



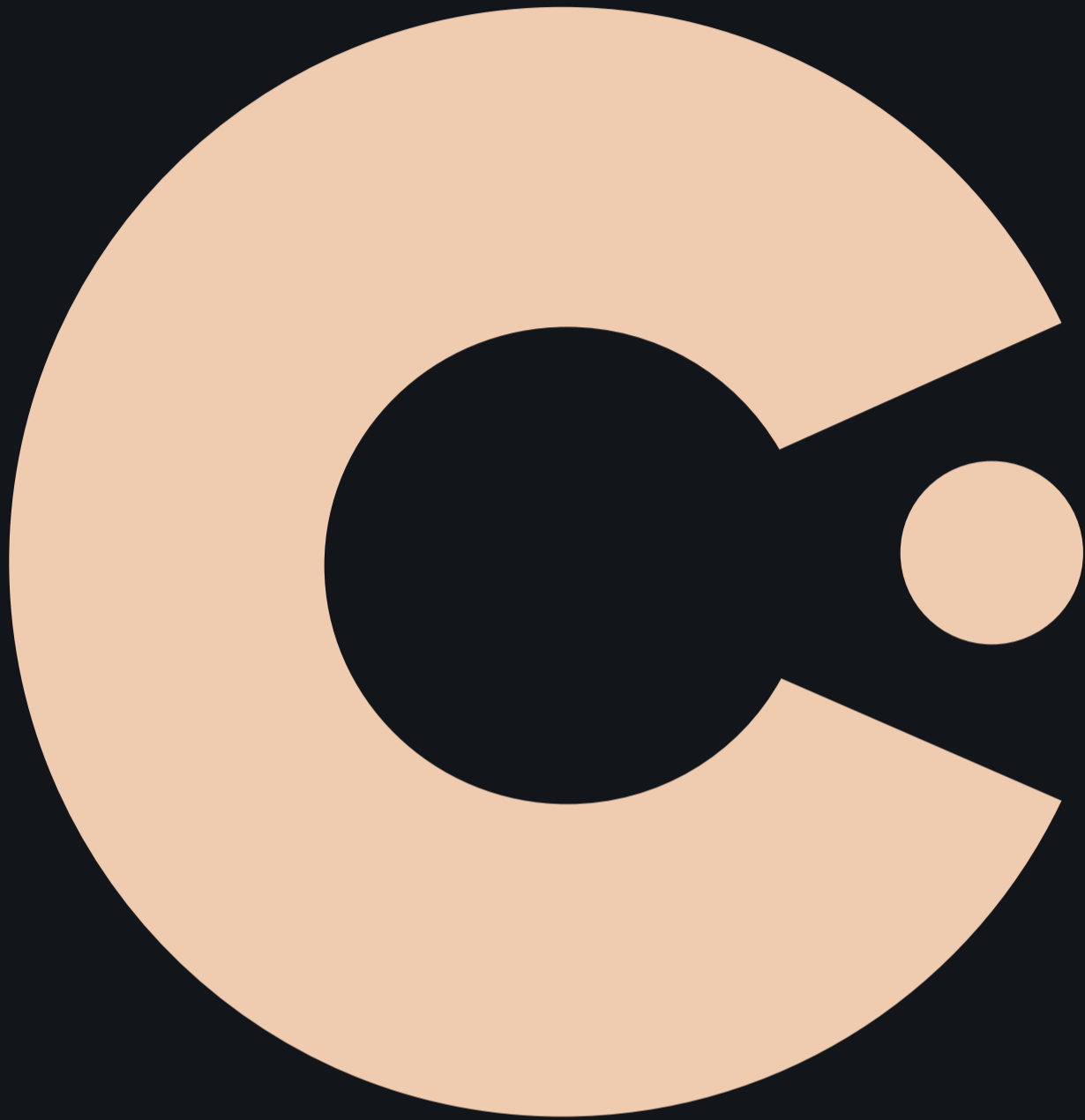








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## COMPANIES &amp; MARKETS

# Rival battery technologies do battle for EV lead

Two main lithium-ion formats are vying to dominate a global industry destined to be worth hundreds of billions of dollars

HARRY DEMPSEY AND PETER CAMPBELL  
LONDON  
CHRISTIAN DAVIES — SEOUL

Lithium-ion batteries have changed the world, putting smartphones, laptops and wireless headphones in the hands of billions. Now they are triggering another revolution.

The cells will be a pillar in the transition to a carbon-free economy since they are the technology of choice both in electric cars and the nascent electricity storage industry. As demand soars, the rollout promises large rewards.

Lithium-ion battery revenues will increase to \$700bn a year by 2035, according to Benchmark Mineral Intelligence, by which time \$730bn will have to be poured into battery plants, mines and processing facilities to meet the need not just for lithium but for ingredients including nickel and cobalt.

"This is going to be a race to see who can develop the most advanced technologies," said Glen Merfeld, chief technology officer at Albemarle, the largest lithium company.

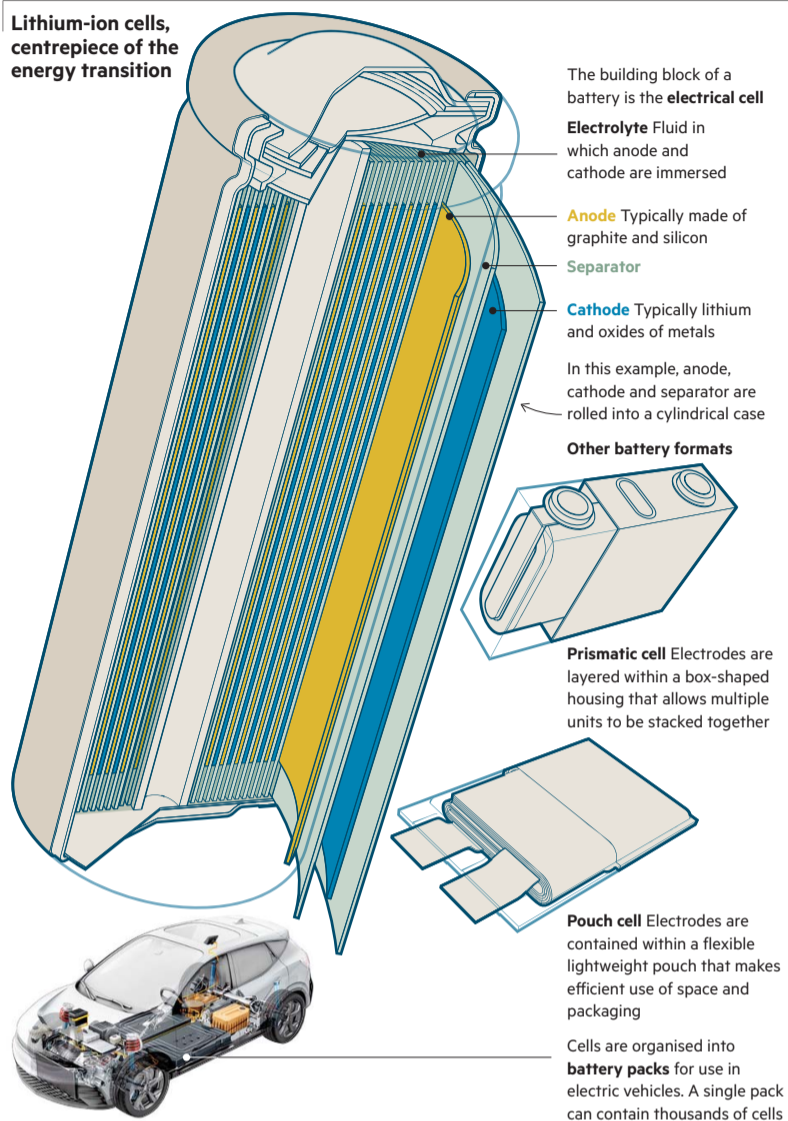
With two principal branches of lithium-ion tech vying for supremacy, winners and losers will be decided in the coming years as companies race to supply the world, from carmakers including Tesla, Volkswagen and BYD, and battery makers CATL and LG Energy Solution, to mining companies such as Glencore and BHP.

Invented in the 1970s by US-based scientists and commercialised in 1991 by Japan's Sony to power its Handycam video cameras, lithium-ion cells pack far more punch in smaller and lighter units than the lead acid or nickel cadmium units that previously dominated the rechargeable-battery market.

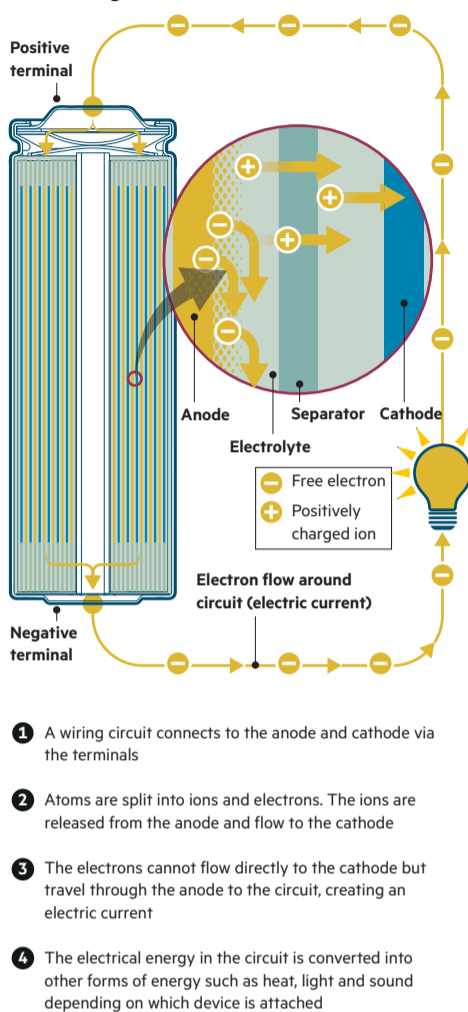
Having helped give birth to the portable-electronics industry, lithium-ion batteries have fought off competing technologies to become the dominant force in electric cars after a 90 per cent drop in cost over the past decade.

Deployment of the technology could top 1 terawatt-hours this year, equivalent to 17mn average-sized electric

## Lithium-ion cells, centrepiece of the energy transition



## How a cell generates a current



Graphic: Ian Bott Photo: Dreamstime  
Sources: Rho Motion; US Department of Energy; Samsung; FT research

to Benchmark data. China is dominant in LFP batteries, accounting for 99 per cent of output. The tech has taken the country by storm thanks to improvements in energy density, its higher safety levels and its lower cost compared with cells containing cobalt and nickel, as well as manufacturing breakthroughs.

LFP's share of the Chinese market has risen to 60 per cent from 18 per cent in three years, Rho Motion estimates.

"The Chinese have cracked the code on LFP," said Chris Berry, president of House Mountain Partners, a battery metals advisory firm in Washington.

The cathode chemistries battle will exert influence over supply and demand of lithium, nickel, cobalt and manganese, aiding or thwarting supplier nations such as Indonesia, the Democratic Republic of Congo and Chile.

Meanwhile, the choices of consumers, politicians and carmakers will play a role in either cementing China's grip on the electric-vehicle market or loosening it and risking a slower, more costly energy transition.

"One-third of the value of a passenger car is the battery," said Dirk Uwe Sauer, professor in battery and energy system research at RWTH Aachen University in Germany. "By not having control of this technology we will have lots of difficulties in the near future in a world where you can't be sure who will be your friend and deliver things tomorrow."

Western start-ups are working on developing their own LFP technology while Korean battery makers are playing catch-up with the Chinese. LG Energy Solution, the largest producer of EV batteries after China's CATL, announced in March that it would allocate \$2.3bn of a \$5.5bn manufacturing investment in Arizona to LFP battery production for energy storage systems.

"You're talking about building infrastructure for an industry that needs to grow 10 times in the next few years," said Michael Finelli, president of growth initiatives at Solvay, a battery component supplier.

"While a battery is just a storage device, it's a critical component of the energy transition . . . These things are considered items of national security now. You don't want to be reliant on another country."

Carmakers are asking Korean groups to make LFP batteries, but "Korea can't win a price war with China in this segment given China's huge state backing," said Sun Yang-Kook, a battery expert at Hanyang University in Seoul.

In taking the LFP lead, Chinese manufacturers have developed means of producing the technology cheaply and at scale, putting the west in a bind.

Ford, for example, has found itself at the centre of a political storm in Washington after partnering with CATL on a licensing deal to produce LFP batteries in the US.

Lithium-ion batteries are likely to undergo tweaks that improve performance and reduce cost, for example by adding manganese to the cathode, blending more silicon in the graphite anode or increasing nickel at the expense of cobalt in NMC cells.

Some expect more radical change, arguing that next-generation technologies such as sodium-ion and solid-state batteries could make inroads.

But Tim Wood-Dow, lead analyst for nickel and cobalt at Trafigura, the commodity trader, said the biggest swing factor on the battery market in the coming decade would be which way the west went on the two main cathode types.

"Battery investment has all been NMC in the west," he said, but "there could be a significant switch to LFP."

The choice for the US and Europe, battery insiders say, represents the delicate balance that the west must strike between reducing reliance on China and accepting it as the cost of maintaining access to highly competitive and affordable technologies.

"The problem is how to compete with China," said Shirley Meng, a materials scientist at the University of Chicago.

While the US government was pushing to reduce reliance on China, "the Chinese have the knowhow . . . There's no point reinventing the wheel when the Chinese have optimised the process."

cars, says Rho Motion, a consultancy in London.

While demand is also set to surge for grid storage, an industry that will need to expand to address intermittent solar and wind power as fossil-fuel plants are phased out, the vast majority of investment is flowing into the far larger market for electric vehicles.

Batteries produce a current as a stream of ions — electrically charged atoms — flows through a chemical material known as an electrolyte from the anode to the cathode, the cell's two electrodes. The flow is reversed during recharging. Lithium-ion refers to a category of batteries, describing the type of ion transferred between anode and cathode rather than the electrode materials themselves, which vary widely.

Innovations have led to a range of lithium-ion batteries, catering not only to different applications but the characteristics desired by a car manufacturer or utility. These include cost, weight, driving range, charging time, the number of charging cycles before failure, and safety — a growing concern given a spate of fires set off by lithium-ion devices.

"The lithium-ion gave us a platform to discover new materials that could go into the anode, cathode and electrolyte," said Venkat Srinivasan, director of the Argonne Collaborative Center for Energy Storage Science.

Anodes are typically made of graphite and dictate how quickly a battery can charge, while cathodes, which come in a variety of materials, are the main determinant of a battery's cost and the amount of energy it can store.

In the electric-car market, two main cathode chemistries are fighting it out: NMC, which uses lithium, nickel, manganese and cobalt in varying quantities, and LFP, made of lithium, iron and phosphate.

Korea's LG Energy Solution and Samsung SDI excel at NMC cathodes, which are used in the majority of electric vehicles sold in the west, where their longer range is better suited to driving habits.

But Chinese companies still account for 75 per cent of production, according

"You're talking about building infrastructure for an industry that needs to grow 10 times in the next few years"



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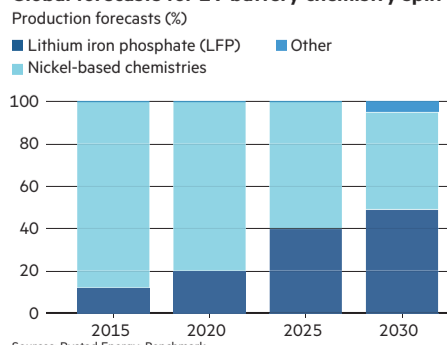
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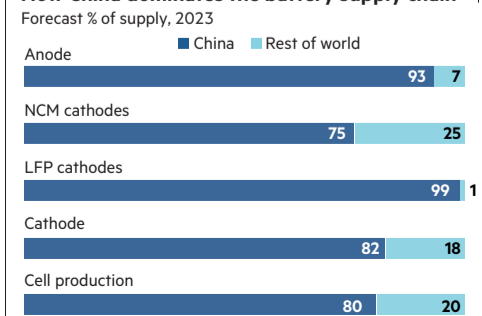
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### Global forecasts for EV battery chemistry split



### How China dominates the battery supply chain









MARKET DATA

WORLD MARKETS AT A GLANCE

FT.COM/MARKETS/DATA

Change during previous day's trading (%)



Stock Market movements over last 30 days, with the FTSE All-World in the same currency as a comparison

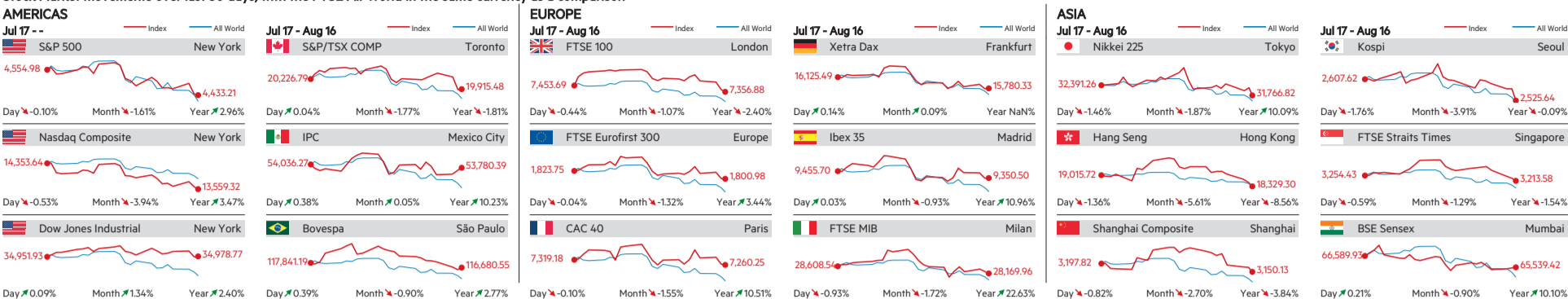


Table with columns for Country, Index, Latest, Previous, and % change. Lists various international indices and their performance over the last 30 days.

STOCK MARKET: BIGGEST MOVERS

Tables showing biggest movers in AMERICA, EUROPE, and TOKYO. Columns include stock name, price, and % change.

UK MARKET WINNERS AND LOSERS

Tables showing UK market winners and losers. Columns include stock name, price, and % change.

CURRENCIES

Table showing currency exchange rates for Dollar, Euro, and Pound against various international currencies.

FTSE ACTUARIES SHARE INDICES

Table showing FTSE Actuaries Share Indices for various regions like Europe, Asia, and Americas.

FT 30 INDEX

Table showing FT 30 Index performance, including components like FT 30 Divid, FT 30 Hourly changes, and FT Wilshire 5000 Index Series.

FTSE SECTORS: LEADERS & LAGGARDS

Table showing FTSE sectors leaders and laggards, listing sectors like Aerospace & Defence, Leisure Goods, etc.

FTSE 100 SUMMARY

Table showing FTSE 100 Summary, including components like 3 Group PLC, Aldi PLC, etc.

FTSE Sector Indices

Table showing FTSE Sector Indices for various industries like Non Financials, Hourly movements, etc.

FTSE GLOBAL EQUITY INDEX SERIES

Table showing FTSE Global Equity Index Series with columns for No of shares, US \$, Day, Mth, YTD, etc.

UK STOCK MARKET TRADING DATA

Table showing UK Stock Market Trading Data, including Order Book Turnover, Order Book Bargains, etc.

UK RIGHTS OFFERS

Table showing UK Rights Offers with columns for Issue, Amount, Latest, etc.

UK RECENT EQUITY ISSUES

Table showing UK Recent Equity Issues with columns for Issue, Issue price, Sector, Stock code, etc.

UK COMPANY RESULTS

Table showing UK Company Results for various companies like Admiral Group, Aviva, Balfour Beatty, etc.

FTSE Global Equity Series

Text describing the FTSE Global Equity Series, including its launch in 2003 and the inclusion of various global indices.

Data provided by Morningstar

Morningstar logo and text: 'Data provided by Morningstar | www.morningstar.co.uk' with a 'POWERED BY MORNINGSTAR' logo.

MARKET DATA

FT500: THE WORLD'S LARGEST COMPANIES

Table with 10 columns: Country, Company Name, Price, Day Change, High, Low, Yield, P/E, MCap. Lists major companies from Australia, Brazil, Canada, China, Germany, Hong Kong, India, Israel, Japan, Mexico, South Korea, Taiwan, Thailand, United Arab Emirates, United Kingdom, United States, and various European countries.

FT 500: TOP 20

Table with 10 columns: Company Name, Close, Prev, Day Change, Week Change, Month Change. Lists top 20 FT 500 companies.

FT 500: BOTTOM 20

Table with 10 columns: Company Name, Close, Prev, Day Change, Week Change, Month Change. Lists bottom 20 FT 500 companies.

BONDS: HIGH YIELD & EMERGING MARKETS

Table with 10 columns: Country, Rating, Bid Price, Bid Yield, Mkt's Change, Spread vs US. Lists high yield and emerging market bonds.

BONDS: GLOBAL INVESTMENT GRADE

Table with 10 columns: Issuer, Rating, Bid Price, Bid Yield, Mkt's Change, Spread vs US. Lists global investment grade bonds.

INTEREST RATES: OFFICIAL

Table with 10 columns: Country, Rate, Fed Funds, 2Ys, 5Ys, 10Ys, 30Ys. Lists official interest rates for major countries.

INTEREST RATES: MARKET

Table with 10 columns: Country, Rate, Overnight, Day, Week, Month, Six, One Year. Lists market interest rates for major countries.

BOND INDICES

Table with 10 columns: Index Name, Index, Day's Change, Month's Change, Year Return, 1 Month, 1 Year. Lists bond indices.

CREDIT INDICES

Table with 10 columns: Index Name, Index, Day's Change, Week's Change, Month's Change, Series, Series High. Lists credit indices.

MARKET INDEXES

Table with 10 columns: Index Name, Index, Day's Change, Week's Change, Month's Change, Series, Series High. Lists market indices.

BONDS: INDEX-LINKED

Table with 10 columns: Index Name, Price, Yield, Prev, Month, Value, Mkt, No of Stocks. Lists index-linked bonds.

BONDS: TEN YEAR GOVT SPREADS

Table with 10 columns: Country, Bid vs Spread, Bid vs Bid, Bid vs Bid, Bid vs Bid. Lists ten year government spreads.

VOLATILITY INDICES

Table with 10 columns: Index Name, Bid Price, Bid Yield, Mkt's Change, Spread vs US. Lists volatility indices.

BONDS: BENCHMARK GOVERNMENT

Table with 10 columns: Country, Rating, Bid Price, Bid Yield, Mkt's Change, Spread vs US. Lists benchmark government bonds.

GILTS: UK CASH MARKET

Table with 10 columns: Index Name, Price, Yield, Day, Week, Month, High, Low, Wk, Amnt. Lists UK cash market gilts.

GILTS: UK FTSE ACTUARIES INDICES

Table with 10 columns: Index Name, Price, Yield, Day, Week, Month, High, Low, Wk, Amnt. Lists UK FTSE actuaries indices.

COMMODITIES

Table with 10 columns: Commodity Name, Price, Change, Agricultural & Cattle Futures. Lists commodity prices.

PRECIOUS METALS (PM LONDON)

Table with 10 columns: Metal Name, Price, Change, Lead, Silver, Gold, Platinum, Palladium. Lists precious metal prices.

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Sources: FTINDEX, ECOMEX, CBOT, ICE, Liffe, VIX, CME, LME, London Metal Exchange. Latest prices as of 17/08/2023.

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## ARTS

# Drug trial drama benefits from new treatment



Paapa Essiedu and Taylor Russell in 'The Effect' — Marc Brenner

## This week's theatre openings reviewed by Suzi Feay

A theatre audience is never a passive receptacle. It can act as witness, juror or silent accomplice to the action. For the revival of **The Effect**, Lucy Prebble's 2012 play about a clinical trial of a questionable treatment for depression, the audience functions as an extra layer of surveillance. The volunteers, Connie and Tristan, are beady-eyed by Drs Lorna James and Toby Sealey. We watch the watchers, ourselves raked into two blocs facing each other across the central performance space, which contains only two chairs and a white plastic bucket. We're enclosed too, it's just that we're in a bigger box.

Beneath the more obvious sexual and power dynamics lurk the submerged class distinctions, sharpened by having an all-black cast. This puts the emphasis on divisions within the black

community rather than on race. Demure, ballet-trained psychology student Connie is matched with talkative wide boy Tristan; posh, patrician Toby, son of a surgeon, faces hardscrabble Lorna, who scornfully explains that, as a black woman, getting out of bed in the morning is a political act.

The movement is strictly geometrical, at least until Connie and Tristan start meddling with the protocols. The impassive doctors sit opposite each other, sternly regarding the white-clad subjects boxed in by white light. The tennis-match effect moves our attention relentlessly back and forth. If all this sounds schematic, rest assured it's about to get messy.

As back-story-free clinical subjects, the characters are ciphers, facilitating judicious rewriting to fit a new cast. Paapa Essiedu beguiles as Tristan, bouncing, weaving, comically dragging his trainers as he invades Connie's precious space. Taylor Russell is a delicate but somewhat underpowered Connie in a role originally created for the

magnetic Billie Piper. Tristan's gregariousness proves a handicap as the experiment (as the ethically suspect trial is correctly labelled) continues; he's far more vulnerable in isolation than the self-contained Connie. That the privileged are always likely to come out on top is a given.

Kobna Holdbrook-Smith's mesmerically smooth tones give Toby's plummy smugness a deliciously comic air; for a psychiatrist, he seems to have little self-awareness as he "monitors for practitioner bias". His mini-lecture on laughing in public underlines moments when just such contagious jollity has infected the audience. Michele Austin's level-headed Lorna keeps the experiment on track, until she too is wrongfooted.

The subjects become emotionally entangled, but is it merely the effect of the drugs? One has a violent reaction, but who's been given the placebo? We, the audience, are drawn to contemplate our own emotions and their dependence on brain chemistry. Director Jamie Lloyd gradually allows the subtlety to

disperse in mass shouting, a disagreeable effect exacerbated by the actors being mic'd up. *The Effect* is fascinating — but never soul-stirring.

To October 7, [nationaltheatre.org.uk](http://nationaltheatre.org.uk)

Dealing with events of more than 40 years ago, the RSC's **Falkland Sound** is undeniably a historical play, likely to be received differently by those who remember the Falklands war of 1982 and those who don't. Playwright Brad Birch, born six years after the conflict, focuses on the islanders' rather than the soldiers' war, using John (Tom Milligan) as his entry point.

As a young teacher, recently arrived from England, John is a handy device to introduce the quirks of prewar island life. Roads are terrible, so a horse is recommended as a way to get around. Homegrown produce and penguins' eggs supplement the fitfully supplied island shop, proudly overseen by Mary (Sarah Moyle). Farmer's daughter Sally is romancing her father's mechanic, Jacob (Anyebe Godwin), while dreaming of an escape to Britain. As matriarch Mrs Hargreaves (Joanne Howarth) observes, everyone knows everyone else's business.

This cheerful picture underlines the shocking impact of the invasion on these ordinary folk. To his dismay, friendly Argentine Gabriel (Eduardo Arcelus, with authentic 1980s hair and moustache), a marine biologist settled in the capital, Port Stanley, becomes a figure of suspicion. Signs of low-level civilian disobedience appear. Alvaro Flores, playing Sebastian, does the heavy lifting as the sole visible member

of the invasion force, and an amiable one at that; he's eventually countered by representative British squaddie Robbie (Joe Usher).

Whipping off their wigs, the characters morph into mainland Brits who give their responses to the crisis in scenes at best risible, at worst, crass. Those born, like Birch, well after the conflict might find it hilarious to see all the politicians of the era as braying, imperialistic dolts and the British public as jingoistic idiots; their elders might well find it patronising and cheap. And reimagining the Brixton riots in interpretive dance isn't a great idea.

At other times, the cast fall into repetitive synchronised movements, perhaps to underline the harmony of island life, or merely to break up long passages of characters explaining that this happened, and then that happened.

Director Aaron Parsons' lively, free-wheeling approach means that, in

### The Effect

National Theatre (Lyttelton), London  
★★★★★

### Falkland Sound

Swan Theatre, Stratford-upon-Avon  
★★★★★

almost three hours of play time, there's lots to engage the heart, less so the mind. The ensemble is highly accomplished. Howarth appears in filmed segments as prime minister Margaret Thatcher, scenes that do much to offset the previous simplistic soundbites; there's some excellent musical work too. But a doubt lingers about using composite characters to represent a complex community. With their big 1980s hair, neon jumpers and flapping corduroys, they're fun but they don't feel quite real.

To September 16, [rsc.org.uk](http://rsc.org.uk)



Oliver Hembrough and Sandy Foster in 'Falkland Sound' — Ellie Kurtz/RSC



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## 'Open your mind to the tadpole'

GAMING

### Baldur's Gate 3

PC and PS5

★★★★★

Lewis Gordon

*Baldur's Gate 3* is the kind of role-playing game that delights in loquacious dialogue as much as swords and sorcery combat. Take an encounter with the fearsome drider — half-man, half-spider. Rather than settling matters with the tip of my blade, I indulged the beast in conversation, convincing it to part with a magical moonlantern, the only thing keeping it safe in the oppressively dark Shadowlands. As it handed over the prized possession, panic spread across the creature's many eyes, as if it knew what was happening but was powerless to resist my powers of persuasion. For this monster, all that awaited in the darkness was a slow, inevitable death.

In the sprawling and astonishingly dense *Baldur's Gate 3*, you are free to approach the world and its inhabitants as you see fit. If you have a madcap idea, chances are the developers have already thought of it and designed the game to accommodate such a scheme. In this way, it is every bit a worthy sequel to 2000's *Baldur's Gate 2*, one of the first big games to make it feel that your choices mattered in the context of a beautifully realised fantasy world and a well-told story (one based on *Dungeons and Dragons*' Forgotten Realms setting). Twenty-three years later, the freedom and complexity have been considerably ramped up by Belgian studio Larian. In the opening chapter alone, there's nothing stopping you from slaughtering a gang of nature-loving druids. Rest assured, though: the game will remember such bloodthirsty actions.

*Baldur's Gate 3* will undoubtedly feel familiar to RPG fans in form. You create a character and choose their class before setting out on an adventure of exploring, looting, talking, and fighting across

the vast land of Faerûn. There's magical gear and legendary weapons to be found, and more than a few companions to be recruited. What sets this apart from other RPGs is its execution, not least in the breadth, depth, and reactivity of its writing. Ostensibly monstrous characters such as the devilish Karlach come with their own generously written backstories. Should you play your cards right, they may come to be lovers, indulging all manner of kinks, as if the age-restricted pages of Reddit exist in this high-fantasy realm.

'Baldur's Gate 3' makes the case for role-play as a playful, even vital, tool of experimentation

The narrative is propelled forwards by a strange, Cthulhu-esque race of creatures called mindflayers that have implanted parasites into you and your companion's brains. A big part of the game pivots on whether you choose to fight this influence or open yourself up to it. Indeed, the game's thematic core arguably resides in the latter choice: by rewarding the player's curiosity, *Baldur's Gate 3* makes the case for role-play as a

playful, even vital, tool of experimentation. As one devil-may-care character puts it: "Open your mind to the tadpole."

If the game has a flaw, it's in the turn-based combat, which can feel mercilessly complicated — an opaque mix of dice rolls, stat-crunching and the nagging worry that you're never quite maximising every inch of the meticulously designed terrain. Duels remain fraught, and so feel less accommodating to the kind of freewheeling approaches the rest of the game so generously invites. The result, at least in the opening 10 hours or so, are battles of trial and error; the many gods of *Baldur's Gate 3* taketh away just as easily as they giveth.

Slowly, though, the combat clicks into place alongside the other systems, the game's six-year development time evident in the way these interlock. Each helps sustain the illusion of this virtual world and, more importantly, ensures the player is able to interact with it in a thrillingly coherent way. Like *The Legend of Zelda: Tears of the Kingdom*, released earlier this year, *Baldur's Gate 3* strives to deliver the most elusive of video game design goals: total freedom. With idiosyncratic, at times demanding style, it gets just as close — a possibility space teeming with invention.

Out now on PC and September 6 on PS5

Lae'zel, a companion in 'Baldur's Gate 3'









## Opinion

## Corporations scent a tech opportunity in Ukraine

## INNOVATION

Marietje Schaake



Technologies are playing a prominent role on Ukraine's battlefields as the country continues to defend its homeland – and European destiny – against Russia's war of aggression. Civilian and military technologies are being tested and used in new ways. Drones inform troops about the frontier, AI labels targets, and facial recognition systems identify fallen Russian soldiers. Some corporate leaders can hardly hide their excitement about the war as an opportunity.

In the months leading up to the invasion, analysts imagined the first full blown cyber war, given Russia's record of wreaking havoc against Ukraine with NotPetya in 2017. That ransomware, launched by Russia, targeted govern-

ment departments, media organisations and power companies, causing global damage of over \$10bn. The worst fears of such a cyber war have certainly not materialised. Ukraine has proven resilient, and the role of technology is not what was anticipated.

Today, we see technologies integrated with battlefield methods. This is a hybrid conflict, in which the lines between civilian and military uses of technologies are blurred. Drones are used in massive numbers for reconnaissance flights as well as to deliver explosives. Their use is so substantial that Ukraine reportedly loses around 10,000 of them a month.

Among some business leaders there is a perverse sense of enthusiasm for testing out new products. Alex Karp claims his company, Palantir, is making a decisive difference in favour of Ukraine, for example through their AI that supports identifying targets. Since shaking hands with Volodymyr Zelenskyy in June 2022, the company has opened an office in Kyiv. Karp has said: "the power of advanced algorithmic warfare systems is now so great that it equates to having

tactical nuclear weapons against an adversary with only conventional ones."

Former Google chief Eric Schmidt took a trip to Ukraine, where he met staff in President Zelenskyy's office and the country's defence minister. He scoped out future investment opportunities and is now supporting a local start-up incubator for military technologies. Schmidt spoke of the first "networked war" and praised Elon Musk for

military to turn on Starlink near Crimea, for example, and promoted a so-called "peace plan" that might as well have been written by Russian president Vladimir Putin himself. Still, Ukraine's digital minister Mykhailo Fedorov emphasised: "Starlink is indeed the blood of our entire communication infrastructure now."

The controversial AI company Clearview is facing fines for violating privacy rules in Europe, but proved keen to offer its technologies to hundreds of Ukrainian officials. They use it, for example, to identify Russian soldiers who have been killed, or those still alive and committing war crimes or looting. The free use of its systems in Ukraine is aimed, no doubt, not only at supporting Ukraine but also at polishing Clearview's embattled reputation.

William LaPlante, US under-secretary of defence for acquisition and sustainment, poured some cold water on all this, tempering the hype from tech CEOs talking up the role their products might play in deciding the outcome of the war. He warned that fighting is not done by Silicon Valley "even though

they're gonna try to take credit for it."

Still, Ukrainian officials hope that the influx of the west's technology companies will have a lasting positive impact on the country. Nursing the objective that one day they might develop a Silicon Valley of their own, the government is banking on being hub for all kinds of innovative technologies that can be developed from the military technologies they need to defend the country now.

Fedorov has compared what could be achieved in Ukraine to the "Israeli model" of high-tech business growth. He has presided over the digitisation of government services ranging from permit applications to citizen services and IDs. But for a start-up nation to flourish, the country first needs to successfully stave off Russian invaders so that its people can focus on starting companies instead of fighting in the trenches to defend their country against artillery and bombs.

The writer is international policy director at Stanford University's Cyber Policy Center and special adviser to Margrethe Vestager

## Some of those at the top have a perverse enthusiasm for testing out new products

providing satellite internet connections through his company Starlink to the Kyiv government.

US military leaders are less enthusiastic about the developing dependence on commercial tech firms. They worry about Elon Musk's dominance in satellite internet constellations. Musk denied a request by the Ukrainian

## Flirting with default, Argentina turns rightward

Hector Torres

Argentines went to the polls last Sunday in a primary election that was a dress rehearsal for the general elections to be held on October 22. The winner, Javier Milei, with a little over 30 per cent of the vote, is a rightwing libertarian who campaigns like a rock star, lives alone with five mastiffs named after famous liberal economists and claims not to have brushed his hair since he was 13 (he is 52).

Milei has vowed to "dollarise" the economy and "blow up" the central bank in order to prevent Argentina's corrupt "political caste" from printing any more pesos.

Consider the dire economic context in which this message has resonated with many desperate Argentines.

The central bank is almost out of reserves, the government of President Alberto Fernández has imposed restrictions on access to the foreign exchange market and exchange rates have mushroomed as people rush for dollars.

Since Argentina signed its 22nd life-line programme with the IMF in 2022, it has missed all its fiscal, monetary and reserve accumulation targets. The government blames a \$20bn drop in exports on a severe drought. While acknowledging the impact of the drought, the IMF argues that the government compounded the problem by pumping up the economy with generous energy subsidies and an overvalued official exchange rate that has artificially reduced the cost of imports.

No wonder Argentina is again on the

## If Milei were to win in October, his libertarian ambitions will collide with the dismal economic reality

brink of default. The government is hoping that the IMF will soon finally disburse \$7.5bn. But if it does, the money will not stay in Argentina. It must be used to pay back short-term "in extremis" borrowing from China, Qatar and the Development Bank of Latin America.

With nearly 40 per cent of the population living below the poverty line, Argentines' patience is running thin. Many, particularly among the young, have responded favourably to Milei's promise to replace pesos with dollars.

Markets, though, responded with alarm. The day after the election, peso-holders ran to exchange their unworthy pieces of paper for greenbacks. Meanwhile, the government devalued the peso by nearly 22 per cent, as the IMF had requested.

If Milei were to win in October – and it is still a big "if" – his radical libertarian ambitions will collide with this dismal economic and social reality. Yet, whatever the outcome, he has at least succeeded in shaking up the debate in Argentina, particularly on the economy and security issues.

Current finance minister Sergio Massa – a pro-market Peronist who managed to run for the governing *Kirchneristas* (a leftwing Peronist offshoot that has ruled the country for much of the past 22 years) – shows little sign of accepting defeat. And he will surely move to toughen his position on security between now and October. Drug-related crime and violent robberies are a problem in poor urban areas that were previously centres of Peronist support.

Massa will no doubt read from the Peronist playbook and blame the dire economic situation on the IMF. He will also try to alarm his friends in the Biden administration by portraying Milei as a terrifying hybrid of former US president Donald Trump and his Brazilian counterpart Jair Bolsonaro.

As for the mainstream opposition grouping, Together for Change, it finds itself in a delicate position: its candidate, Patricia Bullrich, is appealing to the same rightwing electorate as Milei.

The results of Sunday's primary, while shocking, are not definitive. The situation is highly volatile, though two things, at least, are certain: Argentina is veering rightward and if the Peronists are ousted, they will – as usual – blame the IMF. The fund should keep its hand in its pocket until the dust settles.

The writer is senior fellow at the Center for International Governance Innovation and a former IMF executive director

## British neglect risks Northern Ireland's future

## POLITICS

Stephen Bush



The politics of Northern Ireland throw up strange alliances and unexpected points of agreement. For example, republicans think that the British government has no place or interest in governing the place – and many British ministers, have, over the years, appeared to agree.

In 1970, Reginald Maudling, after his first visit as home secretary, boarded his plane home, sighed and said "For God's sake, bring me a large Scotch. What a bloody awful country!" One of his predecessors, William Joynson-Hicks, assured Stormont's prime minister that "I know my place" and "don't propose to interfere". Both men were Conservatives and nominally unionist politicians.

Nor is that indifference confined to the past, or to Tory ministers. Karen Bradley admitted in 2018 when she was Northern Ireland secretary that she had been unaware when she took the post that she "didn't understand things like when elections are fought, for example, in Northern Ireland – people who are nationalists don't vote for unionist parties and vice versa". This would be the equivalent of Ben Wallace, the defence secretary, cheerfully admitting that

when he took the job, he hadn't realised that the army and the navy aren't one and the same thing.

On the Labour side, because of the electoral and institutional importance of the Irish diaspora within the party and because it matters personally to Keir Starmer, whose pre-politics career brought him to Northern Ireland, politicians generally have to feign a level of interest in public. But in private, most of them are no more interested than their Conservative peers.

Westminster's real level of engagement can be seen in the reaction to the Police Service of Northern Ireland's data breach. The personal details of 10,000 serving officers and staff were accidentally leaked online. These included officials who work with the security services. Although it is generally believed that dissident groups are nowhere near as effective or significant a threat as the Provisional Irish Republican Army was during the Troubles, the data breach does pose a serious risk to PSNI officials and to policing in Northern Ireland, a part of the UK where the terror threat is still treated as "severe".

The PSNI is far from alone among police forces in the British Isles in facing serious challenges. No one could claim that London's scandal-ridden Metropolitan Police had acquitted themselves well in their response to the murder of Sarah Everard by a serving police officer, or in a series of high-profile blunders.

The new Met chief, Mark Rowley, recently exposed himself to ridicule by



Ellie Foreman-Peck

calling on mobile phone companies to do more to help tackle smartphone theft. Given that these companies have already developed facilities that allow the location of stolen devices to be pinpointed with incredible accuracy, it is unclear what else Rowley wants Apple and Samsung to do, except perhaps hire their own armed wing.

And no one would argue that the Greater Manchester Police's behaviour over the wrongful conviction of Andrew Malkinson revealed a force that had mastered the arts of contrition or accountability.

But the problems of the Met or the GMP are second-order compared with both the costs and the risks created by the PSNI's data breach. While the Met appears at times to lack the inclination

## Politicians neither notice nor care when the province enters a period of crisis, nor show much desire to help

to fulfil the basic functions of a police force, the PSNI data breach might well compromise the PSNI's ability to do so. The financial costs alone are beyond what a devolved parliament, with curtailed abilities to either raise revenue or borrow money, can cope with. Ian Paisley Jr, a Democratic Unionist party politician who sits in the House of Commons, is absolutely right to say that parliament ought to be recalled to discuss the crisis, and in any other part of the UK it would already have happened.

Westminster's lack of interest in Northern Ireland is a reflection of the mainland British electorate as a whole, but the problem is deeper than that. Just as Northern Irish matters tend to have little impact on voters in mainland Britain, so few votes are won in the effective conduct of foreign affairs. Still, foreign secretary James Cleverly has strengthened his stock at Westminster. Chris Heaton-Harris's standing at Whitehall owes more to the fact that he was respected by colleagues as an whip and because in the early days of Twitter he had a good line in cheesy

jokes than his role as secretary of state for Northern Ireland.

For many, Westminster's visible indifference is a sign that unionism is an unreciprocated love affair: politicians in Great Britain neither notice nor care when Northern Ireland enters a period of crisis, nor show much desire to help out or get involved. The indifference of British politicians in the era of Joynson-Hicks to the discrimination against and disenfranchisement of Northern Ireland's Catholic minority helped drive the province into the Troubles. Indifference in the age of Maudling helped to exacerbate them.

Indifference in the time of Bradley is why the UK's Brexiters pursued a form of Brexit and made promises that could only result in a weakening of Northern Ireland's place in the UK. It is, once again, indifference that deepens Northern Ireland's policing crisis and indifference that remains the one consistent part of Britain's relationship with Northern Ireland.

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## Business deserves deeper insight into security threats the UK faces

Simon Fraser

In the great power confrontation between the US and China, military tension is rising but the weapons of choice are economic. Digital technologies, trade interdependence and cyber warfare blur the boundaries of economic and security policy in ways that affect us all. The race for leadership in green technology and developing AI is also about geopolitical dominance.

Government intervention in markets is escalating through sanctions, trade protection, export controls, supply chain management and investment screening – such as the US's Chips and Science Act, its new controls on investment into China and the EU's draft economic security strategy. These interventions put businesses, investors and scientists on the frontline of adversarial international politics, seeking reassurance. Given the

fast-moving threats, there will never be total certainty. But they can reasonably expect governments to set coherent policies that balance open economic relationships with national security constraints. And they are entitled to opportunities for consultation.

Since the G7 summit in Hiroshima in May, the idea of reducing economic dependence on high-risk countries is supplanting wilder notions of full decoupling, which would have catastrophic economic and political consequences. Continuing economic interdependence preserves prosperity and deters conflict. But businesses need to know what this approach means in practice. When US national security adviser Jake Sullivan talks of keeping sensitive technologies within a "small yard and high fence", they ask what is to be kept in the yard, and how the fence is constructed.

The UK should focus on improving the way decisions are made and executed. For example, advice to the cross-departmental National Security Council, which brokers sensitive decisions at the heart of Whitehall, has been dominated by "securocrats," many of whom

have limited knowledge of economics and business. There should be a stronger economic counterweight. The Treasury is rightly boosting its own economic security expertise.

Transparent and effective dialogue with the private sector is vital. Occasional feel-good meetings between handpicked CEOs and top ministers are

## Companies are caught between Whitehall officials with little sense of where the final decision lies

not enough. Consultation should be early, systematic and operational – it is often the nitty-gritty of implementation that matters most to business, such as the precise specification of products captured by a control list.

Whitehall's poor record of timely decision-making in applying export controls on sensitive technologies is justly criticised. Businesses are caught between different departments with

little sense of where the final decision lies or when it will emerge. Processes for constructive challenge are unclear. There is a strong case for a single "shop front" for business liaison.

Similarly, while the National Security and Investment Act sets out objective criteria relating to sensitive sectors and stake size, the recent shift of responsibility from the Department for Business and Trade to the Cabinet Office is tacit recognition that the most difficult cases are highly politically sensitive. They can end up being handled in what seems like a black box.

Sharing sensitive information is a perennial problem. Despite the welcome publication of the high-level national risk register, the government is understandably reluctant to disclose detailed threat assessments on issues like foreign intelligence activity. Constraints on sharing can also inhibit private consultation, though many people in business have government security clearances. Despite the challenges, better access to information should be a goal.

The UK National Cyber Security Centre, GCHQ's public arm, has pioneered

proactive engagement with business to explain and avert digital threats. Expanding such an approach to issues concerning critical national infrastructure and newly emerging technologies like AI would be welcome. International co-operation is also vital. When the EU, US or Japan introduce rules that are not aligned they create competing and sometimes contradictory obligations for business. The US is pursuing overtly "America First" policies and will penalise countries and companies that do not comply. Promoting co-operation with the US, the EU and others in the G7, OECD and international standard-setting bodies is a priority.

Geopolitical confrontation and state intervention are here to stay. Both will hamper economic efficiency and growth. The greater the economic damage, the more difficult the political choices. Government has a strong interest in bringing businesses deeper inside the tent.

The writer is managing partner of Flint Global and former permanent secretary at the UK Department for Business and the Foreign and Commonwealth Office

