'. This is the idea that if OpenAI is the discovery layer, it may also capture and internalise checkout.

This debate has evolved following reporting from The Information that ChatGPT has deprioritised in-chat checkout. Here we explain why this shift makes sense – and why ChatGPT is likely to remain cautious about embedding checkout directly in the interface over the long term.

The first reason is consumer behaviour. When money is involved, consumers invariably want to verify the merchant, the product page, the method of payment and the final purchase details before

completing the transaction. They do not mess around when it is their money. In the West, there is a cultural entrenchment of websites validating the 'legitimate' product experience. Buying through a separate platform feels alien. Only Amazon conquers this.

The second rationale is merchant alignment. If consumers are not using this new surface area, merchants will not reconfigure their operations to suit it. Even if they did and ChatGPT Pay, or checkout, was a non-pass-through button, it would require individual agreements with every merchant who wanted to see through LLM models. In practical terms this is near-useless as it would take a decade to build.

ChatGPT was not the first large technology platform to try and fail to internalise checkout. Meta Pay, Buy on Google, Buy with Pro (Perplexity) were similar initiatives which similarly failed to gain traction. Consumers do not trust it, so merchants do not adopt it.

Instead, OpenAI and Gemini are highly likely to focus on a less complex, less two-sided network effect, and higher margin advertising businesses. This is logical, given it is becoming the starting point of intent.

The third contentious point concerns autonomous purchasing agents. With the continued progression of LLM models and increasing focus on specific sub-verticals, the debate has shifted towards how autonomous agents purchasing on behalf of consumers could change the commerce and payments landscape. AI-driven search through LLMs already exists, but the step to agents completing purchases is probably only months away.

This involves AI systems monitoring consumption patterns and automatically reordering products – groceries, household supplies or other regularly replenished goods – subject to user approval.

The infrastructure required to support this model remains complex,

particularly around authentication, credential storage and liability frameworks. But it replicates a subscription order, with a prompt via an LLM model. Adoption will vary considerably by category.

Routine purchases are the natural starting point because product differentiation is limited and purchase risk is low – a cucumber is a cucumber. However, discretionary categories are different. Consumers purchasing fashion and beauty products, gifts or travel experiences, typically want to compare options before purchasing. Shopping itself remains part of the experience.

As a result, autonomous purchasing will probably only expand gradually, starting in routine categories before moving into discretionary commerce.

However, we are not blind to the fact that payments and commerce will change materially owing to AI. That would be the classic sell-side analyst mistake: every sector will be disrupted – except the one you cover.

The core of our January report still holds. The shift largely concerns a redistribution of volume rather than increased demand. SMB-led brands remain structurally advantaged relative to large enterprises. And the existing payments rails and protocols are unlikely to be meaningfully displaced.

That said, parts of our thesis have evolved. Amazon will almost certainly integrate more deeply into AI-driven discovery. However, much like TikTok Shop, once demand is created elsewhere, the transaction is likely to be routed to the lowest cost providers, the merchants' website rather than Amazon's expensive marketplace.

Autonomous agents will also change aspects of the checkout experience. If an AI agent is completing the transaction on behalf of a user, the traditional 'payment button' becomes less visible.

Overall, the effect will be uneven. However, if one thing is constant, it is that the world never stands still.

# Free Pass Expired

## *Hyperscalers Under Pressure*



**Alex Haissl**  
*Software & Cloud  
Research*

The GenAI cycle is entering a more demanding phase. For much of the past two years, hyperscalers enjoyed a free pass on capital spending, which investors considered a forward-looking indicator of growth. Expanding data centre capacity translated into accelerating revenue, reinforcing the narrative that scale and enterprise adoption drives attractive returns.

That narrative is being tested. Top-line growth remains robust, but returns are falling short. The distinction is structural. Renting Infrastructure-as-a-Service (IaaS) or Platform-as-a-Service (PaaS) to enterprise customers who value integrated ecosystems, tooling, security and compliance is different from renting raw GPU clusters to AI labs such as Anthropic and OpenAI.

These labs primarily optimise for compute performance and price and care less about the ecosystem, which is where hyperscalers earned their highest returns. Revenue per unit of compute is lower when capacity is rented as infrastructure rather than as a value-added cloud service.

Simultaneously, competitive dynamics are intensifying. Anthropic and OpenAI are no longer solely customers, but increasingly platform competitors. Anthropic's release of Claude Cework – effectively an operating system layer for GenAI – underscores this shift. The implications are far-reaching.

The bull case for hyperscalers' assumed foundation models would be commoditised, while value would

accrue to the orchestration layer: tools, scaffolding and cloud-native integration. Under that framework, the proliferation of domain-specific agents would expand cloud demand and reinforce hyperscaler ecosystems.

Anthropic challenges that assumption. Rather than promoting thousands of domain-specific agents, it introduces a generalised operating layer that can interface with existing enterprise systems. Capabilities are extended through modular skills or plugins. If successful, this shifts value towards the model provider and away from Software-as-a-Service (SaaS) vendors and hyperscalers.

While frontier models have effectively become commodities from an accessibility standpoint – anyone can access them via an API – the value lies in the synergy between the model and the surrounding logic: how the agent determines which tools to use, skills to invoke, and how to orchestrate tasks efficiently. This layer represents proprietary IP and is harder to replicate.

The question is: must hyperscalers develop their own models to remain competitive at the application layer?

This paradigm shift has unsettled the SaaS landscape. As AI labs release new capabilities, investors question the terminal value assumptions underpinning SaaS companies. Hyperscalers have derated to a lesser extent, a decline driven primarily by uncertainty around GenAI economics – the earnings season proving a catalyst for scrutiny.

The setup is unusual. Hyperscalers are delivering the growth investors wanted – AWS and GCP exceeding expectations – but are doing so with far higher capex than anticipated. Hence, the debate has shifted.

To counter emerging scepticism, hyperscalers must show improving

revenue per unit of compute.

However, this is tough when much incremental demand derives from GPU rentals to AI labs with lower returns and high capital intensity.

The 'DeepSeek moment' in January 2025 reignited fears of overcapacity. These faded as demand expanded, driven by scaling training workloads and inefficient inference and agent architectures. Today, conversations focus more on supply constraints and GPU shortages than overcapacity, though the latter remains a risk.

The nuanced question is: what drives the shortages? Much may reflect architectural inefficiencies rather than optimal demand.

Newer architectures take a fresh approach. The agent interprets the task and generates code to execute a direct transfer within a sandboxed environment, effectively a digital 'drag-and-drop' bypassing unnecessary model inference. This can reduce compute consumption by up to 99%.

Architectural efficiency improvements matter. If compute demand growth has been inflated by inefficient scaling during the land-grab, then improving efficiency could moderate future demand – further complicating the hyperscaler return equation.

The debate over hyperscaler returns is therefore far from settled. Growth remains strong, but it is no longer sufficient on its own. Investors are focused on capital discipline, revenue quality and competitive positioning against ambitious AI labs.

The burden of proof rests with management teams. They must demonstrate durable improvement in compute monetisation while navigating rising disintermediation risk.

# Predictably Profitable

## *Retail Opportunities for Exchanges*



**Simon Clinch**  
*Capital Markets  
Research*

**T**he Exchanges sector is a defensive pillar of financial services, where investors traditionally shelter during volatility to capture high margins and steady cash flows. While rarely associated with 'Main Street' innovation, the rise of the retail investor is transforming the space.

Following the 'meme stock' frenzy in 2021, retail investors have become a structural force in US markets. Exchanges have taken note, and innovations are targeting this trend. This is not surprising. After 2019's shift to commission-free trading, retail volumes grew at a 21% CAGR, accelerating to 24% in 2024-25. Retail share of total equity volume stabilised at 18% post-2021 but climbed to 20% in 2025. With a low-single-digit percentage of accounts generating most volume, slight increases in account conversion represent a massive uneaten retail pie.

Some of the most successful innovations in the exchange sector over the past decade have been linked to the rise of retail participation. At the platform level, the introduction of retail-focused trading interfaces and apps has democratised access to markets for the everyday consumer and enabled derivatives and options platforms, among others, to see material success with new product launches.

This has been fuelled by the desire of retail platforms in a world of commission-free trading to find alternative ways to monetise their

user bases. The uptake of new derivative contracts has been an attractive source.

In 2019, CME Group launched Micro E-mini contracts within its Index futures and options franchise. A tenth of the size of traditional e-mini contracts, they are targeted specifically at retail customers and have gained extraordinary traction. In 2025, Micro E-minis represented c42% of total Equities volumes at CME, and c21% of Equities revenues, an impressive climb from zero in less than seven years.

CBOE has also demonstrated clear success with retail products, notably its 'zero days to expiry', or oDTE, options on the S&P 500 Index. oDTE options volumes on the S&P 500 Index now represent about 34% of CBOE's total S&P 500 options business, from 10% in 2020. Retail oDTE S&P 500 options accounted for c11-12% of CBOE's total revenues in 2025.

These successes are only the beginning. With the rise of retail participation, opportunities are evolving for exchanges with the emergence of new product categories, specifically event contracts or prediction markets.

Prediction markets are generating a lot of excitement. Most of the volume in these markets derives from sports contracts, but this is not where the exchanges are most interested. Financial and macro contracts are the focus given the thematic overlap with the primary use case for futures and options – risk management and hedging.

A prediction market, or event contract, is a binary option where the outcome is either a 'yes' or a 'no', valued at \$1 or \$0 respectively. The real innovation in prediction market

platforms such as Polymarket and Kalshi is that new event contracts can be created based on suggestions from the customer community, bringing the retail investor into the innovation process. This enables the creation of highly specific options based on the outcome of a sports game, political election, geopolitical policy, economic data release or even Fed interest rate policy.

The peer-to-peer nature of prediction markets, where user volumes are making markets rather than a platform provider acting as bookmaker, allows for publicly driven pricing that reflects the probability of a 'yes' or a 'no' result. As these probabilities are driven by retail volumes, the market-implied probability of an event is unbiased. As probabilities change, contracts can be opened and closed in real time, allowing retail participants to cash out easily from a trade prior to expiration. Prediction markets have opened a new world of opportunity for everyday consumers to express a view on highly specific macro, geopolitical or financial market outcomes.

What makes this interesting to exchanges, particularly derivatives exchanges, is that participants wagering on events such as US initial jobless claims, Fed interest rate actions or inflation are not far removed from retail investors hedging portfolios from those same events using index or single-stock derivatives. Prediction markets could therefore be a source of new client activity for traditional futures and options products which offer the benefits of leverage, capital savings and efficiencies, and more accurate hedging for equity or multi-asset portfolios.

Prediction markets do trail disruption risk for exchanges. Some argue existing users of futures and options to hedge against events might be inclined to use prediction markets instead for a more specific hedge on that event. For example, a retail investor buying S&P 500 put options to protect a portfolio of equities from an unexpected rate hike could instead sell a prediction market contract on whether the Fed cuts or raises rates.

This risk is quite low, however, given the lack of institutional liquidity behind more specific contracts, the lack of available leverage in a prediction contract, weaker capital efficiency and far better portfolio hedging correlations using futures and options versus a binary contract. We see the opportunity for exchanges eventually to convert prediction market customers into customers of more traditional futures and options products.

CME is exploring this opportunity directly through its joint venture with FanDuel, a subsidiary of Flutter Entertainment. The joint venture, FanDuel Predicts, is both a prediction markets platform with four million funded accounts and a creator of prediction markets contracts that could trade on other retail platforms. CME has opportunities therefore to generate revenues through its 50% revenue share agreement via trading activity on FanDuel Predicts or from the licensing of contracts to other trading platforms. The four million funded accounts represent a large conversion opportunity for CME relative to its current 670,000 retail traders of its products, though progress is likely to take time. In the meantime, FanDuel Predicts has hit over one hundred million contracts since its launch in early December, and delivered more than \$2m in revenues to CME.

CBOE Global Markets is looking to enter the market for event contracts without straying too far from its core competency, focusing on binary options ('all-or-nothing' contracts) tied to the S&P 500 and other major



indices. These contracts are expected to go live by the end of June 2026, with longer-term aspirations to launch products on interest rate moves and volatility benchmarks. The company is avoiding sports contracts, owing to legal risks from varying state-level gaming regulations.

Intercontinental Exchange, which traditionally focused on institutional customers, has also tiptoed into prediction markets with a \$1-2bn investment in Polymarket. Intercontinental hopes to learn how to tailor its products to attract more retail participation in its derivatives markets, though the company has no intention at present of launching event contracts of its own. Intercontinental's investment in Polymarket is also a bridge that brings retail predictive data directly to institutional investors through an exclusive global distribution agreement.

Prediction markets are growing fast from a small base, though

growth is still dominated by sports contracts. In 2025, we estimate c\$51bn in volume traded on prediction market platforms, up five times from 2024, with more than half deriving from sports contracts. Stripping away the sports volume, macro prediction market volumes reached \$23bn in 2025 from \$6.8bn in 2024. Our expectation is that with investment and support from traditional derivatives exchanges, growth in financial and macro event contracts is likely to accelerate rapidly.

In the not-too-distant future, therefore, we may witness a far higher retail participation in markets, leveraging cash equities, futures, options and event contracts to monetise an increasingly volatile geopolitical landscape or to hedge exposures with far superior levels of sophistication. The exchanges have clear intentions to capitalise on this opportunity, feeding innovations into the rising wave of retail.

# The Final Frontier

## AI Powered in Space



**Skye Landon**  
Power & Utilities  
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**T**housands of rockets launching gigawatts of chips, panels, and radiators into Earth's orbit to run AI compute across a constellation of satellites powered by supercharged space solar before beaming the data back to Earth with lasers.

At first glance, this seems more like something cooked up by Tony Stark with The Avengers than reality. However, the potential for a SpaceX IPO, reportedly to be valued at around \$1.5trn, suggests otherwise.

After decades of stagnant electricity demand and years of underinvestment in power grids, sating the rapid growth requirements for round-the-clock power is proving a colossal task. Moreover, the social implications associated with rising power demand and prices is still in its infancy.

Space offers a potential escape from the terrestrial gridlock and represents the ultimate behind-the-meter power solution. Given this, it is hardly surprising AI leaders are looking to the stars for a longer-term solution.

*"Mark my words: in 36 months, probably closer to 30, the most economically compelling place to put AI will be [in] space."*  
Elon Musk (SpaceX/Tesla)

*"These giant training clusters, those will be better built in space, because we have solar power there, 24/7. There are no clouds and no rain... you get 8x more energy in*

*space than on Earth."*  
Jeff Bezos (Blue Origin & Amazon)

*"There's no doubt to me that a decade or so away we'll be viewing it as a more normal way to build data centres."*  
Sundar Pichai (Google)

The AI power debate has dominated much of the discussion surrounding this sector recently and the knock-on effects of a successful pursuit of orbital compute could be gigantic. So, given the possible impact, and because it is a fascinating topic, the engineer in me wonders what needs to happen in order to make this sci-fi epic reality.

One of the primary barriers to space-based compute is the 'gravity tax' associated with launching mass into orbit. To make orbital data centres a viable competitor versus earth-based compute, launch costs must fall many multiples from current levels.

Historically, SpaceX's Falcon 9 has been the workhorse of Starlink's success. But at a launch cost of c\$2,700 per kg to low earth orbit (LEO), the cost required simply to launch gigawatt scale data centres would be astronomical. The moonshot scenario relies almost entirely on Starship, SpaceX's fully reusable heavy-lift rocket. With this method, the target launch cost is \$100-200 per kg, a paradigm shift enabling the mass deployment of heavy infrastructure such as radiators and giant solar arrays.

At \$100 per kg, the launch of a 1MW cluster (assuming sixteen tons of hardware) falls to \$1.6m, bringing the cost of orbital compute into a range that could be competitive with current terrestrial facilities. This is

even more the case when factoring in the 'free' 24/7 solar energy available in certain earth orbits.

Mass is the ultimate constraint in spaceflight because it is the exponential multiplier for the propellant requirements (the 'Tyranny of the Rocket Equation'). Fuel has mass, and you must carry enough to lift both the payload and the fuel itself. This creates a Catch-22, where propellant requirements grow exponentially, not linearly, with payload mass.

Terrestrial data centres use huge and heavy systems that are unfit for orbit. In order to be viable, a compute module must have extreme power density. Elon Musk has stated that sub 100kW per ton orbital compute satellites are achievable in the not-too-distant future.

Building a gigawatt-scale data centre is not a single-launch event. As on Earth, it is a massive construction project requiring a train of rockets to transport the equipment into space.

Assuming sixteen tons per MW, with a reported current payload capacity of 100-150 tons, SpaceX would need around 130 launches per GW. Therefore, to hit 100GW of capacity, SpaceX would need to launch roughly 13,000 rockets cumulatively.

With current Federal Aviation Administration recommendations suggesting SpaceX could pursue up to 44 launches per year from Kennedy Space Center and 25 from Starbase, at a cadence of 69 launches per year, SpaceX could theoretically deploy a full gigawatt of orbital compute in around two years on the current run rate and regulatory floor. This, however, is a long way from achieving 100GW, meaning the launch cadence



*It's just my job five days a week*

will need to show a step change into the thousands as we enter the 2030s.

But things are moving quickly. In January 2026, SpaceX filed plans for a constellation of one million orbital satellite data centres that would operate at altitudes between 500km and 2,000km.

*“The amount of power to run compute by 2045 will be the base power of the planet right now. The drain on resources is so high, you need to put that compute in space and use the power of the sun... that's a really good use of space to help save the planet.”*

*Tom Mueller (employee #1 at SpaceX & Impulse Space)*

Whether or not motivation for this is environmental or financial, the core value proposition of space-based AI is the unrivalled quality of space solar as an energy source.

On Earth, solar capacity factors are limited by the cycle of day and night, seasonal changes, the weather and

atmospheric interference. In space, particularly the dawn-dusk line in Sun-Synchronous Orbit (SSO), a solar array can receive predictable, nearly continuous, high-intensity sunlight that provides 1,361 W/m<sup>2</sup> for c98% of the time, compared to say Texas averaging c200-300 W/m<sup>2</sup>.

Technology-wise, developments in solar technology can provide some of the most impactful unlocks en route to Musk's 100 kW per ton power density target.

These focus on weight and efficiency, with the potential to shift from current day-heavy rigid solar panels to flexible blanket- or sail-like architectures to reduce weight, and an efficiency-boosting shift from standard silicon cell to perovskite-silicon tandem cells. These combine a top perovskite layer with a bottom silicon cell, allowing increased efficiency absorbing a broader solar spectrum. In 2025, LONGi achieved record lab efficiencies approaching c35% versus typical silicon-only cells in the low 20s.

Musk's vertical integration and domestic manufacturing strategy with its target of 100GW of annual solar cell production for Tesla and SpaceX by 2028 is central to this transition.

On earth, heat-producing servers can be cooled with air or water, essentially moving heat via fans or liquid loops into massive heat sinks such as a river or the atmosphere.

In the vacuum of space, there is no air for heat convection or conduction, leaving thermal radiation as the only solution. Here radiators function as electromagnetic transducers that convert thermal energy into infrared light and broadcast into the -270°C heat sink of deep space.

This exchange is governed by the Stefan-Boltzmann Law – that heat rejection is proportional to the fourth power of its absolute temperature. This means a radiator's heat rejection efficiency (W/m<sup>2</sup>) increases non-linearly as the temperature increases, benefiting chips that can run at higher temperatures.

Improved heat rejection efficiencies and radiator architecture, shifting from the traditional one- to two-sided design, can combine to reduce the mass associated with launching cooling requirements in space. This contributes to the density target.

However, space can be a hostile environment. Flying too close to the sun trails new risks and complications not faced by data centres on earth. Radiation impacts such as total ionising dose and single event upsets from cosmic rays add to overall mass and expense through material shielding requirements.

*“The current space environment is growing increasingly hazardous to spacecraft and astronauts. Space is becoming essential to our current civilization, and we are reaching a tipping point.”*

*Donald Kessler (Retired Head of NASA’s Orbital Debris Program Office)*

Space debris represents a growing orbital issue, evidenced by the 144,000+ avoidance manoeuvres conducted by Starlink in the first half of 2025. The debris issue is characterised by the Kessler Syndrome – in essence, a self-sustaining chain reaction whereby space debris collisions cascade, exponentially creating ever more debris.

Existing space debris is likely to cost the industry tens of billions over the coming years. If not properly addressed, as orbital density increases the cost of insurance, regulatory compliance and active remediation is likely to scale ever faster, adding to the overall cost and the risk of doing business in space.

Training and inference will potentially occupy different orbital altitudes based on their mission profile. For instance, Google’s Project Suncatcher is targeting a 650km SSO specifically for training clusters with optimised solar power advantages.

In contrast, inference satellites are more likely to target very low earth

orbits (VLEO) or low earth orbits to provide response times to compete with terrestrial. SpaceX envisions a giant fleet or constellation of satellites in VLEO (below 500km) to act as a distributed net for real-time user queries. It filed with the Federal Communications Commission in January to authorise one million solar-powered AI satellites.

In terms of communication, companies are moving away from traditional radio frequency for data-heavy links, as it lacks the bandwidth for AI weight synchronisation. Space-to-space communication is likely to utilise free-space optical links that can achieve 10Tbps per link by flying the satellites in tight formation only hundreds of meters apart, making a distributed data centre conceivable. To bring data back to earth, Google has benchmarked 1.6Tbps bidirectional laser links, with a site-diverse strategy to try to mitigate weather interference.

Similarly, while SpaceX’s current Starlink satellites use radio frequency links for ground communication, the data centre plan is likely to deploy laser technology, ditching the mass-heavy radio frequency technology which could still serve as a failsafe should the planned network of optical ground stations be blocked.

As the competition for sovereign AI intensifies, space is becoming part of the battleground. Thus, China is expanding beyond earth via the China Aerospace Science and Technology Corporation (CASC), vowing to ‘construct gigawatt-class space digital-intelligence infrastructure’ according to a five-year development plan. India plans to launch a prototype AI data centre into orbit by the end of 2026, with commercial rollout targeted for 2027. And South Korea is talking about a sovereign AI shield with orbital data centres deployed to ensure government and economic continuity if terrestrial infrastructure is compromised.

Space law and regulation is another area of uncertainty. Current orbital

data governance is a Schrödinger’s compliance nightmare, with the 1967 Outer Space Treaty labelling space a ‘global commons’. Terrestrial laws concerning aspects such as GDPR create ambiguity over whether data is exported as satellites cross borders many times a day. The proposed digital flag state rule borrowed from maritime law shifts sovereignty from geography to registration and mandates that a satellite hull is sovereign territory. Hence the licensing nation’s laws govern the digital payload regardless of orbital position, ensuring passive transit does not trigger local sovereignty. This transition provides the jurisdictional sanctuary necessary for high compliance levels of AI workloads.

To be clear, I am not offering an opinion on whether orbital data centres will, or will not, take over AI compute, but rather I wanted to examine what needs to occur for space to become competitive with terrestrial compute. It is a complex subject, and I am conscious the constraints of the essay format mean I have barely scratched the surface, but clearly the list of obstacles is long, with many different development arcs all needing to succeed.

It will be exciting to follow this sci-fi adventure over the coming months and years. As ever, what might seem incomprehensible today will become reality in the not-too-distant future. After all, as Spock said, “Change is the essential process of all existence”.

Meanwhile, the idea of space-based compute is not preventing the hyperscalers from supersizing annual capex budgets and pressing on with the rapid build-out of terrestrial based data centres.

A reported c40-50GW of currently under-construction capacity in the US alone suggests AI leaders are managing to get by on the resources available on earth today – albeit with naturally abundant energy regions such as Texas taking share from traditional data centre regions in order to help feed the great maw of the AI machine.

# The Joy of Fission

## *Understanding the Nuclear Option*



**Simon Toyne**  
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Imagine taking an astronomically long spring and compressing it until its ends are just a quadrillionth of a metre apart – a ‘femtometre’. This is difficult in practice, but if the ends of the spring were replaced by protons, whose repulsive force followed an inverse square law, then we can imagine that pushing them together from the edges of the universe would create great potential energy – a desire to fly apart and turn this potential into kinetic energy, which manifests as heat.

Such repulsive forces between protons are surprisingly strong. While we are all familiar with gravitational forces, these are miniscule compared with electromagnetic forces. The repulsive force between two protons around one femtometre apart is over 200 newtons. This is similar to the weight of a six-year-old child. A force of 200 newtons applied to a particle as small as a proton or neutron produces practically instantaneous acceleration to speeds approaching that of light.

Why therefore can the nuclei of atoms exist? The answer is an even stronger force – the nuclear force – which attracts protons and neutrons together, with peak attraction broadly 100 times as strong as the repulsive electromagnetic force at a separation of around one femtometre. This acts as a ‘catch’ that bonds the protons and neutrons

in the nucleus of atoms. Having pushed our protons together from the edge of the universe, this catch effectively drops into place when the protons are virtually touching and holds them there, attraction counterbalancing repulsion and disguising the underlying stresses. Critically, though, this nuclear attraction fades very quickly with distance – if the centres of the protons are separated by around three femtometres rather than the stable state of just under one then the repulsive force dominates and the protons fly apart.

Fortunately, most nuclei are extremely stable. However, some isotopes, such as Uranium 235, are relatively easily fissioned following a collision with a neutron, which causes such separation. The size of the repulsive force hints at the vast energy released upon fission. One kilogram of uranium 235 – the size of a 3.7cm cube – releases over eighty trillion joules of energy if completely fissioned. If one third of this is converted into electricity via a steam turbine and generator, this equates to the electricity produced by a 15MW offshore wind turbine during six weeks of average operation.

This fission reaction forms the basis of our nuclear power industry. Globally, just under 10% of all electricity is produced from nuclear facilities, but this share peaked at around 18% in the early 1990s and has been declining ever since. However, western world power systems are entering a new age of growth, propelled by electrification and artificial intelligence. Concurrently, the need for such power to be low carbon grows as the world’s temperature rises, and the

economics of energy are increasingly important given deindustrialisation in the western world and rising consumer power prices.

Should nuclear energy become a much larger share of power generation? The low carbon box is ticked by design. Safety and waste disposal are much more benign than is sometimes suggested by nuclear opponents. Long build times are also a challenge as western world power systems struggle to keep pace with demand, but investment decisions on strategic assets that last many decades should not be strongly swayed by the exact pace of initial delivery.

The biggest obstacle to broader adoption of nuclear energy is economic. While gas-fired power station costs have risen sharply, they remain below \$3m/MW in ‘overnight’ construction costs. By contrast, recent nuclear builds, such as Flamanville 3, Vogtle 3 & 4 and Hinkley Point have materially exceeded \$10m/MW.

But it wasn’t always like this. The French nuclear system, which was largely built by the early 1990s, cost around \$3.5m/MW to build in today’s money. US nuclear assets prior to the mid-1980s mostly cost \$2-6m/MW in today’s money. While still high compared to recent gas-fired power stations, fuel costs are a smaller share of costs than for gas-fired plants. They also avoid carbon emissions once in operation. We estimate a build cost of US\$4m/MW translates to a levelised cost around \$80/MWh. This is lower than the strike prices over £90/MWh achieved in the UK’s recent offshore wind auction. It is similar to the levelised cost of solar in the US when batteries



*Putting a different construction on it*

This copy has been generated for Skye Landon of Rothschild & Co Redburn

are included – and increasingly they are included as capture prices deflate due to saturation.

Moreover, direct comparison of levelised costs between nuclear and renewable energy is not nearly fair. Batteries allow the time of delivery to be adjusted by hours for renewables, but they do not compensate for periods of poor wind or solar conditions over days or weeks, which are a normal occurrence in much of the world. Nuclear energy is highly reliable over decades and uses far less land.

The challenge remains, however, that overnight nuclear build costs of a few million dollars per MW are much lower than has been achieved in recent years in the developed world. But renewed political support, especially in the US, is encouraging, and ‘generation IV’ and small modular reactors might offer such deflation eventually.

To understand the next generation of nuclear reactors we again imagine neutrons pinging around a fuel source causing fission. In almost all currently operating reactors,

the neutrons emitted by a fission reaction are slowed by a coolant – usually water – because slow neutrons are much more likely to cause a further fission event than fast neutrons. This also enhances safety – if the liquid moderator escapes a conventional nuclear reactor, the reaction stops (except at Chernobyl owing to the presence of graphite moderators).

Unfortunately, however, slow neutrons lead to inefficient utilisation of the fuel. If a blend of 4% U<sub>235</sub> and 96% U<sub>238</sub> is used in a

conventional nuclear reactor, the spent fuel recovered from the reactor might contain 1% U<sub>235</sub>, i.e. a quarter of the original U<sub>235</sub> and another 1% of plutonium – a fissile material produced in the reaction that can also be used as nuclear fuel. In other words, the fissile portion of the spent fuel is as high as half of the share of fissile material in the initial feed. Another 5% of the spent fuel is highly radioactive waste products, while the remaining 93% of the spent fuel is the relatively unreactive U<sub>238</sub> ‘ballast’ that was 96% of the original blend.

Given the cost of recycling nuclear waste into new fuel versus producing virgin material from uranium ore, nuclear recycling remains a fringe activity in the industry overall, except in France, though even there spent fuel is only recycled once.

Enter fast neutron reactors. These have a surprisingly long history, dating back to the Experimental Breeder Reactor 1, which first generated power in 1951. The science behind fast neutron reactors is materially different to that of the slow neutron reactors currently in operation. Neutrons are maintained at high speeds following fission, which is achieved by ensuring the moderator has a far higher atomic mass than the neutrons, such that the neutrons simply bounce off following a collision without much speed loss. Water therefore does not work – a much heavier material, such as liquid sodium, is used instead.

But why are fast neutron reactors interesting? There are several reasons. First, the fast neutrons ‘burn up’ a lot of the longest half-life waste products produced by fission. Second, they operate at higher temperatures, increasing the efficiency of downstream electricity generation. Third, they potentially produce – breed - more fuel than they consume. This sounds odd but can be understood probabilistically. As neutrons zip through the fuel mass, they can combine with or fission U<sub>238</sub> or U<sub>235</sub>, i.e. four possibilities in a new fuel. When neutrons move

slowly, the probability of them fissioning a U<sub>235</sub> nucleus is hundreds of times higher than any of the other three events. With fast neutrons, the probabilities of these four events are much more similar to one another. This substantially increases the production of plutonium 239, which is fissile, via a U<sub>238</sub> atom capturing a neutron and subsequent radioactive decay. As such, the spent fuel can contain more fissile material – uranium 235 and plutonium 239 – than the initial charge.

However, exploitation of this fissile material is still likely to require a recycling process, which is expensive and complex. Also, the initial charge needs a much higher share of uranium 235 than in a slow neutron process because of the lower probability of fission with fast neutrons. The supply chain for such fuel – high assay low enriched uranium (HALEU) – does not yet exist at a commercial scale. The history of fast breeder reactors is also cautionary. We have built a database of sixteen such reactors built since the 1950s, and most have suffered sodium leaks or even partial meltdowns. On the bright side, the Experimental Breeder Reactor 2 achieved a respectable availability of over 70% and a solid safety record. Oklo, for example, is in the advanced stages of recreating this success via an upgraded modern-day equivalent. But the burden of proof remains heavy on such enterprises - most fast neutron reactors have performed much less well than conventional slow neutron reactors and it remains unclear how technically or economically feasible fast neutron reactors will be.

Sodium-based fast neutron reactors are just one idea in the generation IV category, albeit a prominent one given their longer track record. Other concepts include molten salt, lead cooled, high temperature gas cooled, and super critical water cooled. There is no perfect design in these categories, only trade-offs,

and many of the designs are very early stage compared with liquid sodium projects.

A middle ground is offered by conventional slow neutron reactors scaled down to be ‘small modular reactors’. This is the approach being adopted by several prominent organisations, such as GE Hitachi, Rolls Royce and Westinghouse, accompanied by smaller competitors such as NuScale and Holtec. Unlike fast neutron reactors, the technology for these designs is tried and tested, using pressurised or boiling water as the moderator. Again, ultimate economic performance is unproven but the longer-term history of much lower capital intensity than in recent infamous examples is inspiring.

The nuclear industry has therefore reached a tantalising fork in the road. One path entails more of the same – an industry mired in exaggerated environmental and safety fears that cause very low build frequencies, extreme delays, budget blowouts and highly unattractive economics. The other path finally exploits the incredible physics at the heart of the technology on a much larger scale, industrialising and standardising its construction, and making nuclear energy the most attractive source of incremental firm electricity available to mankind. The ultimate winners in the corporate world are hard to predict given esoteric technological uncertainties, but nuclear power should remain front and centre in any debate on the future of the energy system.

The challenge for investors will be making money from this theme. The recent share price performance of nuclear exposed equities in the US reminds that shares exposed to very exciting themes can fall as well as rise. Risks are certainly high especially for emergent fast neutron technologies, but the potential prize for designs that finally deliver attractive economics against competing dispatchable technologies is domination of the future energy system.

# Rugged Terrain

## *Financial Investing in an Era of Technology Change*



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The aftermath of the Global Financial Crisis (GFC) has, for the most part, been a favourable decade-and-a-half period for investors in financials who have sought capital light, relative to capital heavy, financial service companies. Between end-2009 and December 2025, the aggregate market capitalisation of the Bloomberg Development Markets Large & Mid Cap Banks Index grew 2.3x to cUS\$6.5trn. By contrast, the Bloomberg Developed Markets Financial Services Index grew 6.6x to US\$5.6trn.

This was underpinned by two primary trends: (1) regulatory changes in the aftermath of the GFC, and (2) the impact of technology advances in financial services. We look at each in turn.

Reflecting the central role attributed to banks, particularly investment banks, in causing the GFC, in the aftermath regulators materially tightened banking sector regulation. Pivotal changes were made to: (1) the level of leverage banks could deploy, which was substantially reduced; (2) the quality and density of capital required, which was materially increased; and (3) the level and quality of liquidity required, which was also increased. The net result was to drive significant levels of activity out of the banking system and into other segments of capital markets.

The second, more complex, shift is the impact of technology. This

has allowed an array of companies to compete more effectively against entrenched legacy competitors across the entire financial services spectrum. The most notable area has been the payments sector, albeit there is an extensive array of other proof points – for example, credit and rates trading becoming more electronic through the emergence of neobanks in number of different geographies.

The effect of the changes outlined above has blurred lines across financial markets. Historically, banks have played the critical role in financial services intermediation and credit extension. Central banks now play a more important intermediation and stabilisation role at the heart of financial markets. Non-bank financial intermediaries play an ever-more important role in credit provision. Clear delineation between the wholesale and institutional markets has, to varying degrees, broken down. Insurers played a crucial role in extending long-term financing to economies. Alternative providers have emerged. For example, the major US annuity providers dealing with the drag of ultra-low interest rates chose to prioritise capital returns over growth in the decade post the GFC; the result: a recent start-up, Athene (backed by Apollo Global Management), is currently the largest fixed and fixed-index annuity underwriter in the US market.

Looking forward, the status of regulation argues potentially for a slower rate of change. The post-GFC banking regulatory shift is largely complete and certain jurisdictions, notably the US, are considering loosening aspects of regulation, which would support the outlook for banks.

However, technology and an accelerating pace of change do not suggest respite for banks or other financial services segments. This includes capital light financial service winners in the prior cycle, many of whom have endured a difficult (from a share price perspective) 2025 and early 2026.

AI developments have been at the forefront of this. Initially, these developments triggered concerns around the financial information data & analytics segment, a subsector that historically commanded a premium valuation reflecting a long track record of organic growth and perceptions of strong barriers to entry in core product categories. More recently, concerns around AI-led disintermediation risks have impacted other financial subsectors, including wealth management and brokerage, and insurance brokers. Indirect exposure concerns have also kicked in. While AI does not pose a direct threat to the operating model of the alternative asset managers, the market has derated this sector on concerns around the software (and related) exposures these businesses carry in their private equity and private credit portfolios.

Reflecting these dynamics, an emerging line of debate has been whether investors should favour more capital intensive rather than capital light segments of the Financials sector. We are wary of anchoring on this view, reflecting how broad-based technology disruption could potentially be, to offer examples from the banking, capital markets and payment industries.

There is currently fierce political debate in the US Senate around the passage of the CLARITY Act,



Simpler then

legislation intended to regulate cryptoasset market infrastructure. The most contested area is the ability of stablecoins to pay rewards (something permitted by the GENIUS Act – stablecoin legislation signed into law in 2025). Banks are lobbying aggressively for stablecoins rewards to be banned. This reflects deep-seated concerns that material growth in stablecoins in the US market could strip away deposits, thereby depriving banks of their lowest cost and most stable form of funding.

A longstanding view of many market participants is that one of the largest potential opportunities for blockchain technology is its application across the capital markets ecosystem, particularly via the concept of tokenisation. Tokenisation is the process of issuing a digital representation of an underlying asset. Large-scale deployment of this technology potentially offers various benefits to the securities industry including instant settlement, 24/7 availability and increased efficiency and transparency. Were the technology to start to see adoption more widely in capital markets, it would carry serious risk to the model and profit streams of the incumbents who provide the plumbing for these markets.

The emergence of agentic commerce carries opportunities

and unknowns for the payments industry. AI search will change the competitive landscape of capturing consumer intent. This is expected to redirect incumbent advertising economics while increasing operational complexity for merchants who must now sell across new AI search channels alongside traditional ones. For payment providers, the delegation and data of capturing consumer intent to AI agents changes the traditional consumer-merchant link to a consumer-agent-merchant relationship. This reopens foundational questions around authentication, trust and liability, and is forcing the payments industry to restandardise how trust is established.

The impact of technology on financial companies is not limited to the process of assessing the industry and specific companies. Technology continues to alter the competitiveness of the global investing landscape fundamentally, enabled (ironically) through the embrace of technology by financial corporations themselves.

The rise of the passive investing industry with its price insensitivity and momentum orientation has been widely discussed. A more recent trend has been the rise of the retail investor. Initially dismissed as a pandemic-era fad, this segment of

the market historically dismissed as ‘dumb money’ has become increasingly influential. The source of much of this newfound influence is anchored in technology, including access to more advanced, in many instances institutional grade, trading tools; better access to information, often through social media; and greater ability to deploy leverage.

The terrain of investing across the entire universe of financial stocks, which is already rugged from both a fundamental and competitive perspective is likely to become more so. Reflecting this, we are mindful of the guidance of two renowned investors. David Tepper, the founder of Appaloosa Management, noted, “The key in investing is that you have to be able to adapt. If you try to make the same approach work every time, you’re going to be left behind”. Given the pace of technology change, we anticipate this maxim is likely to become ever more relevant. The other is from Peter Lynch, the author of *One Up on Wall Street* who delivered outstanding returns over his tenure as manager of Fidelity’s Magellan fund, “Behind every stock, there is a company. Find out what it’s doing”. This may seem obvious, but in an era of passive investing, meme stocks and rapidly created ‘AI loser’ baskets, it potentially carries rich rewards.

# In Praise of Bob Kierlin

## *What Makes Fastenal Different*



**William Blunt**  
*Business Services  
Research*

At its founding, Fastenal did not have any unique products, nor were its services defended by any structural moat. A distributor of industrial goods, it was a textbook example of a commoditised business: nuts and bolts. Its primary role was to purchase and resell.

However, this did not impede the company's expansion from its founding in 1967 as a single store in Winona, Minnesota, into a transnational distributor operating from over 3,500 locations with annual revenues above \$8bn.

Nor has it prevented equity markets from rewarding that expansion. An investor who committed \$9,000 to purchase 1,000 shares at Fastenal's IPO in 1987 would today hold shares worth c\$15.5m, equating to a compounded annual return of 21.6%, or 22.2% after reinvesting dividends.

The impact of Fastenal's founder, Bob Kierlin, on this success cannot be understated. From the outset, Kierlin embedded a culture of shared ownership, disciplined reinvestment and an unwavering commitment to "growth through customer service". As a result, Fastenal has evolved from a straightforward hardware reseller into an embedded supply partner whose model now creates structural advantages through operational integration. While Kierlin stepped

down from the CEO role in 2002, Fastenal remains the story of an inspirational founding entrepreneur whose guiding principles continue to underpin the company's competitive advantage.

Kierlin had the idea for Fastenal while helping at his father's auto parts store. He noticed customers regularly purchased fasteners, yet the wide range of sizes and specifications made it impractical for one store to stock every permutation, forcing customers to visit multiple suppliers to complete a job.

His initial solution was to sell fasteners through vending machines, allowing a broader range to be stocked in a compact, unattended retail format. However, vending technology in the 1960s was insufficiently advanced to support this idea, and Kierlin was forced to pivot. He opened his own retail store, dedicated to selling fasteners exclusively.

This focused approach immediately resonated with customers. As momentum grew and Fastenal added locations, Kierlin placed increasing emphasis on local autonomy. He hired ambitious young managers and entrusted them with responsibility for their own stores, providing little more than initial inventory, basic furnishing and a simple instruction to run the store as if it were their own.

The original culture of believing in and empowering its people remains a fundamental contributor to Fastenal's outperformance. It is a business of entrepreneurs. When problems arise, employees are expected to resolve

them rather than wait for approval. Management still describes the business as 240 separate districts with roughly 70% of employees compensated on the performance of their own branch's P&L.

Fastenal's culture has always emphasised frugality, with employees encouraged to treat company resources as their own. This disciplined approach to costs has enabled sustained reinvestment, reinforcing a virtuous cycle of profitability and expansion. It has also allowed the business to operate profitably in smaller markets where less efficient competitors struggle, a critical engine of its initial success.

During his 35-year tenure as CEO, Kierlin lived, breathed and even slept this ethos. He famously kept his \$120,000 salary flat throughout the



1990s despite repeated authorisations for increases, purchased \$60 second-hand suits and shared a hotel room with the CFO when travelling. Leading by example was central to Kierlin's belief that the best way to keep a company aligned on a common goal was to treat everybody equally. Or as he put it in his 1997 memoir, *The Power of Fastenal People*, 'The organisation cannot have some people who are put in a different status than the rest. You don't have an executive dining area, assigned parking spots for a few executives, stock options for only the highest paid people... or even dress codes for only some of the people'.

In practice, this philosophy translated into a highly decentralised operating model. Each Fastenal location is held accountable for its own growth, profitability and returns. Management is clear there is no floor once you start giving away margin, so Fastenal is selective about the customers it serves, focusing on those that value its staff, services and expertise. This discipline has allowed the company to sustain operating margins above 20%, more than double those of peers. It also means that of the c120 new accounts Fastenal signs each year, 72% generate no business five years later, and only

2% ultimately develop into financially meaningful long-term relationships.

Another of Kierlin's enduring principles is that performance should be rewarded frequently and transparently. Continuing a policy started early in the company's history, Fastenal pays all employee bonuses monthly. This reinforces the decentralised model, keeping managers focused on making incremental improvements throughout the year rather than waiting for an annual review. By tying reward to branch-level P&L performance, Fastenal maintains accountability and ensures all employees are working towards a common goal.

While the shared ambition to create "growth through customer service" has remained a core tenet throughout the company's history, the business model today looks very different to that of its early years. After three decades expanding its branch network, the rise of the internet began to reduce the importance of holding inventory locally. So, in 1992, Fastenal opened its first Onsite – effectively a microbranch within a customer's premises, staffed by a Fastenal employee on hand daily to deal with sourcing and supply chain issues. By embedding itself directly

into customer operations, Fastenal deepened relationships and made it far easier to grow share of wallet.

In 2002, the company took this a step further, fulfilling Kierlin's original ambition by supplying customers with vending machines, bringing Fastenal products into the core of customer operations. This has reshaped the business over the past two decades, with Fastenal closing roughly 40% of its branches, reversing a decades-old successful strategy in favour of a model that the company believes can better serve customers. Today, the number of Onsites exceeds the number of branches and vending accounts for almost half of revenues.

Yet throughout these years of business model evolution and expansion, Fastenal has preserved the culture that defined it from the outset, a quality rare in corporate America. Even as its operating footprint has shifted from retail branches to embedded customer solutions and it has expanded into a \$50bn company, Fastenal's decentralised structure has not been diluted, and the business remains organised around local accountability, ownership and margin protection.

This continuity is reflected in how the company has grown. Unlike many industrial peers, Fastenal has never expanded inorganically, wary that external deals would introduce cultural baggage and dilute its operating ethos. Instead, it has relentlessly promoted from within, with the average tenure of its management board being more than 25 years and many executives having started their careers at Fastenal.

The result has been sustained outperformance. Fastenal has consistently delivered superior margins and returns relative to peers, a record recognised in its premium valuation, regularly trading above c30x EBITDA. Almost sixty years after its founding, the company reflects the principles set by its founder. Kierlin did not simply build a distributor of fasteners; he built a company with a culture designed to endure.



Business class

# Chaos into Clarity

## *The Analog Workhorse*



**Nabeel Aziz**  
*Tech Hardware  
Research*

**W**e experience life in analog quantities. The five senses that make up our experience of the world are triggered by sensations derived from light, heat and sound. These travel as continuous signals, much like a dimmer light switch where you can adjust the intensity to any level rather than simply turn on or off.

Despite this being how we as humans interact with the world, when one thinks about technology and semiconductors it is invariably the digital world on which we focus. The idea of AI data centres, computers and mobile handsets gravitates towards Central Processing Units (CPUs), Graphics Processing Units (GPUs) and memory chips. These devices process and store digital information – the ones and zeroes that comprise the language of computers.

For all its speed and precision in calculation, digital processing relies on order and determinism in a world filled with chaos. Beyond the glamorous digital semiconductor market lies an army of sensors, amplifiers and converters turning chaos into clarity and making digital computation possible. These devices make up the analog mixed-signal semiconductor market.

One can consider the difference between digital and analog in the context of a child's birthday party. In digital, the guests arrive on time in an orderly fashion. They are well behaved and the party goes

to plan. In analog, the friends file in randomly, the cake delivered is the wrong size, one guest said they were running early and arrives late, and the children have been plied with sweets and are bouncing off the walls.

Despite the chaos, both need to host smooth events and are ambitious to improve their offerings. For the logic designer, the clarity of the inputs means the ambition is to scale up the event to billions of people. For the analog designer, the aim is to host immaculate boutique events, which relies on an intricate understanding of every guest and their random physical behaviour in every eventuality. This is where the difference lies.

In semiconductors, the trend over the past fifty years has been one of embedding a greater level of intelligence in our everyday lives. To this end, analog chips are the translators and regulators creating a greater interface between the real and digital worlds,

unlocking new use cases for digital computation. If digital chips are the brains that process binary code, analog chips are the nervous system that sense, condition and control real-world signals.

Of the \$656bn semiconductor industry in 2024, analog mixed-signal chips accounted for around 30% of global revenues and formed the backbone of global semiconductor production. Within the broad remit of analog chips, there are two major categories: power management and signal chain.

Power in the grid is inherently variable, particularly with renewables. Even in local supply, power varies owing to resistance in local wiring. Yet systems need to deliver a constant voltage to electrical devices to ensure optimal performance. A voltage regulator, which takes an unstable input voltage and outputs a steady level, is a simple example of a power management chip. In data centres, cars and smartphones, dozens



of such regulators ensure power reaches electrical components in the most efficient and thermally performant manner.

Once power is delivered to a system, the digital device requires a signal from the real world to perform the relevant computation. This relies upon sensors to generate signals that detect light, heat, sound, pressure or movement. These are amplified, filtered and converted into a digital signal by a long chain of analog and mixed-signal components. Only then can the digital device understand what is happening and carry out a computation. But, once that computation is completed, the resulting action can again only be enacted in the real world, meaning another round of conversion through yet more analog components.

As a result, the bulk of the process steps needed to enable the action of electrical systems in the real world occurs beyond the logic device that is at the centre of it.

Digital logic devices such as CPUs and GPUs are termed 'leading-edge' owing to their production at the most advanced process nodes. Think 5-nanometre and smaller – the sexy end of semiconductor production. On the other hand, Analog mixed-signal devices are

produced at process nodes larger than 28-nanometre. These are often termed 'lagging edge' or 'mature node'. The digital world adopted 28-nanometre more than fifteen years ago and moved smaller over a decade ago. These larger geometries in analog are often conflated with simplicity.

The default assumption amongst many investors is the larger process nodes should be easy to replicate over time by brute force and will inevitably be disintermediated, particularly by more cost-agnostic producers in China. But what makes analog mixed-signal semiconductors so difficult to produce? How can a business like Texas Instruments command more than 60% gross margins while building such 'simple' devices?

The misunderstanding arises through the conflation of size with complexity. In logic, scaling to smaller process nodes largely follows geometric shrink and performance improves more predictably with each node. Therefore, the primary driver for design complexity is in the sheer nanoscopic scale of the components produced, with each leading-edge chip containing billions of transistors per centimetre.

By contrast, analog chips contain hundreds or thousands of components. The complexity however lies in the reliability of a device in the face of chaos. Performance depends on subtle electrical characteristics in noise, leakage and temperature drift that do not scale cleanly with smaller components. The difficulty arises in the randomness of the outcomes based on seemingly unchanged inputs and relies on a fundamental understanding of device physics.

Rather than using standard cells and automated tools, an analog engineer must understand how a specific type of transistor or capacitor behaves under real-world conditions. This can vary with voltage, temperature and age. Analog design expertise is

experience-based and accumulated over decades, with small talent pools limiting how quickly a new entrant can scale.

Incumbency is often a lazy argument used to suggest insurmountable barriers to entry. However, the random behaviour of analog semiconductors means the time in the market required to build an intricate understanding trumps a timely entrance to the market. Qualification cycles with customers are long and sticky, and devices remain within systems for years, even decades.

Once designed into a system, replacement risks are high. A shiny new product from a competitor needs to convince a purchaser to sacrifice years of reliable performance often only to save pennies per chip. In automotive and industrial applications, harsh temperature and voltage conditions increase the jeopardy of switching supply. Chip performance degrades more quickly over time, and the device may fail catastrophically in critical applications – an intolerable outcome.

In emerging applications such as data centres, there are opportunities to build share in new markets. Where there are new specifications and features embedded in a system, or an incumbent is unable to supply the market, there is an opportunity for share gains by newcomers. But for the bulk of applications, risk-averse purchasers prefer product resilience, supplier reliability and industry incumbency over the new kid on the block.

The next frontier of AI deployment is into the physical world through robotics and autonomous vehicles. These will only be as good as the information that feeds them. Analog mixed-signal chips will render the robots sentient. So, the next time one thinks about the technology that shapes the world we live in, remember the analog mixed-signal workhorses that turn digital dreams into a reality.



# Do Not Pass Go

## *Crypto Casinos and Money Laundering*



**Andrew Tam**  
*Transport & Leisure  
Research*

If asked what is so special about Fenchurch Street, most people would probably shrug and move on. For those working in the City of London, it might be known for The Walkie-Talkie; for those who have played the British version of *Monopoly*, it is one of the four stations; for anyone else, it is a nondescript street in EC3. If that.

Yet in October 2025 it became linked to something more sinister, when 10 Fenchurch Street was revealed to be the primary London location of a global cryptocurrency money laundering network of unimaginable scale. The street's reputation was collateral damage when a joint US and UK sanction on the Cambodian Prince Group and its Chairman, Chen Zhi, saw c\$15bn in cryptocurrency frozen.

In January 2026, Chen Zhi was arrested by Cambodian authorities and extradited to China. Chen was an international man of mystery, holding Vanuatuan, Cambodian, Cypriot and Chinese passports. Extradition put him beyond the reach of the US and UK authorities, potentially limiting their understanding of his and the Prince Group's activities.

Chen and his accomplices' frozen assets stretched far beyond crypto. There was the building in Fenchurch Street, a Primrose Hill mansion and seventeen luxury flats, all collected like cards in a real-life version of *Monopoly*, and bought through offshore shell companies to mask the beneficial owners. A

Picasso purchased through a New York auction house and a 54-metre superyacht (and its captain) were also sanctioned. In a manner reminiscent of Jho Low of IMDb fame, who was said to have financed *The Wolf of Wall Street* (2013), the Prince Group allegedly part-financed Cambodia's first Hollywood film, *The Prey* (2018).

### **The play: Prince Group**

Originally, Prince Group and its enigmatic founder were hailed as Cambodian success stories. Chen reportedly emigrated there in 2011, and built a conglomerate spanning real estate, banking, gambling and food retail. He became a naturalised citizen and expanded his political connections. An official adviser to the Interior Ministry, later to former Prime Minister Hun Sen and his successor (his son Hun Manet), he was awarded the honorific title Neak Oknha in 2020. His businesses thrived.

Meanwhile, Chinese tourists travelled to play in Chen's purpose-built casinos because gambling was illegal at home, apart from in Macau. The coastal resort of Sihanoukville became a hotspot for casinos and broader tourism, with the town dubbed the 'new Macau'. But, like Macau, the new casinos spawned casino junkets.

Junkets are distributors for casino operators, bringing in cash-rich Chinese customers. But they also attracted organised crime keen to benefit from the boom. This included convicted gangsters such as Alvin Chau (Suncity Group) and Wan Kuok Koi ('Broken Tooth') of 14K triad fame.

The casinos didn't focus on land-based gambling. Chinese

citizens were targeted online in the 'omnichannel' strategy that is used by many gambling operators today. 'Proxy betting' was a popular way of engaging customers without having to bring them into the country – a model infinitely more profitable and scalable.

In 2019, online gambling was banned in Cambodia owing to pressure from Beijing, which considered it a national security risk, citing "social disorder and a cause of moral degeneration in China". Sihanoukville became a relative ghost town when the new edict came into effect in 2020. The fall-out was compounded by China's strict lockdowns and border controls after COVID accelerated through the region. Thousands of Chinese citizens were also trapped in Cambodia unable to return home.

Alvin Chau and his Suncity Group were not limited to land-based junkets, but were believed to have operated networks of online gambling sites, as reported by the UN Office on Drugs and Crime (UNODC). This was prior to Chau's incarceration in 2023.

Prince Group was also considered to have been involved in the development of an island resort in Palau, an area where the Financial Times reports Wan Kuok Koi is also thought to have been active.

### **The pivot: Sha Zhu Pan**

With thousands of workers unable to return and vast casinos standing empty, Prince Group – like many other operators – pivoted not just to online gambling, but also to cyberfraud. The scams were known as 'Sha Zhu Pan' in Chinese, or 'Pig Butchering'.

The US Department of Justice indictment into Prince Group and Chen Zhi in October 2025 accused the group of running forced labour scam compounds from as early as 2015. If anything, Chinese travel restrictions and COVID-induced lockdowns turbo-charged an activity in which Prince Group was already heavily involved.

The indictment described, ‘cyber-enabled investment fraud schemes in which malicious actors contacted unwitting victims through messaging or social media applications and convinced them to transfer cryptocurrency or other funds to specified accounts based on false promises that the funds would be invested and generate profits... Pig butchering scams often relied on social engineering to earn a victim’s trust to induce the fraudulent investments.’

Symptomatic of the acceleration in pig butchering activities, Jack Adamović Davies noted in a 2024 article: ‘Set on fifteen acres of land and surrounded by concrete walls topped with barbed wire, the Golden Fortune facility hosts a soccer field, a basketball court and eighteen large dormitory style buildings, all of which were constructed since mid-2019, according to satellite imagery reviewed by Radio Free Asia. Metal bars cover the dormitory windows on each of the five floors, suggesting they are designed to keep people in.’

The October 2025 US indictment specifically refers to three such scam compounds: Jinbei, located inside Jinbei Hotel and Casino in Sihanoukville; Jinyun, at Golden Fortune Science and Technology Park in Chrey Thom, a border town neighbouring Vietnam along the Mekong River; and Jinhong Park in Kampong Speu Province, also known as Mango Park.

Chen Zhi is accused of being involved in managing these compounds, with the evidence suggesting that as early as 2018 Prince Group was earning \$30m+ per diem from pig butchering. These figures



Good for communication

tally with *The Economist's* 2025 podcast concerning the collapse of a Kansas bank. Shan Hanes, former CEO of Heartland Tri-State bank, was jailed for embezzlement, having been the subject of an enormous pig butchering scam.

A May 2025 report from Jacob Sims at Humanity Research Consultancy estimated pig butchering was worth \$12.5-19bn annually to Cambodia, as much as 60% of the country’s formal GDP. More broadly, a recent report from the *Financial Times* estimated the cost of global cybercrime above \$15trn a year, and likely to exceed

\$20trn in 2026. It is on track to become the second largest economy after the US.

### **The washing machine: whirlpool**

Stolen funds from the scam compounds were reportedly funnelled through a series of bank accounts, converted into crypto, transferred through complex networks of crypto wallet addresses and, in some cases, withdrawn as cash to break the blockchain audit trail, before being used to repurchase fresh crypto. Cleaned crypto was sent back to Prince Group’s network of

companies via professional money laundering networks.

Professional laundering services could be accessed on platforms such as Huione Guarantee. Research from blockchain analytics company, Elliptic, in January 2025, noted the emergence of Huione Group, which controversially had links to Cambodia’s ruling Hun family. Elliptic observed the presence of laundering services from Huione Guarantee vendors on the Telegram messaging app. The Huione Group had even set up its own crypto exchange based in Poland, providing it with a beachhead into the European market and beyond.

Prince Group also ran a Bitcoin mining operation (LuBian) allowing it to commingle freshly mined Bitcoin and laundered funds. Online gambling, which is largely unregulated – and often explicitly illegal – in Southeast Asia, remains a critical part of laundering and is integral to the region’s underground banking networks (per the diagram below). The UNODC has discussed how online crypto casinos that provide a valuable ‘mixing service’ are utilised by professional money laundering networks to wash illicit funds.

Separately, in the US Southern District of New York, a money laundering case involving the Samurai Wallet cryptocurrency ‘mixing service’ was brought before the courts in 2024. It was accused of operating an unlicensed money transmitting service. The founders were jailed for five and four years respectively, after boasting their “Samurai Whirlpool” crypto mixing service was a “much better option... [to] clean dirty BTC”.

The evidence in the Samurai case highlighted how illegal online gambling remains inextricably linked to money laundering. In an investor pitch deck quoted in the US indictment, the Samurai founders noted the addressable market opportunity within online gambling in terms of those seeking privacy with respect to the provenance of funds.

**Crypto: weak link in the chain?**

It is ironic that cryptocurrency was built on the idea of anonymity as the blockchain represents a decentralised public ledger of all transactions.

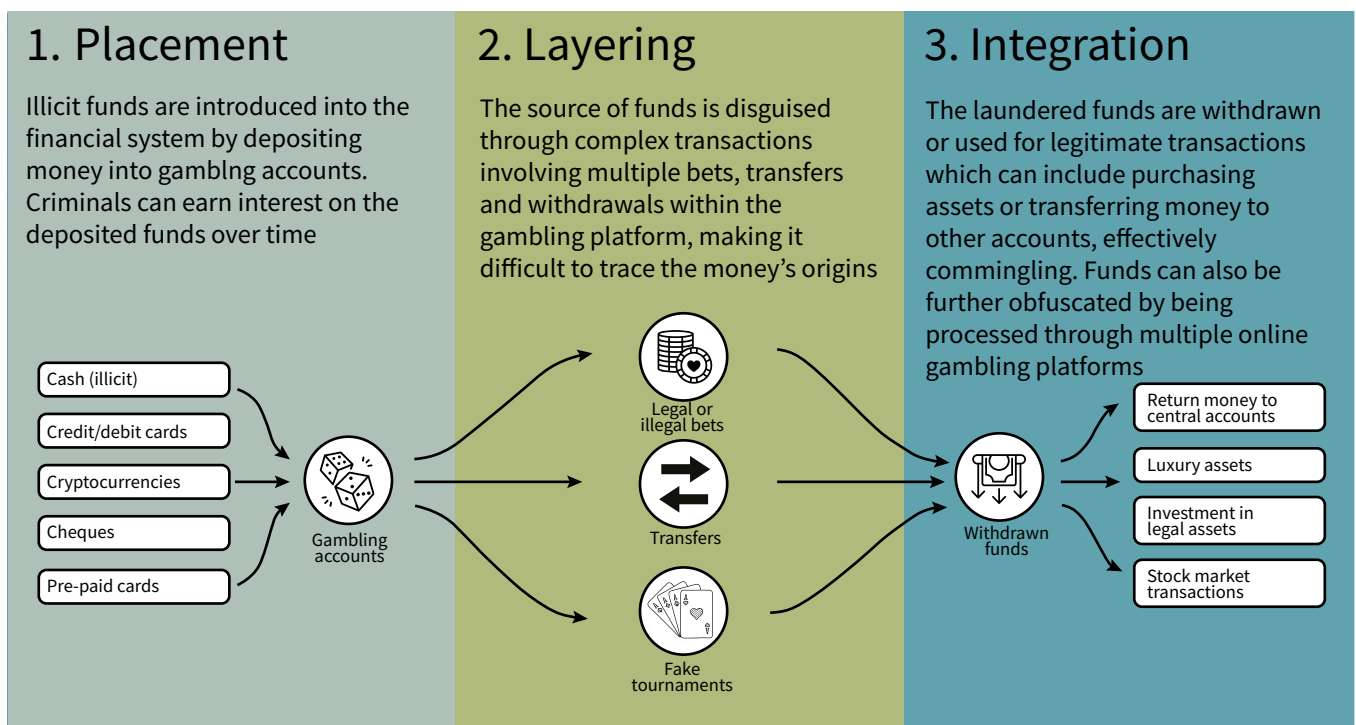
While funds are theoretically traceable, the challenge is to identify the owners of the crypto wallet address within which funds are stored. For money launderers,

the benefit of being able to move funds across borders at speed and scale outweighs the traceability of cryptocurrencies.

Several firms specialising in blockchain analytics have emerged to trace the movement of funds as they are laundered from wallet address to wallet address. One such, TRM Labs, estimates in its 2026 Crypto Crime Report that \$158bn of illicit funds was received by crypto wallets in 2025. In 2024, it was ‘only’ \$64bn.

TRM Labs also illustrated how the money laundering pipeline employed by Chen Zhi and his associates – using third-party organisations such as Huione and ‘layering’ funds (e.g. via online gambling) – was designed to obscure the money’s origins.

Online gambling remains a highly effective method of placing, layering and integrating funds. Many offshore casinos operate in lax regulatory environments, accept crypto and require almost no know your customer (KYC) requirements. Cryptocurrencies can be deposited at the casino and withdrawn via digital coins, facilitating the cross-chain transfers discussed above and providing a plausible explanation for the funds. In particular, cryptocurrency stablecoins, which are



pegged to fiat currencies such as the US dollar, increase the attractiveness as a laundering instrument, given they bypass fiat payment rails without incurring FX price volatility.

During our channel checks on Asian crypto casinos, we were able to register a new account with an online casino without providing an email address, much less a name. In less than sixty seconds, we could load random number generator slot games and stream live dealer casino products. We observed banner ads noting the platform had recently joined one of the known Chinese money laundering guarantee networks, accepting as much as \$400,000 per deposit. Money laundering-as-a-service.

For analytics firms chasing stolen crypto, success depends upon bad actors needing to convert digital assets into cash or bank deposits. The crypto to fiat exchange is the moment of friction at which law enforcement has its best chance of recovering illicit funds. However, the fear is that with increasing crypto adoption, fiat currencies could be bypassed entirely. Cash or bank deposits will not be needed.

Crypto has given bad actors the capacity to bypass traditional bank payment infrastructure with anti-money laundering (AML) and KYC requirements. Chinese money laundering networks have become so sophisticated that Mexican drug cartels are said to be using them. They are not the only ones. Russians and North Koreans circumventing sanctions and Iranians funding Houthi rebels are also thought to have utilised crypto payment conduits.

In February 2025, intelligence firm Aperio reported on the links within a cash-for-crypto business in North London. Aperio staff reportedly exchanged physical cash for crypto deposited in their wallet (minus a commission), which they then traced back across the blockchain. Their transaction occurred with few questions asked. The exchange's

source wallet was allegedly linked to high-risk Iranian wallet addresses. Aperio noted that Iran's Islamic Revolutionary Guard has used UK exchanges to move approximately \$1bn since 2023.

Aperio's report argues that 'large exchanges are structurally incentivised not to identify or label high-risk counterparties, because doing so creates regulatory obligations they would then be required to act on'.

Discussing the scope for crypto exchanges to flag high-risk wallets such as Iranian-linked exchanges, Aperio's investigator adds: 'In practice, that never happens, because they want to put in as much volume as they can. So why would they go through regulatory checks?... If it's labelled as a comprehensively sanctioned jurisdiction, then they get an automated alert, and they have to do something'.

Blockchain-based cryptocurrencies are hyper-efficient low-friction payment systems. However, it is clear illicit actors are capitalising on these qualities and the regulatory vacuum to conduct an age-old activity at greater scale than ever before.

### **Collecting *Monopoly* cards: questions to consider**

Money laundering via crypto appears to have been a crucial enabler of the Prince Group and its recent growth. With the implication there has been state-involvement in some instances, it suggests transnational organised crime can compromise governments. This has broader implications for global security. Given illicit activity is seemingly growing unchecked, we can only speculate how many real-life *Monopoly* cards Chen Zhi's successors will collect while remaining undetected.

The prolific nature of money laundering and the involvement of organised criminal elements within the offshore gambling industry pose serious questions for governments, regulators and the gambling industry. Some may argue money

laundering through online casinos is an inevitability. However, it is not a victimless crime.

Rather, it is a facilitator of the illicit supply chain, creating the opportunity for illegal activity to flourish. These include human trafficking, drug networks, pig butchering, terrorism financing, sanctions evasion and government corruption.

This raises a host of uncomfortable questions for the authorities.

Are existing AML and KYC checks sufficiently strong and harmonised across borders? Are global law enforcement teams equipped to tackle pig butchering? Are they technically capable of tackling the growing criminal use of crypto? Are crypto regulations strong enough, and are they keeping pace with innovation? Are regulators globally coordinated? Is regulatory arbitrage too easy? Should offshore and shell companies be more transparent? Is it sufficient for B2C-licensed gambling operators to be solely responsible for AML controls, given their direct customer relationship? Does the entire gambling value chain (including B2B suppliers) have a role to play to ensure online gambling is free from illicit activity? Should regulators preclude operators and suppliers participating in unregulated markets from simultaneously participating in regulated markets?

What framework should regulators adopt to regulate B2C operators using crypto and stablecoins to eliminate payments friction rather than encouraging illicit activity? Are online gambling regulations in 'lit' markets such as the US, UK and Europe fit for purpose in the crypto age? How do regulators balance the need to encourage players to gamble in regulated markets with taking a more cautious approach with crypto? Are social media platforms doing enough to stop pig butchering scams? Or are they the enablers?

And finally, as ever, what is the role of AI in answering all the above?

# Evolving

## The Case for Luxury



**Emily Cooledge**  
*Luxury  
Research*

**L**uxury. A concept that creates value beyond the elemental and harnesses aspects of human nature in pursuit of ambition, status and reward.

The history of the category is deep, with the idea of status versus accessibility identifiable among early human societies. The more modern concept of luxury can be traced to the nineteenth century, with the founding of Hermès and Tiffany in 1837, Cartier in 1847 and the first Louis Vuitton workshop in 1854. Now-established luxury brands such as Burberry, Chanel, Prada, Gucci and Dior followed shortly after.

Deep history and heritage continue to define these brands today. This is within an industry that, while generating over €400bn in terms of annual sales, has had to navigate cyclicity, external shocks, fashion and cultural shifts over time.

Once again, we find ourselves at a fascinating juncture. Delicate, but pivotal. After the ups and downs post-COVID, it feels as though we can look forward to something more positive. Yet evolution continues, and the shape and pace of change will probably be different again.

Taking a step back across the ebbs and flows, the FX-neutral revenue growth of luxury brands compounded at 7% pa between 2007 and 2019. An impressive achievement, particularly when balanced across price and volume. Then came the pandemic. A major disruption initially, but a prolonged boom after.

Whether by virtue of accumulated savings or people's need to reward themselves after the entrapment and stress of lockdowns, luxury spending flourished globally.

Even beyond the initial annualisation in 2021, 2022 and 2023 delivered growth of 15% and 10% respectively and took absolute demand far ahead of that implied by earlier trend rates. It was not to last.

Across 2024 and 2025, growth at the aggregate level ceased. At a constant FX level, no growth instead of declines was arguably an impressive achievement and meant the prevailing level of demand remained ahead of that forecast in 2019. Yet no growth is not what equity markets, or indeed businesses with large, fixed-cost bases and inextricably tied to enduring brand heat, can tolerate.

To answer the question about the future requires some explanation of the past. It is now understood that during the post-COVID boom, brands embraced the rise in demand with accelerated increases in price. Lifting price is not new in luxury, indeed it is a critical element of the sector. One could also argue more price and less volume is positive as it speaks to the power of the brand. Yet it is now clear that for many brands, not all, this went too far, particularly when accompanied by limited product progression or innovation. The impact is visible in declines in brand strength and revenue. Seven sequential quarters of organic revenue growth decline was not in the LVMH Fashion & Leather Goods playbook. Something had changed.

There are many moving parts behind this dynamic. One of the most important is the evolution of the consumer. This was underway

anyway but was exacerbated or at least accelerated by the impact and consequences of COVID. The consumer has become highly sophisticated and discerning. Technology is part of it, inundating customers with knowledge, detail, developments on pricing, brand and product at a global and local level in the palm of their hand at all times of day. This has increased the requirements of 'value' even in a luxury sense. Large price moves without a corresponding



development of 'offer' have eroded trust with this astute group.

It is perhaps most evident in China, where the consumer feels unique. Rapid wealth creation during 2012-19 fuelled dramatic double-digit growth in luxury demand domestically and internationally. Logo and brand were what mattered, which played to the heart of the major European luxury houses. But the post-2020 period, in particular the sudden absence of growth in 2024 and 2025, has demonstrated fundamental shifts in behaviour. The challenging macro dynamic (collapse in property prices, rising youth unemployment) is contributory, but the strength of the stock market and rising savings suggest the problem is not the ability to spend. It could be simply framed as a more mature customer. While this is true, it underplays the complexities.

Rather, more than elsewhere, this is a highly sophisticated consumer well versed in the intricacies of product and with a discerning view on 'price x quality'. Tastes and trends evolve at incredible pace, supported by social media and ecommerce platforms, an environment that itself continues to develop. Expressions of status have shifted from logo and 'the product of now' towards health and experience, which feel enduring themes.

This is a challenging setup for luxury operators. However, it is not all bad. Absolute demand at a global level, as well as regionally in places such as China, remains ahead of pre-COVID implied trend rates. This is important as it speaks to an enduring appetite for the category. Human nature does not change.

And the industry is now responding. In different ways, and with differing levels of effectiveness, change is afoot. Most strikingly, personnel change has been profound. On our last count, 2025 saw the announcement of 37 new CEOs and eighteen new designers. It is worth noting such management churn was evident in sectors such as Retail immediately post-COVID, so perhaps there is some inevitability, even if it was delayed by the elongated strength in 2022 and 2023 not seen elsewhere.

Alongside personnel change there is evidence of evolution in product approach. Leading brands such as LV appear to be rebalancing product architecture back to more traditional shapes – maintaining pricing integrity in core lines but using mix and newness to create a more enticing offer overall. Others such as Hermès and Moncler, who have not experienced the same sort of pressure, continue to enhance the differentiation of their own offer. Some brands require a more definitive turnaround. Burberry is advanced, seeing its product range double in authoritative categories such as outerwear but rightfully (we think) seeing range and price retract in areas such as leather goods. Gucci has an opportunity given its revenues

have almost halved, particularly with new management and a fresh designer, but it is still to be proven. Overall, the prevalence of new design across the industry should yield a level of newness of product that can build during 2026 to levels not seen for some time.

Furthermore, there appears to be more recognition from brands of the importance of customer experience and engagement, and awareness of the aspirational customer. Preference for experience matters but is not mutually exclusive from product. Indeed, bringing brand experience into the product offer feels to be an enduring feature of the market. It is most obvious with major statements such as the Louis Vuitton ship in Shanghai, mostly dedicated to an exhibition available to all on the history of LV product, as well as a store and dining areas. There have been enhancements in the store experience itself. The House of Dior in Beijing is one notable example but there is also a renewed emphasis across the industry of enhancement and investment within store, rather than expansion of square footage.

Disruption and challenge are not new for Luxury. The recent experience is important but ultimately reflects continued evolution. There are enough signs to show consumer desire for Luxury persists. A gradual improvement in areas such as Chinese sentiment should lubricate that view further.

Most importantly, the industry is not standing still. Brands are taking action to rebuild and enhance trust and relationships with their customers. The outlook is for a return to growth. Maturity suggests this will be a slower rate than previously, which enhances the premium on brand strength and execution in a way the industry perhaps has not had to navigate before. But brand and heritage continue to be defining, in a way and to a degree that does not exist in many other areas. This is a deep and wide moat that cannot easily, or quickly, be bridged.

No longer plain sailing



This copy has been generated for Sko Fashion of Kotruschmid & Co Redburn

# Perplexing Pyramid

## *The New Food Paradigm*



**Charlie Higgs**  
Consumer Staples  
Research

**T**he message is simple: eat real food.' This is how the latest edition of Dietary Guidelines for Americans, published by the US Department of Agriculture (USDA), begins. The message may be simple, but the reality is c67% of food eaten by an average American adult is not 'real'; it is ultra-processed food (UPF).

Although they lack a harmonised definition, UPFs often combine refined starches, added sugars, refined fats and oils, sodium and various additives into long-shelf-life products. They usually contain irresistible combinations of sugar and fat in easy-to-consume formats, making them cheap, palatable and easy to overeat.

A 2019 study let participants eat as much as they desired from one of two diets: one high in UPFs and one comprising minimally processed foods. The energy intake was c500 kcals per day higher for the UPF diet, and participants saw average weight gain of 11lb per week during the study.

UPF consumption has risen dramatically over the past fifty years in the US, partly reflecting government policy. The first edition of the USDA's Dietary Guidelines for Americans (1980), advocated for consumers to "avoid too much fat, saturated fat and cholesterol". This recommendation was based on flawed epidemiological analysis from the now infamous 'Seven Countries Study' (1978).

Institutions relying on federal funding for meals, such as public

schools, were obliged to follow the 1980 guidelines. Combined with 'Reaganomics' austerity measures, school dinners mutated from nourishing, whole-food meals cooked from scratch to a smorgasbord of low-fat, grain-heavy, highly processed 'food-like' items. Tomato paste on pizza was considered a vegetable in children's diets.

This created a new generation of UPF eaters, and US adults also took the 1980 guidance on board: egg consumption fell 13% over a decade, red meat 12% and animal fats 11%. In their place, consumers switched to vegetable shortenings, such as P&G's Crisco, which rose 34% across the period, and often highly refined grains, which rose 24%.

The anti-fat zeitgeist spurred a range of new consumer products such as fat-free salad dressing and low-fat cookies. But fat provides food with flavour, texture and shelf stability. Removing it requires adding other ingredients to preserve product integrity. In its place, high-fructose corn syrup (HFCS) was added as a sweetener (consumption per capita rose 260% over 1980-90) alongside thickeners, stabilisers and emulsifiers.

Food packaging labels increasingly resembled chemistry experiments, with low-fat products containing appetising ingredients such as xanthan gum, modified corn starch, soy lecithin, polyglycerol ester, sodium benzoate and acesulfame-K. If the food was not visually vibrant, synthetic petroleum-derived colourants like Red 40 could be added. Were these additives safe? Technically, yes: according to US law, substances can be added to foods without Food & Drug Administration pre-approval if

they are generally recognised as safe (GRAS), a process effectively enabling the producer to mark their own homework.

By the mid-1980s, these highly processed foods, which we would now regard as UPFs (although the NOVA definition was not created until 2009), accounted for more than 50% of the typical American's diet. In other words, 'food-like' items were more prevalent than food itself.

It was a boon to US packaged food producers' profits. Consumers were willing to pay a premium for low-fat products, allowing producers to extract the fat and resell it to manufacturers of soaps, cosmetics and animal feed. This created an additional income stream, while reformulating products with cheaper additives lowered overall costs.

But, in the background, the percentage of American adults classified as obese rose from 13.4% in 1980 to 30.5% in 2000, while Type 2 diabetes rose from 3% of the population (five million people) to 6.3% (seventeen million people).

The reasons are multi-faceted. Rising consumption of UPFs certainly contributed. But the period also coincided with the rise of US fast-food operators, the shift to a more sedentary computer-powered workplace and the expansion of sofa culture owing to the halving of the cost of an average television.

In 2001, the US Surgeon General described obesity as "a national epidemic" in a seminal paper setting the tone for government policy. Obesity was framed as a problem of character and consuming too many calories without adequate exercise, rather than a result of the industrial food complex.

US consumers sensed low-fat diets were not working and looked to low-carbohydrate diets in the early 2000s. *Dr. Atkins' New Diet Revolution* (2002) revived the Atkins' diet of the 1970s and advised limiting carbohydrate consumption to no more than twenty grams per day to stimulate weight loss. US packaged food producers pivoted to capitalise, and 'low carb' ready-meals, ice cream and chocolate bars hit the shelves.

The USDA, fearful of admitting past dietary guidelines were a failure, doubled down on the low-fat mantra, pushing the notion that weight gain reflected caloric imbalance. The next dietary guidelines (2005) contained three times as many uses of the word 'calorie' as the 2000 edition. To maintain bodyweight, the guidelines advocated sixty minutes of moderate-to vigorous-intensity exercise most days – unrealistic for most Americans. Moreover, your body does not know what a 'calorie' is. It recognises food. By shifting the focus to calories, food quality became secondary. UPF consumption continued to rise.

Thereafter, barring new diets (ketogenic and intermittent fasting) and increased, if fruitless, calorie tracking, little has changed. The nation's belt sizes notched ever wider and today 72% of Americans are overweight or obese. The burden to the US economy is estimated at \$450bn pa from, *inter alia*, excess medical costs and absenteeism.

The tide, however, finally appears to be turning. The obesity rate peaked at 39.9% in 2022 but fell to 37% in 2025. A major catalyst was the rising adoption of GLP-1 agonists, which have helped 12.4% of Americans lose 5-25% of their body weight in the first year of usage, depending on the dose. These drugs facilitate weight loss by reducing appetite and slowing stomach emptying, resulting in less eating.

We may be commencing a multi-decade dietary turnaround, given GLP-1 agonists have so far been supply-constrained and largely administered through weekly



A blighted future

injections, hampering mass adoption. Adoption rates are likely to rise as oral drugs enter the market – Novo-Nordisk's Wegovy pill launched in the US in early January 2026.

Dovetailing the launch of this new pill is the latest, revolutionary edition of the US dietary guidelines. The USDA's previous food pyramid has been inverted, and guidelines now promote a diet emphasising protein and vegetables at each meal, as opposed to whole grains which formed the base of the previous pyramid. This new guidance is founded upon 500 pages of research-backed appendices – a marked improvement from the old guidelines, which iterated upon a flawed study published nearly fifty years ago. The key soundbite for US consumers: eat real food.

That does not make it easy. Entire supply chains and grocery store planograms must be upended if the guidelines are to be enacted. The former is particularly tricky given the US cannot grow certain commodities and relies on imports, the cost of which have been volatile lately owing to fluctuating trade policy. This is compounded by the highly specialised nature of US agriculture. Corn accounts for 30-35% of total US cropland; soybeans are a further 25-30%. Neither feature prominently in the new food pyramid.

Why are US farmers skewed towards these crops? Because the USDA, which is responsible both for overseeing US farming and educating

consumers on nutrition, has for decades used agricultural subsidies to favour a handful of crops. If the USDA is serious about encouraging Americans to eat real food, this must change. However, it would be extremely costly, face considerable political opposition and take decades to implement.

Nevertheless, the new guidelines add to the growing momentum behind healthier lifestyles. These range from the expansion of fast-casual dining operators, such as Sweetgreen and CAVA, to alcohol abstinence among younger consumers, rising protein consumption and more.

Over the coming years, we suspect rising GLP-1 agonist adoption will lead to fewer calories consumed and improving diet quality. If so, the USDA will succeed in its mandate to improve the health of Americans, but potentially fail to maintain a stable and economically viable farm sector.

For the US packaged food producers, whose business models rely on rising calorie consumption from UPFs, this is a double negative. Investors have taken a 'sell first, ask questions later' mindset and these stocks now trade on one-year forward P/E multiples of just 10x, offering (optically) mouth-watering dividend yields, some upwards of 8%. But if GLP-1 agonists and improving diets lead to perpetually declining volumes, the long-term cash flow durability implied by these valuations may prove a chimera.

# Somewhere Becoming Rain

*Retailers Build Advertising Platforms*

Trojan horse



**Sam Hudson**  
*Consumer Retail  
Research*

Life was very different for a Chief Marketing Officer in 2000. In an age when the Yellow Pages generated more advertising dollars than the internet, how did you let your customers know 'You're Worth It?', or they should 'Just Do It'?

TV, radio and print were the media of choice. However, with only so many TV channels vying for consumer attention, prime-time spots were a premium. Lowly digital advertising represented just 3% of the market.

Fast-forward to 2026 and the advertising landscape has, of course, changed radically. Today, 78 cents of every advertising dollar is allocated to digital opportunities. This equates to a c16% digital advertising CAGR since the dawn of the millennium.

Evolution has occurred in three stages. First, there was the explosion of online search as the way to find products, services or anything else. Being top of the search list became critical overnight. Keywords were everything. The advertising dollars flowed (RIP Yellow Pages).

Next, the rise of social media grabbed consumer mindshare and helped itself to a quarter of the advertising pie.

Most recently, there was retail media, Jeff Bezos leading the charge. To date, its close touchpoints with the end consumer have enabled it to eat a fifth of the pie. This leaves our old friends, TV, radio and print, to fight over the remaining 22%.

Meanwhile, Alphabet (search), Meta (social media) and Amazon (retail media) have dominated their respective categories. These three companies alone now account for almost 70% of the total US advertising market.

Such advertising revenue streams offer handsome profitability. At Amazon, with little incremental cost associated with an incremental advertising dollar, operating margins can approach 60%. Put differently, Amazon's c\$60bn advertising platform now represents more than 100% of the company's retail operating profits (ex-AWS).

Unsurprisingly, other retailers have taken notice. Cue a wave of media announcements from grocers, home improvement retailers and dollar stores.

However, while every retailer talks of a new profit pool and margin accretion, not all opportunities are created equally.

The Chief Marketing Officer of 2026 has no intention of investing advertising dollars in every retail media platform – there are too many. Rather, they will follow the highest ROI.

This will be where customer engagement is strongest and

customer data deepest, where marketing is most targeted and advertising most effective. While that presents a welcome alternative to the scattergun, broad-brushed approach of traditional media (who knows which 50% stuck?), it also presents an attractive option relative to retail media platforms that cannot provide such customer granularity. This points market share towards the largest operators with the closest connections to the customer.

The risk is this attractive but unevenly distributed profit pool creates an unlevel playing field, providing industry leaders with greater scope to reinvest in price. In turn, this could drive share gains, better customer data and stronger advertising revenues for larger players, widening the competitive gap further.

There is also risk of cannibalisation. A retailer often considers its online retail media opportunity separately to in-store supplier agreements, such as co-op advertising dollars or trade allowances. The danger is suppliers do not see it that way and, instead of taking advertising dollars from other channels, simply reallocate existing in-store expenditure, diluting the net benefit from this shiny new opportunity. Walmart and Amazon are among the few retailers that do not have such in-store arrangements, inhibiting the risk of cannibalisation.

Retail media should capture advertising share and have a strong growth runway, but the spoils will probably be shared by a few, mirroring the dynamics observed in search and social media.

The brave new world of AI is also likely to play a role. It is already changing the search experience, while agentic commerce could transform online shopping.

Early agentic commerce evidence suggests consumer adoption and trust are rising rapidly. With site traffic driven by better customer data and stronger intent signals,

this is resulting in longer site times and more page views per visit. It also supports better sales conversion and higher revenues. This should translate into a higher return on advertising spending and a larger digital advertising total addressable market.

But the question is, where does this advertising opportunity accrue? The fear is that third-party agents, such as OpenAI's ChatGPT and Google's Gemini, will control the top of the funnel. If they do, they control the opportunity. And given the scale of OpenAI's investments, it needs to start generating serious revenues – quickly.

For some shopping occasions, such as single-item, informational purchases transacted directly on a third-party site, the agent could capture the lion's share of the advertising. However, with these third parties having no intention of developing their own delivery infrastructure or becoming merchant of record, the agents will most probably act as matchmakers rather than disintermediating the existing retail model. Replacing traditional search, and the associated advertising opportunity, is the most likely scenario.

Retailers positioned to drive traffic onto their own platforms are best placed to capitalise on the agentic commerce advertising opportunity – either by driving customers directly to their first-party agents via customer loyalty and membership programmes, or by winning third-party queries through a combination of lowest price, best product and fastest delivery. Once again, it is the largest players who should win the day.

But for those wondering whether the days of TV advertising are over, fear not. With the Netflix generation expecting entertainment on demand, prime-time ad spots might be done, but eyes will continue to be drawn towards the electronic wallpaper in the corner of the living room.

Moreover, manufacturers have also become acutely aware of the value a connected TV can offer. The value is no longer in the hardware, but in the operating system, which is, as you might have guessed, an advertising platform.

Home screen banner ads, pop-up ads, in-app ads, distribution fees (from Netflix et al.) and data services are all revenue opportunities. The manufacturer simply must ensure its TVs and operating systems are in people's homes, which means it will do almost anything to make sure this happens. That includes selling TVs at a negative gross margin, which is why you might have noticed how cheap they have become. The initial loss on the device is nothing if these companies can capture a downstream annuity through a highly profitable advertising platform.

Walmart sees the potential, acquiring one of the leading US TV manufacturers, Vizio, for \$2.3bn in December 2024. It is a business where advertising has grown to be more than 40% of sales and represents more than 100% of gross profit. And with Walmart now selling fifty-inch Vizio TVs for \$128, this trend is set to continue.

Its vision is to offer the broadest advertising platform for clients – on site (Walmart.com), on premise (in Supercenters and Sam's Clubs) and on Panel (Vizio) – and to leverage industry-leading customer data to underpin more effective marketing. The opportunity is large (current revenues are \$4.4bn, only 0.65% of Walmart's total), and we'll have to see how the company progresses, but the runway is long.

One thing is clear: in today's world, whether you're a search engine, third-party shopping agent, social media platform, streaming service, retailer, food delivery company, ridesharing app or TV manufacturer, you're also in the ad game, an advertising platform battling for the consumer's attention.

# Principles and Beliefs

## *The Making of Rothschild & Co Redburn*



**Archie Cotterell**  
Editor

As the Redburn Review passes its twentieth anniversary, having first appeared in the days when Redburn Partners, as the firm was then, listed everyone from the receptionist to the office plant-sprayer on the back page, it prompts a moment's reflection. Now the company is Rothschild and Co Redburn, part of a bigger, greater entity, it feels worth recalling those early days to remind myself what made – and makes – it distinctive.

At the time I joined Redburn Partners I was a freelance writer, having previously been an equity salesman at Hoare Govett and Morgan Stanley. Among various gigs as a freelancer, I contributed a monthly essay to the now-defunct Evolution Securities, one of which was seen by Jeremy Evans, the founder of Redburn Partners.

He'd had an idea for a glossy magazine, written by analysts, which would showcase the breadth of curiosity across the firm. It would be an opportunity for them to "loosen their ties", those being the days when analysts still wore ties, and to write about the industry they covered or anything else that piqued their interest. Evans believed a high-spec magazine would highlight Redburn Partners' difference, its premium positioning. He asked if I would be the editor. The answer was easy. For a freelancer, the answer is always 'yes'.

Redburn Partners had been distinctive since its counter-cyclical founding. When the dotcom boom

of the late nineties collapsed, and siren analysts were found to have been publicly promoting stocks they made clear, *sotto voce*, they wouldn't go near themselves, Eliot Spitzer, Attorney General of New York, got stuck in. To ensure they couldn't continue to have one foot in corporate finance and another in research, he split their roles, forcing them to focus on stock recommendations rather than simultaneously act as cheerleaders for their bankers.

Wearing one hat rather than two rendered analysts less valuable to their paymasters as, inevitably, the banks were quick to recognise. This led to a relative downgrading in the importance of research departments, which fed directly into pay and rations and status.

Into this unpropitious climate for stock analysis, Redburn Partners was created as a research-only house. It was founded on the unfashionable idea that if analysts were liberated from the industrial machine and allowed the space and time to write high quality, in-depth research with no conflicts of interest, fund managers would be prepared to pay for work that aimed to put them first.

But it had to be the best in the market. As Jeremy Evans put it in my interview, "As a one-product company, if we aren't the best we're toast. No one has any other reason to deal with us."

Hence from the outset there was an intense focus not only on the quality of the research, the entrepreneurialism of Sales, the efficiency of Access, the integrity and precision of Execution, but on how it all fed into the brand. "Every page that leaves the building moves the

needle one way or the other on the dial of the brand" was the mantra. If Redburn Partners was to be the premium provider of stock analysis, every aspect of our product had not only to be premium, but be seen to be premium.

Like every successful entrepreneur, Evans was obsessive. Pentagram, the Rolls-Royce of graphic designers, was engaged to reconfigure the 'look and feel' of the reports, personalising the covers to each analyst's sector. Should the text be 'left-aligned' or 'justified'? We chose left-aligned as a full page of justified made the 'look' of a page of pure text resemble a tombstone. Once, in a taxi, I took a call from the founder, who asked, "How heavy is the paper we use in our reports?" I replied I wasn't sure but would find out. "If you could," he said, "and could you also find out how heavy Goldman Sachs's is?"

The legacy of those decisions exists today. Page three of a Blue Glossy, the largest report, is 230 words. The reason? Subjectively, we felt that left the 'right' amount of white space on the page. Too many words and the sense of spaciousness, of premium-ness, would be lost; too few and there would be insufficient to convey the heft of the report. That not everybody would read a Blue – originally Black – Glossy cover-to-cover, especially when it might top two hundred pages was not immaterial but missing a crucial point: its very existence demonstrated Redburn analysts were afforded the freedom to write the definitive piece of work on a stock or sector.

Time was spent on titles. My favourite, on a post-European banking crisis report arguing the



The beginning

Italian banks had recapitalised their balance sheets to the extent they no longer needed state handouts, was ‘A Farewell to Alms’.

There was an understanding ‘retail is detail’. Even in the days before corporate responsibilities and supervisory analysts, all major reports and Thinking Alloweds (the name deriving from a typo in an email sent to Jeremy Evans by an analyst who meant ‘thinking aloud’) were read by a ‘structural’ editor and independently number-checked before they entered Editorial. Arguments were challenged, repetition excised.

Prose was revered. Evans believed good prose was a competitive advantage in a world of IB jargon when PMs had to climb through mountains of research. There were prohibited words and phrases, a dislike of cliché, modifiers and dead metaphors, the superfluous ‘that’. Exclamation marks were removed, (if you have tell your reader it’s a joke...), statements of the obvious scissored, cut-and-paste condemned.

But there was also an understanding, in Evans’ phrase,

that “Not everyone is a genius”, and Redburn Partners, later shortened to Redburn (‘Partners’ dropped because it sounded too twentieth century for a broker), did not have a monopoly on the City’s finest analysts.

Instead, it appreciated the best way to add value was to grow junior analysts from within. There is an analogy to be made between analysts and rock stars – one I’ve noticed analysts rarely argue against. It is not simply the album-tour-album-tour cycle equates to report-marketing-report-marketing, but that anyone with a calculator can work out the NPV and pay up for, say, U2 or the Rolling Stones’ next five albums; value-add derives from finding the next Charli XCX.

To help focus research on the essential, we reminded analysts they were ‘barristers not teachers’ and of ‘The William the Conqueror principle’. This held, “If you are asked a question on the Battle of Hastings, don’t just write down everything you know about William the Conqueror.” It is a common error to assume the market needs to be educated too.


In every report, specific questions needed to be answered. Why now? Do the numbers and narrative match? What unlocks the story? Why are we using the valuation metrics we have chosen? Consensus was deemed relevant but not a deal-breaker. And we emphasised the importance of the front-end, The Idea (and page three in a Blue Glossy). Not only were they the shop window and therefore needed to be as enticing as possible, but we appreciated many readers might never go beyond them.

As part of Rothschild & Co, the Redburn culture lives on. The obsession with quality established by Evans and his original partners remains, and what made an excellent research report in 2006 makes one today.

Rothschild & Co Redburn still encourages analysts to write in-depth, high conviction, often counter-consensual research and affords them the time to do so. In so doing, its brand and ethic chimes with the Rothschild family motto: ‘Concordia, Integritas, Industria’ (‘Harmony, Integrity, Industry’).

# Research Matters

## *A Selection of Recent Analysis*




**Thinking Allowed**

When the Levee Breaks  
How AI will shape the music industry

Ed Vyvyan 32

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**Thinking Allowed**

Testing the Dollar's Mettle  
The 'inflationisation' of the US economy

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Playing Offence

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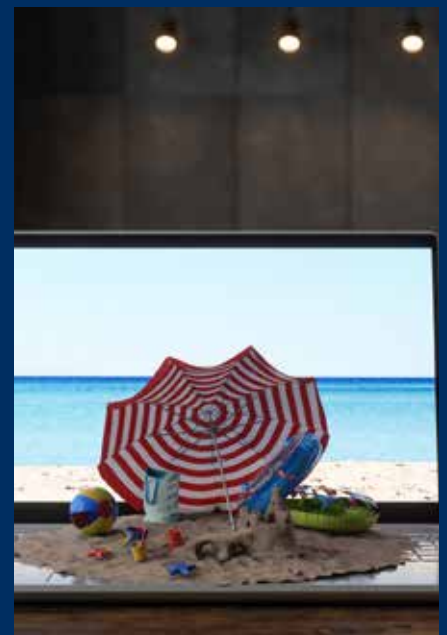
### **Alex Brignall & James Goodall**

Airbnb, Amadeus, Booking Holdings, Expedia, Sabre

12 January 2026

## Travel Distribution AI Caramba

Investors fear the impact of AI on OTAs and GDSs, but most foundational elements are established. These suggest the OTAs and GDSs have wide moats in the supply chain. GDSs are protected by their monetisation, orchestration, regulatory and integration role, and we see little scope for airlines to influence AI agents directly. Early evidence suggests AI agents have added a 'research' layer to search without cannibalising revenues, but any change could be an opportunity for OTAs.





**James Irvine**

Barclays, BNP Paribas, Deutsche Bank, Société Générale, UBS

7 January 2026

## European Banks Back in the Game

Despite its recovery, the European banks sector remains at an usually wide P/E discount to the European market, US banks, global banks and the European insurance sector. We think total capital return in 2028 will equate to 8% of current market cap, double the 2002-19 average. We delineate the capital markets banks' progress, the benefits of capital markets union, their retail operations, the scope for cost cutting, and benchmark them against their US peers.




**MEDLINE**


Partner of Choice

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**Medical Technology**  
Ed Ridley-Day

**66**

12 January 2026



**DESIGN SOFTWARE**

Built to Last


Autodesk, Dassault Systèmes

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**Software & Cloud**  
Lachlan Brown

**100**

9 January 2026



**UK HOUSEBUILDERS**

Tipping Point

Barrett Redrow, Bellway, Berkeley

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**Construction & Building Mats**  
Will Jones

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6 January 2026

# Trump and Thucydides

## *Lessons from Antiquity*



**Joe Orchard**  
*Aerospace & Defence  
Research*

“**W**as all this legal? Absolutely f\*\*\*ing not.” In his memorable smashing of the fourth wall in *The Wolf of Wall Street*, Leonardo DiCaprio referred to illicit practices surrounding a 1990s IPO. Many geopolitical commentators expressed similar sentiments regarding the actions of the US military on 3 January 2026. Operation Absolute Resolve kickstarted the ‘Donroe Doctrine’ and culminated in the spectacular arrest of Nicolás Maduro, the President of Venezuela, and his wife, Cilia Flores. They face charges of narco-terrorism, corruption and drug-trafficking. And yet, somehow, the operation no longer seems to be the most consequential foreign policy action of the quarter, let alone the year or decade.

Some say international law is black and white. The UK cites it as the rationale behind seeking to hand over control of the Chagos Islands to Mauritius. Others are less deferential. Donald Trump moved beyond an all-cash offer for Greenland when he threatened to use military force to take the Arctic island, albeit he later rowed back on the idea. Nevertheless, the frantic start to 2026 geopolitics reinforces the idea that international law is not for everyone.

Has it ever been? Russia disregarded international law when it invaded Ukraine, twice. China’s treatment of Hong Kong and its Uyghur population suggest the edicts of some supranational body are unlikely to

prove a major concern. But herein lies the problem: perhaps some states are simply too big, too powerful, and therefore consider themselves free to operate outside the confines of international laws.

This represents an increasingly popular view of how the world really works – that raw power dictates outcomes while an international rules-based order is a mirage. Put simply, ‘might is right’. White House deputy chief of staff, Stephen Miller, summarised this idea in a January interview with CNN host, Jake Tapper: “We live in a world in which you can talk all you want about international niceties and everything else, but we live in a world, in the real world, Jake, that is governed by strength, that is governed by force, that is governed by power. These are the iron laws of the world that have existed since the beginning of time.”

Miller is correct in his assertion insofar as it’s hardly a novel concept. Writing in the fifth century BC, Thucydides pondered whether might really is right in his History of the Peloponnesian War, which was fought between Athens and Sparta. One passage in particular, the Melian Dialogue, deals with the subject. It describes a great military power demanding control of a defenceless yet strategically important island. Sound familiar?

Stephen Miller wouldn’t be the first of Trump’s acolytes to have more than a passing knowledge of Thucydides. The first Trump administration contained several high-profile figures – H.R. McMaster, James Mattis, Matt Pottinger, Michael Anton – who believed that Thucydides’ account of a 2,500-year-old-conflict revealed certain eternal

truths about foreign policy. So much so that in 2017, Harvard academic Graham Allison was invited to brief the National Security Council on what he termed the ‘Thucydides Trap’.

Allison’s ‘Thucydides Trap’ is when a rising power, such as ancient Athens or China today, threatens to displace a ruling incumbent, like Sparta or the US. This creates a dangerous dynamic that often results in war. He has identified sixteen such occasions from the last 500 years where this dynamic occurred; twelve ended in war. It is rare that either side actively seeks war, yet conflict arises out of fear and mistrust. Allison’s aim was to show Trump’s team how to avoid the trap and to persuade them that war between the US and China is not inevitable, even if history shows avoiding it will require a delicate balance between deterrent and engagement.

As a sidenote, and luckily for humanity, there are at least two factors that should lower the chances of war breaking out between the US and China. The first is economic interdependence, and the second is the cheery prospect of mutually assured destruction. The latter just about held firm as an effective deterrent during the Cold War, even if it led to proxy wars as the main actors sidestepped direct confrontation.

Trump 1.0 implicitly acknowledged the existence of the Thucydides Trap in its 2017 National Security Strategy. It referred to the return of a “great power competition” for which the US must prepare and denounced China’s attempts to displace US influence in the Indo-Pacific. Whether the US then avoided falling into the trap is

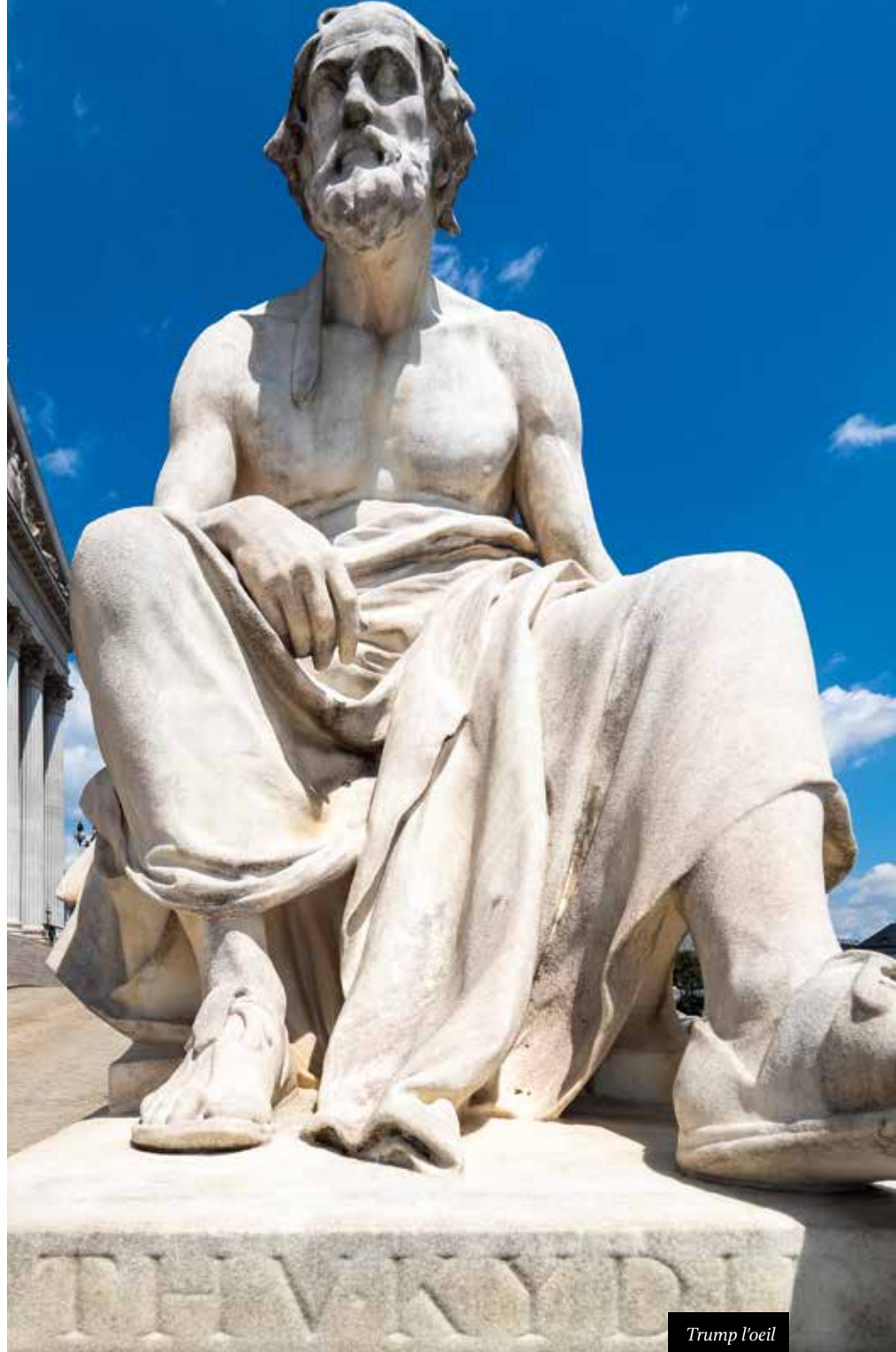
less clear. One could argue President Trump’s aggressive stance on trade revealed a degree of anxiety often associated with a waning power. A more generous interpretation is that a reasonable show of economic strength would prevent future decisions from being driven by fear if the US were to operate from a position of continued weakness. Either way, not everyone in the administration agreed that US foreign policy was heading in the right direction. Both McMaster and Mattis resigned in 2018.

Last year’s National Security Strategy, however, highlighted the need to ‘deter China in the Indo-Pacific through strength, not confrontation’, explicitly recognising potential pitfalls of the Thucydides Trap and adopting a tone looking to dial back rather than escalate US-China tensions. The lead author was Thucydides fan, Michael Anton, though he too has now departed the White House.

Let us return to the Melian Dialogue, an island story with parallels to the present day. The Athenian envoys prescribe a dose of harsh realism when negotiating the surrender of Melos, arguing Melian self-preservation rests on submission to power. Trump has made similar arguments about Greenland – only the US can protect the island and its inhabitants – and Ukraine, regarding whether the invaded country should cede territory in any peace deal with Russia. For Trump, power rather than principle should determine the fate of a country under attack.

The Athenians opined that “the strong do what they can and the weak suffer what they must”. The Melians countered with an idealistic and futile appeal to justice and honour. Justice, say the Athenians, only exists between adversaries of equal stature, which these two were not. Power, therefore, dictated an unpleasant fate for Melos and its people.

But those who invoke this scene to argue Thucydides himself was a proponent of ‘might is right’ and



Trump l'oeil

to justify the use of raw power, are misguided. If the author wanted his reader to believe that, why construct a dialogue containing the diametrically opposing perspective? Thucydides wants us to consider how these contrasting views interact with one another and whether a balance can be found between them.

At its core, the Melian Dialogue is a cautionary tale of hubris. Both Thucydides and his contemporary reader knew what happened next. The harshness with which Athens treated Melos alienated its

allies and united its foes. It soon embarked on an ill-fated expedition to conquer Sicily, which marked a turning point in its fortunes. A decade later, Sparta had triumphed in the Peloponnesian War, while Athens never fully recovered its superpower status. Maybe Trump’s team still contains those who advocate reading Thucydides’ work in full. Maybe not. Adopting a ‘might is right’ foreign policy may yield short-term success, but history tells us it can also sow the seeds of an empire’s downfall.

# Letter from America

## *God Bless America or God Save the King?*



**William Rice**  
*US Equity Sales*

**A**m I American or am I British? Do I watch soccer or football? Do I drink coffee or tea? Do I sing ‘God Bless America’ or ‘God Save the King’? The answer is simple, even if the story behind it is not: I am both.

For multiple generations, the Rice and Bell – my mother’s maiden name – families lived in London. Our history is not vague or distant; it is detailed, personal and rooted in specific streets and stories. One great-grandfather, William, fought in the Second World War with the British artillery, afterwards becoming a bus driver until his retirement. Another, Ernest, served in France during the First World War and later became what Winston Churchill called “Heroes with Grimy Faces”, the firefighters who battled infernos during the Blitz. His station was tasked with protecting St. Paul’s, standing guard over Britain’s most powerful symbol of defiance as the skyline burned. Ernest’s brother, Frederick, died in France in the final month of the First World War aged twenty-five – only a year older than I am now. When I consider that, history becomes less distant, more immediate and personal.

My heritage is deeply intertwined with sacrifice for, and service to, the UK. My history has never felt abstract but has conferred a sense of responsibility and perspective. My generation’s challenges involve careers, exams, life decisions; theirs

was surviving. This shapes how I approach ambition, eager for success but conscious it should be earned with the same discipline, hard work and duty.

My family trajectory shifted in 2000, when my dad accepted a temporary role in New York. Shortly after, my parents and two sisters packed up their lives and crossed the Atlantic. Two years later, I was born in Westchester, New York. Their experiment became my origin. Yet despite the move, our house remained British and my life operated across time zones. The television played the BBC alongside the local news channel and Premier League matches echoed through the halls on weekend mornings. Phone calls were timed for birthdays and family news shared in real time. Holidays meant balancing the school calendar with long-haul flights across the pond.

My Christian names blended both worlds. William is a traditional British name, while Oscar was inspired by the Academy Awards. Today, my brother and I are the only American citizens in our family. The rest maintain British nationality. Travel between the two countries is not just a vacation, it is a return, a reconnection, occasionally a logistical puzzle in the passport lines, but always meaningful.

Growing up, I spoke two ‘versions’ of English. From home, I called the bathroom the “loo”, a truck a “lorry” and fries “chips”. At school, those words confused people. I quickly learned to speak American English in the classroom and revert to British phrasing at home. It became a small but constant reminder I was creating a personality capable of moving between the two.

Over time, I learned when to adjust my tone, clarify meaning and lean into differences. This learned flexibility is invaluable, enabling me to adapt to different people and places.

Our home life reflected that duality. With no extended family in America, Thanksgiving became an international gathering involving friends from all over the world. Around the table, stories flowed about Johannesburg, Athens and London, while American football played in the background. It was less about a single national narrative, more about shared gratitude. The Fourth of July was my sister’s birthday. It seems ironic for a British family to celebrate American independence, yet we grill hot dogs, wave sparklers and celebrate. Rather than being a contradiction, we view it as an opportunity to be grateful for our friends in the US.

There are British traditions that I am still figuring out. Guy Fawkes Night, for instance. British history stretches back so far that I have established a different relationship with it. It feels entrenched in the cobblestone alleys and stories passed down through generations, whereas America, comparatively new, feels forward looking, alive with reinvention and possibility. Living between the two has taught me to respect tradition while seeking new opportunities.

I am fortunate to visit family in both the United Kingdom and Australia, where relations of my father later moved. Listening to my grandparents talk about growing up in London is fascinating. None attended university. All began working in their teens, building careers through

persistence and discipline, valuing character above credentials. Integrity, resilience, curiosity, manners and an urge to experience life mattered more than titles.

One family story perfectly captures the transatlantic loop. My grandfather grew up next to an American airbase during the war. As a youngster, he played with the US airmen who gave him baseball mitts and bats – a sport entirely foreign to Britain at the time. Decades later, my uncle and cousin still play in a London baseball league. When they visit New York sporting Red Sox caps and British accents, the confusion on New York Yankees fans' faces is priceless. History has a sense of humor.

Food has been another anchor of identity. I love cheese and Branston pickle sandwiches. These were treated with suspicion by my peanut butter-and-jelly-loving American friends. Marmite was deemed the ultimate test of character. Some culinary differences still catch my parents off guard. Once, at Dave & Buster's, my dad ordered fish and chips expecting the classic British dish. He received a fish sandwich with a bag of Cape Cod crisps. Definitions matter. Despite living in New York, surrounded by world-class restaurants and every cuisine imaginable, family meals are often British staples – shepherd's pie, Sunday roast, bangers and mash. Breakfast in our house was never pancakes and syrup. Friends were skeptical at first, but after a late night few complained about the Great British fry-up.

Sport illuminates our cultural blend. My dad grew up playing football and my mom (or mum) represented England in junior judo championships in Sweden. They encouraged me towards their sports, but I gravitated to ice hockey and lacrosse. While other parents critiqued their children's skills, mine asked about rules and positions. My dad still tried to compare everything to football. I vividly remember the



Spot the American

2010 World Cup match between the US and England. At eight years old, I wore an England jersey in a room full of Americans. When England scored, I felt proud but isolated. When the US equalized, I instantly became the villain. It crystallized the meaning of being on both sides. It is nice to see a Rice (Declan, no relation as far as I'm aware) captaining England in this year's World Cup in America. Obviously, I'm hoping for a US-England final in New York so I can sing, "It's coming home".

However, during the Olympics I often find myself cheering for American athletes. Growing up, Michael Phelps and Shaun White dominated school conversations and I loved *Miracle*, which concerned the 1980 hockey team's victory over the Soviet Union. Loyalty is not necessarily singular. I know both national anthems and experience the same elation or pain when either country wins or loses. I have twice the hope.

This balance resonated when I started at Rothschild & Co Redburn. My first training was in London. It felt like history circling back: my father left London to start afresh in

America; I was returning to begin my own chapter. Although I'd visited regularly, it was the first time I'd lived in the city. I explored the terrain, attended a Queens Park Rangers match, my family's club in West London, enjoyed Tesco meal deals and local pubs. Standing outside with colleagues, pint in hand, felt quintessentially British. I would remember my great-grandfather had defended those streets. Decades later, I was walking them on my way to the office, building a career rather than serving in uniform. The difference is striking but the connection profound.

So, am I American or British? I am both and consider it a privilege. The humor, the manners, the relationship with history, the approach to sport – each shapes me. I am equally comfortable debating England's midfield or analyzing an NHL playoff series. As I begin my working life, two phrases guide me: the British reminder to 'keep calm and carry on', and American optimism that 'the best is yet to come'.

My identity lies between those aphorisms, shaped by two countries I am proud to call home.

# The Shawshank Redemption (1994)

In his essay on Bruce Springsteen's *Thunder Road*, published in *31 Songs*, Nick Hornby writes, 'Surely the word 'redemption' is to be avoided like the plague when you're writing songs about redemption?'. It is not a warning the producers of *The Shawshank Redemption*, or indeed Stephen King, from whose novella *Rita Hayworth and Shawshank Redemption* the film was adapted, have taken to heart.

Initially, this was deemed part of the problem. Having cost \$25m to make, on initial release it only took \$16m at the box office. The reason for this failure, its screenwriter and director Frank Darabont and stars Tim Robbins and Morgan Freeman believed, was the lack of female parts, a known ambivalence towards prison movies, and that title, which was too opaque or refined for American audiences in thrall to the high-budget antics and two-syllable titles of hardmen such as Bruce Willis and Sylvester Stallone.

However, seven Oscar nominations, though no wins, revived the market. Re-released, *The Shawshank Redemption* made \$73m in theatres, but its story was only beginning. The producers distributed a record 320,000 videos to rental outlets and abetted by extensive cable play it became the most popular take-home of 1995. This began a period of rental popularity that wrongfooted critics and far exceeded anything predicted, its upward momentum lasting even longer than it takes a man in a prison cell to build a tunnel.

At 142 minutes, *The Shawshank Redemption* is a slow-burn buddy movie. Andy Dufresne (Robbins), a

banker, is unjustly sentenced to life in 1947 for murdering his wife and her lover. In prison he befriends Ellis 'Red' Redding (Freeman), fellow lifer, dealer in contraband, dispenser of wisdom. Dufresne suffers a harsh introduction to his new world, a situation scarcely improved when he is corralled into money-laundering by a cruel and corrupt warden, an experience which ends in solitary.

The years pass, but he retains faith things will turn his way. 'Hope can set you free' it proclaims on the movie's poster, a tag from which the film rarely strays. Dufresne explicitly equates hope and freedom, symbolised by the poster of Raquel Welch, which replaces one of Marilyn Monroe (and in turn Rita Hayworth), as the years pass and his ordeal grinds into the mid-1960s. In turn, he teaches Red the possibility of hope and redemption rests upon acknowledgement of sin, and the men share a dream of making a new life in Zihuatenejo, a beach city on Mexico's Pacific coast.

Throughout the movie, good and evil are painted in primary colours. Dufresne is a luminous figure, a saintly individual unjustly fallen amongst sinners. His bearing, resilience, generosity, intelligence, empathy, integrity and patience are rare qualities in Shawshank State Penitentiary, particularly among the staff. Only 'Red', his sagacious foil, comes close to matching his inner light.

It is, perhaps, the broadbrush simplicities and clear divides that have underpinned the film's enduring popularity. There is a chunky twist, and outstanding performances



from the leads, but also a suspicion audiences approve of the idea justice is meted out in proportion to behaviour. It appeals to popular morality, to an almost biblical sense goodness will be rewarded.

Frank Darabont sidesteps thorny questions about penal codes and the sanction of imprisonment. He is so keen on cinematography, so eager to create a gothic look to the state prison, so keen to line his ducks in a row, that he overlooks the treacherous role of luck and chance in life, the social lottery, the limbs of victims and those left behind, the politics of incarceration.

Rather his soft-focus world circles a simpler truth, an older Hollywood cliché. As Andy Dufresne says to Red Redding when discussing the importance of maintaining belief in a possible future: "I guess it comes down to a simple choice really. Get busy living or get busy dying".

# New Year's Resolution

## *AI and Stock Analysis*



**Maggie Schooley**  
*Capital Goods  
Research*

New Year's Day seems a distant memory, even though I am writing this in late January. Still, most of my resolutions remain intact. Many are task-oriented, for example to put the recycling in the right side of the bin so as not to annoy my husband. These are eminently achievable and therefore make me feel I am accomplishing something. But this year I have also given myself an unmeasurable resolution: to be more efficient at work.

Research analysts can feel terribly inefficient. These days, information emerges ever faster and in greater quantities from near-infinite sources. Analysts must assimilate multiple potential outcomes from unpredictable influences. The shelf life of written product is shortening.

Whenever I think about being more efficient, I hear my grandfather saying, "Cutting corners is the lazy option". He indoctrinated me to do things 'properly'. However, that is not always the most productive way.

My definition of 'properly' has evolved as technology has increased data efficiency. Such outputs, however, prompt further questions, requiring more data in support, other sources to complete my understanding and different views to mitigate potential risks. I feel I have more to think about than ever.

What is the most efficient process for a human to digest enormous amounts of new information and translate it into an investment thesis? Analysts read, digest, question, integrate, correlate and re-read. How can they speed up without compromising quality? In my latest AI training, we were reminded that our new tools offer enhanced information from a broader set of models and outlets. However, it remains our responsibility to ensure the integrity of the data. Fair enough, that is our job. But it takes time.

Nevertheless, my resolution is to embrace AI. Not for 'search in disguise', but seeking definitive help, which, for a marginal technophobe, takes effort. Given nearly every headline concerns AI eating entry-level jobs, I appreciate I must understand what it can do for me.

Historically, I used AI for basic fact searches and tasks such as creating charts – clearly referenced, of course.

I accept that to crack AI 'properly', my prompts must be the 'right' prompts. It may have been poor prompting, but I was less enthused about AI's efficiency after undertaking a multi-step process that involved: (1) creating a list of Members of Parliament (MPs) by county; (2) listing the committees each MP sits on; (3) displaying this information in a PowerPoint diagram.

The list of MPs was quickly generated, but their committee interests proved a step too far. AI asked endless questions and required extensive iterations. Searching on Chrome proved quicker. It gave me

the information, which I put into an Excel chart. It may not have been as slick as a PowerPoint, but it did the job. And used far less electricity.

I recognise efficiency requires decisive decision-making and realising when you are spinning your wheels. A basic understanding of the limitations of the version of the model I was using would also have helped. This is a learning journey, after all.

A Stanford Business School study (June 2025) created an 'AI analyst' to compare the performance of an AI bot relative to human stock pickers for a US Mutual Fund.

The bot scoured data which would have been accessible to analysts for thirty years and outperformed, beating 93% of stock pickers over the period. However, it was a single AI analyst. If a pool of AI analysts undertook the same strategy simultaneously, the predictive value of the cues the bot picked up would be reduced.

The study then added parameters such as the cost of the data and processing frictions to level the playing field, further reducing the outperformance of the AI analyst.

The conclusion was that routine data collection and information processing, activities subject to human error, are better undertaken by AI. This should mean it is a tool for people to use rather than to be replaced by.

But AI will improve, and I will improve in my use of it. Nevertheless, I suspect my efficiency resolution may become an annual reaffirmation.

# Sir Alec Reed

16/02/1934 – 02/12/2025

“Without business, there would be no charity...” observed Sir Alec Reed, businessman and philanthropist, on the day he established the Reed Foundation with profits from the sale of Medicare, a high street pharmacy chain he’d built.

His capacity to overcome failure – essential for every entrepreneur – started early. Despite a school report characterising him as “lazy, inattentive, and exerts himself only to prevent his neighbours working”, despite the failure to gain a place at agricultural college or a commission in the Royal Engineers, and despite only passing his accountancy exams at the third attempt, Reed was unbowed.

He took a finance role at Gillette, simultaneously selling homemade aftershave door-to-door and working weekends and evenings for a Hounslow estate agent. One day, he noticed how much Gillette paid its recruitment agencies; he established Reed in 1960.

Benefiting from the expansion of nearby Heathrow, he grew the business rapidly. By 1970, the eponymous agency was in 75 locations, and it floated on the London Stock Exchange the following year. It was not a happy communion. He described feeling like “an unpaid greyhound... they bet on us but didn’t add anything to us at all,” adding for good measure, “We don’t really like non-executive directors.” Reed was delighted when his successor, his son James, took the company private in the late-1990s. It remains one of the largest private companies in the UK.

Reed started young, selling toy soldiers moulded out of lead he found on West London bombsites, and considered himself “an ideas man”. His was the first recruitment agency to embrace the internet. By the turn of the millennium, it was promoting 250,000 jobs a day, and he had the

undoubted satisfaction of rivals paying to advertise on its pages. He paid the trainee who suggested creating a website a bonus of £100,000.

As his wealth grew, so did his philanthropy. Having volunteered in a drug addict rehabilitation centre around the corner from his office in Covent Garden, he founded the Addicts Rehabilitation Charity (ARC). Swiftly gaining altitude, he established Reed Restart to find employers for women released from HMP Holloway, Women at Risk and Womankind Worldwide for those suffering abuse or neglect, and Ethiopiaid to provide sanitation and healthcare to an impoverished and war-torn country. He also started an academy school in Northolt near where he grew up, which controversially had no textbooks (“there’s the internet”) and didn’t teach foreign languages, and an accountancy college in a manor house in the Cotswolds that became the Reed Business School. On his 90th birthday, he instituted the Sir Alec Reed Prize, which contributed £1m to charities supporting young people with mental health issues. After the sale of Medicare, the Reed Foundation owned 18% of Reed Recruitment and he delighted in the fact his employees worked one day a week for charity. Beyond the third sector, he was a generous benefactor of the Royal Ballet.

He saw himself, not unreasonably, as someone “who attempted to improve the lives of others. I do not just mean the poor in Africa... I also mean those rich people suffering from financial obesity.”

His most successful charitable venture was The Big Give, which he started in 2007. The idea was wealthy benefactors would match smaller donations from the less well off, so every offering counted double. The website allows benefactors to find



charities to support that matched their interests. By 2025, it had given £427m to 22,000 charities and at Christmas raised more than Children in Need or Comic Relief. His target was to raise £1bn by 2030.

It was an impressive return from a boy whose schoolwork was described as “very unsatisfactory”. But Sir Alec Reed lived life by his own lights, combining his twin interests of commerce and philanthropy with extraordinary success. The second half of the quote which opens this piece is, “...but what’s the point of business without charity?” It was a rhetorical question he answered emphatically.

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