



# CURRENCY NEWS™

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## Grand Reveal for New Caribbean Guilder

**In what was termed a ‘grand reveal’, the Centrale Bank van Curaçao en Sint Maarten (CBCS) hosted simultaneous events on both islands to unveil the designs of the banknotes and coins of its new currency, the Caribbean guilder (Cg).**

According to the Bank, the banknotes and coins draw inspiration from the World Under the Sea where fish swim freely, seeing no borders. This serves as a metaphor for the unity shared between the countries of Curaçao and Sint Maarten within its monetary union.

The front of the banknotes depicts the vibrant marine life native to Curaçao and Sint Maarten, while the reverse showcases significant historical and cultural landmarks of both countries. The notes are in five denominations, and each Caribbean guilder (Cg) banknote has a distinct colour.

The notes were designed and are being produced by Crane Currency. Although details of the security features have yet to be provided, each will feature a MOTION SURFACE® stripe on the front and a micro-optics thread on the reverse.

The coins, meanwhile, are being produced by the Royal Canadian

Mint. There will be similar but distinct designs for Curaçao and Sint Maarten, with both sets circulating interchangeably on both islands. The themes of the six denominations centre on marine life, including turtles, seashells and waves.

The new currency is due to go into circulation next March, and counting down to the introduction, the CBCS will continue to provide information on a regular basis. Among materials now available to familiarise the public and businesses on the characteristics of the new currency is the app ‘My Caribbean Guilder’. In addition, the CBCS has launched a dedicated webpage on the new currency, available at [www.caribbean-guilder.com](http://www.caribbean-guilder.com).

The CBCS will also commence training sessions for commercial bank and retail personnel on the new banknotes and coins as the new currency replaces the notes and coins of the Netherlands Antilles guilder.



## BSP's Coin Deposit Programme and 2024 Outstanding Partners

**Bangko Sentral ng Pilipinas (BSP) has so far collected almost PHP 888.7 million from the coin deposit machines introduced last year. The number of transactions reached 214,475 as of the middle of August, with 236 million coins having been deposited and exchanged for e-wallet credits or shopping vouchers.**

The program, which the BSP said would 'address the artificial coin shortage in certain areas of the country and help ensure that only fit and legal tender currency is readily available for public use,' was launched in June 2023 under partnerships with local retail chains, with 25 machines deployed in retail outlets in Metro Manila and nearby cities.

An additional 25 coin deposit machines will be introduced next year.

(BSP will be giving a presentation on the topic at the forthcoming Coin Conference this October – see page 13).

### Outstanding partners

Separately, in early August the BSP announced the 30 outstanding institutional partners of its 2024 Outstanding BSP Stakeholders Appreciation Ceremony (OBSAC).

The OBSAC, which started in 2004, has served as a platform for the BSP to recognise outstanding partners supporting the central bank's mandates of ensuring price stability, financial stability, and a safe and efficient payments and settlements system

They include Bank of the Philippine Islands for maximising the use of the Cash Service Alliance (CSA), the BSP's cash circulation initiative that enables the direct exchange of fit currency between banks; BDO Unibank for serving as the primary source of fit notes by all banks participating in the CSA facility; Land Bank of the Philippines for its strong support in the circulation and usage of the 1,000 piso polymer banknotes; and Sterling Bank for sourcing nearly 95% of its total currency requirements through the CSA, the highest among CSA-participating banks.

SM Retail Inc, one of the retail partners in the afore-mentioned Coin Deposit Project, was cited for its commitment and valuable contribution.

On the anti-counterfeit front, the Anti-Organized Crime Unit, Criminal Investigation and Detection Group, Philippine National Police, was included for being an active partner in investigating currency counterfeiting cases, while the Anti-Cybercrime Team, Quezon City Police District, Philippine National Police, was also included for sharing their technical expertise, tools, and best practices through anti-cybercrime training for the BSP's Payments and Currency Investigation Group agents.

# A Perfect Storm for Mints

**The news that the Mint of Finland is closing down will no doubt be cited by many as another grim reminder that cash is on the way out. Certainly, that was the reason given by the company when it announced that it is winding down and will cease operations next year.**

But, as we argued in our editorial of last month, relating to the news earlier this year that the UK's Royal Mint is exiting production of coins and blanks for export, whilst there is undoubtedly an element of that, it is by no means the whole story.

Cash in circulation continues to grow – at around 4% per year. Admittedly, this hides substantial regional and economic variations. The difference between banknote and coin usage is partly due to higher denomination banknotes being held as a store of value (not something that happens with coins) while the use of cash for transactions (which is where coins come in) is in decline in many (but not all) parts of the world.

But irrespective of the debate about whether cash is dying or not, and if so, how quickly, the problems at the Mint of Finland and The Royal Mint are as much to do with the dysfunctional nature of the circulating coin market as it is with the role of cash.

The major problem, as we pointed out last month, is that there are simply too many mints relative to the demand for coins, exacerbated in countries where the national indent is small.

A few years ago, we did a comparative analysis of banknote printers and mints by dividing the annual number of banknotes produced by the number of printers. Ditto for coins and mints. Per this analysis, the banknote to printer ratio (59 printers) was 2.2 billion notes, whereas for mints (the 54 that produce circulating coins) it was 800 million coins.

It was a very crude calculation, but it nevertheless demonstrated the overcapacity in the mint industry, which has been long due an adjustment.

Why there are so many mints has a lot to do with history, tradition and emotion. And a dose of

political reluctance.

In many countries, having their own currency producer is a symbol of national pride, dressed up as a means of ensuring sovereignty and security. This appears to be particularly the case with mints, which have a totemic significance in the national psyche to a greater extent even than banknote printers. And virtually all 'sovereign' mints (so defined by the fact that they mint their countries' coins) are state-owned.

Even in countries with a strong free market disposition, attempts to interfere with the coinage can meet with strong resistance. In the great scheme of things, therefore, many

governments undoubtedly take the view that privatising or shutting down mints is not worth the political capital that it would involve. Particularly since many do actually make

“ There are simply too many mints relative to the demand for (circulating) coins

money (both literally and figuratively). Not on circulating coins, but on their other activities – commemorative and collectors coins, medals, precious metal trading, bullion, luxury jewellery etc. The strength of their name and the fact that they are sovereign mints give them the credibility and trust to do so.

The upshot, for circulating coins, is an over-crowded market, with too many mints pursuing too little business – driving down prices. Add to this rising energy and material costs, more and more countries dispensing with lower denomination (and high volume) coins, a growing trend for programmes that get existing coins back into circulation (good news for issuers and taxpayers, less so for mints) and – yes – a move away from cash, and we have something akin to a perfect storm.

Most mints can ride the storm. But the Mint of Finland, with no other business than circulating coins, could not.



# Millions of UK Coins Shelved in Warehouses

The UK banking system is reported to be storing indefinitely around £4 million worth of unwanted copper coins.



New industry data shows that around 260 million surplus coins are being stored, including two thirds of all the 225 million 2p coins in the UK as well as 110 million 1p coins. The surplus of both now exceeds the amount in circulation.

Surveys suggest that more than half of these that enter circulation are used just once before ending up in storage, while one in 12 are thrown away.

The Royal Mint has not recycled or melted down surplus coins since it closed its smelting facility more than a decade ago and only accepts damaged coins collected by banks.

There are an estimated 27 billion coins in circulation, but the UK Treasury says it has 'no plans' to change the mix of UK coins in the system.

30 million 1p coins were minted in 2022 and none in 2023, while no 2p pieces have been minted since 2021. More than 1 billion pennies were minted in 2000.

Even though the UK coins have all been redesigned, no orders for have been

placed with TRM this year, and previously it has been stated that there are enough small denominations to last 10 years, as these latest figures bear out. So whilst the new 50p and £1 coins have now been issued (see page 15), it remains to be seen when the other six denominations will see the light of day.

In her presentation at the Cash Sustainability Forum in Frankfurt in June, Leann Shanks – Sustainability Lead, Cash & Self-Service at NatWest Group and part of the CIEC (the UK's Cash Industry Environment Charter) – spoke about the challenges of so many surplus coins (a topic she will reprise at the forthcoming Coin Conference in Lisbon).

NatWest initiated the CIEC, which has brought together 36 financial institutions representing the entire UK cash cycle. Currently the focus is on CIT, which is facing fewer vehicle movements, reducing plastic usage by standardising cash bags and reviewing single use Bank of England cage seals, and addressing the challenges created by fewer 1p and 2p coins being used.

A 'Bronze Coin Issue' working group has been set up, and a special report is underway, looking in particular at how the excess coins are using up commercial organisations' capacity for storage cages and liners, thereby 'gumming up' the system, along with the high costs of such storage.

## Mint of Finland to Close Next Year

The Mint of Finland (Suomen Rahapaja) is to cease operations and wind down in an orderly manner by next year, its Managing Director Jonne Hankimaa, has announced, bringing to an end a 160-year business which first began minting coins in 1864 under the Russian emperor Alexander III.

'The closing process is taking place on conditions of performing client projects. The goal is to ensure completion of existing contracts with clients and vendors in line with agreements, he said.

All such projects will come to an end in Spring 2025.

The reasons for the closure were given as 'dramatic changes on payment methods and the decline of the role of cash in daily life.'

The news is not unexpected as there has long been with speculation about the future of the Mint, and the fact that it did not publish its annual results in April, as is customary, was a warning sign.

The company has made losses in recent years – €6.8 million in 2023 on a turnover of €32 million, and €10 million on a turnover of €20.9 million in 2022. It turned in a profit

of €7.7 in 2021 on a turnover of €32 million, but in the previous years had had a long run of losses.

At the start of this year, it announced the sale of its blanks business to the German producer Freiburger EuroMetall (the original owners of the business), including its blank factory in Halsbrücke, Germany and its stake in the Spanish blank manufacturer Compañía Europea de Cospesles SA (CECOSA.)

Last year, it also spun out Coiniverse, the coin collecting app that it set up, as an independent start-up.

Virtually all of the Mint's business has been in the export of circulating coins and blanks, primarily to Asia, Europe and Latin America with customers including Ukraine, Estonia, Guatemala and Colombia. As such, we have become accustomed

to referring to it as a bellwether for the industry since, unlike other sovereign mints who derive the majority of their income (and profits) from numismatics and precious metals, its fortunes have been dependent on an increasingly commoditised, competitive and over-catered international market.

It couldn't even rely on Finland's requirements, which are very small and never accounted for more than 5% of turnover – particularly since the country was one of the first to dispense with the 1 and 2 cents, introducing rounding as soon as the euro was introduced – and in 2019 awarded the contract for its commemorative coins elsewhere.

The closure brings to an end all coin production in Scandinavia. The Swedish Mint was sold to the Mint of Finland in 2002, and 50% of the Royal Norwegian Mint a year later. The Royal Danish Mint closed operations in 2016 (awarding the contract for Danish coins to the Mint of Finland).

It is no coincidence that all countries are in the vanguard of cashless payments.

# News in Brief

## ■ Kenya Selects New Banknote Printer

The Central Bank of Kenya has revealed that it has signed a five-year banknote contract worth KES 14.2 billion (\$109 million) with Giesecke+Devrient for its new banknotes, replacing the incumbent printer, De La Rue.

The current series was issued in 2019 and, according to the Bank, the switch was prompted by De La Rue's decision to mothball its Nairobi printing facility (in which the government holds a 40% stake), in 2023 due to a lack of new orders.

Under the five-year agreement, Kenya will receive 2.04 billion banknotes to replace damaged or worn-out notes. The new notes will include 460 million KSh 50 notes, 690 million KSh100 notes, 260 million KSh200 notes, 170 million KSh 500 notes and 460 million KSh 1,000 notes.

The notes will be dated 2024, and whilst the overall design will remain consistent with the 2019 series, they will include new security threads with colour changing effects unique to each denomination. The new KSh 1,000, which has already been unveiled, includes a RollingStar® i+ thread from Louisenthal.

The cost of the notes will be 11% higher than the De La Rue notes, at KES 6,842 (\$53.50) per 1,000.

## ■ Pakistan to Remerge Two State Printers

Pakistan's Cabinet Committee on State-Owned Enterprises (CCoSOEs) has approved the re-merger of National Security Printing Company (NSPC) with Pakistan Security Printing Corporation (PSPC).

PSPC was established in 1949, originally as a joint venture with De La Rue, to print strategically important documents, such as banknotes. It is the majority owner in Security Papers, set up in 1965, and also has a joint venture with SICPA for inks, established in 1995.

In 2017, the government separated the printing of banknotes from other security documents, hiving off NSPC to produce the country's national ID cards, passports, motor vehicle registration books, stamps, land revenue record forms, electoral and census forms, cheque books and certificates. It is owned by the Ministry of Finance, whereas PSPC is owned by the State Bank of Pakistan.

The reason behind for the re-merger is understood to be to streamline operations, reduce redundancies, and enhance the overall performance of both entities.

## ■ Italian Mint Expands into AI

In another example of a state enterprise diversifying into digital technologies (see page 7), the Italian government mint and security printer Istituto Poligrafico e Zecca dello Stato (IPZS) has teamed up with Microsoft on an artificial intelligence-powered chatbot that will be used to verify the authenticity of Italian products like Prosecco sparkling wine.

Microsoft Italia has signed a memorandum of understanding with IPZS to collaborate on various AI-based anti-counterfeiting technologies, including a virtual assistant – based on Azure OpenAI artificial intelligence, Microsoft Copilot and IPZS proprietary models – that can verify the authenticity of products and analyse traceability data.

The collaboration has already been deployed in a pilot project with the Consortium for the Protection of DOC Prosecco, a major Italian export with more than 80% of the 616 million bottles produced each year sold overseas.

The generative AI (genAI) chatbot, called the Brand Protection Assistant, can verify bottles by taking a picture of the government quality label on the neck of the bottle, which has a unique and traceable code along with the name and logo of the denomination. Meanwhile, a snapshot of the wine's label can allow the chatbot to provide detailed information on the origin and characteristics of the wine and offer advice on foods that will go well with it.

The Prosecco pilot could be scaled up to include all 'Made in Italy' products, both in the agri-food sector and beyond, according to a Microsoft statement.

## ■ Canada Rewards Counterfeit Detectors

A team from the Canada Border Services Agency (CBSA) has received the Bank of Canada's counterfeit deterrence award for its work analysing international shipments, leading to the seizure of large volumes of counterfeit banknotes.

The team worked in partnership with the Bank of Canada and the Royal Canadian Mounted Police's National Anti-Counterfeiting Bureau to develop a method to flag and analyse international shipments of interest. The award recognised their efforts in intelligence analysis, partnership building, and their contributions to protecting the financial safety and welfare of Canada.

The winners were honoured at the annual Canadian Association of Chiefs of Police Summit, held in Halifax, Nova Scotia on 13 August.

The annual award, which the Bank introduced in 2004, recognises the outstanding achievements of criminal

justice professionals and educators involved in the prevention and deterrence of banknote counterfeiting in Canada.

## ■ Somalia Calls for Restitution of Currency

A recent debate in Somalia's Upper House focused on the future of the Somali shilling and the urgent need to print new banknotes, with senators emphasising the importance of addressing public concerns regarding currency access and usability.

The Somali shilling has had a turbulent history in recent decades. After the collapse of the central government in 1991, the value of the Somali shilling plummeted, leading to widespread use of foreign currencies, particularly the US dollar, in the country's main economic hubs.

In recent years, however, Somalia has seen a resurgence in efforts to stabilise its financial system, with a focus on reviving the Somali shilling as a reliable medium of exchange. Despite these efforts, the scarcity of the shilling in circulation, particularly in regions outside the capital, has forced many to rely on digital transactions and mobile money services provided by local telecommunications companies.

In some regions, the shilling is virtually non-existent, leading to concerns about the long-term viability of the national currency.

During the Senate session, several senators voiced their worries about the scarcity of the Somali shilling and called on the government to take immediate steps to print new currency.

## ■ Meta Materials Files for Bankruptcy

In an SEC filing, Meta Materials – former owners of the authentication business now under Authentix ownership (see page 8) – has reported that it has commenced bankruptcy proceedings by filing an assignment in bankruptcy under section 49 of the Bankruptcy and Insolvency Act (Canada) in the District Court of Ontario.

Shares of the manufacturer of high-performance functional materials have plummeted 95% since last year, a sharp decline from the 52-week high of \$26.95 per share.

Grant Thornton has been appointed as trustee in the bankruptcy for the benefit of the creditors. It will wind down the business and make distributions, if any, to its creditors in accordance with the applicable provisions of the Act.

## ■ Record Sum Raised in Charity Auction

Following the Bank of England's introduction of new King Charles III banknotes in June, a series of four auctions

and a public ballot of low serial number notes by Spink & Son has raised over £914,000 which will be distributed to 10 charities.

The auction broke the record for the highest lot sold in a Bank of England banknote auction with a £50 sheet going for £26,000. This was followed by the £10 auction where a single note was sold for £17,000.

Commenting on the auctions, Sarah John, Chief Cashier and Executive Director of Banking, who opened the bidding on the first lot for the £5 auction, said: 'I am thrilled that the auctions and public ballot of low numbered King Charles III banknotes have raised a remarkable £914,127 that will be donated to 10 charities chosen by Bank of England staff. Each charity does incredible work and the monies raised will have a positive impact on people across the UK.'

## ■ De La Rue Included in ESG Index

De La Rue has announced that it has been included in the FTSE4Good Index Series.

Created by the global index and data provider FTSE Russell, the FTSE4Good Index Series is designed to measure the performance of companies demonstrating strong Environmental, Social and Governance (ESG) practices. The FTSE4Good indexes are used by a wide variety of market participants to create and assess responsible investment funds and other products.

FTSE Russell evaluations are based on performance in areas such as Corporate Governance, Health & Safety, Anti-Corruption and Climate Change.

## ■ Heimerle+Meule Rebrands

Precious metal producer and supplier Heimerle+Meule Group has announced its rebranding to HM Precious Metals, with immediate effect. The rebranding has occurred in the course of the Group's ongoing internationalisation and, it says, is an adaptation of the company's name to optimise it for worldwide use.

Earlier this year, the Group acquired Royal United Mint (RUM) – which includes the Royal Dutch Mint, Dutch Value Logistics and Osborne Coinage – along with Reischauer, a manufacturer of precious metal and copper blanks.

# Interim Results – More Encouraging Signs

**Last month we reported on the broadly positive interim results for two leaders in the currency sector – Orell Füssli and Prosegur. This month is the turn of Brinks, NCR Atleos, Diebold Nixdorf and Crane NXT.**

## ■ Strong Q2 and Half Year for Brinks

Brinks has reported that, for the first half year (to June), revenue (GAAP) totalled \$2.49 billion compared with \$2.4 billion in FH 2023, an increase of 4% (organic growth 13%) despite a currency impairment of \$233 million.

The operating profit (GAAP) of \$365 million was 8% higher, despite a currency impairment of \$73 million. Non-GAAP operating profit was 16% higher at \$301 million, despite a currency impairment of \$74 million.

The company had a particularly strong second quarter, with revenue (GAAP) up 3% to \$1.25 billion (14% at constant currency) over the same period last year.

The company indicated full year revenue of \$5-\$5.2 billion and adjusted EBITDA of \$935-\$985 million.

## ■ Growth for Newly-Formed NCR Atleos

In October 2023, NCR Corporation was split into two independent public companies – NCR Voyix, which legally succeeded NCR Corporation, and NCR Atleos, which was formed from the spun off ATM business.

NCR Atleos achieved revenue growth in both the first and second quarters, resulting in sales for the first half of \$2.13 billion, 5.2% higher than in the FH 2023. Operating profit (EBITDA) increased by 23.5% to \$179 million, a 23.5% increase.

The company issued full year guidance targets similar to those issued previously, with revenue expected to be in the \$4.26-\$4.34 billion range and adjusted EBITDA unchanged at \$770-\$800 million.

## ■ Diebold Nixdorf Raises Full-Year EBITDA Guidance

In the six months ended to end June, Diebold Nixdorf achieved (GAAP) net sales of \$1.83 billion, 3.1% higher than in FH 2023, with both business lines - Services and Products - contributing to the company's two business segments - Banking and Retail.

Services' sales in FH2024 were up just over 1% at \$1.06 billion, and Products' sales were up 5.7% at \$769.6 million. The non-GAAP net sales improvement was \$66.2 million, up 3.7%.

Operating profit (GAAP) for FH 2024 was \$94.5 million compared with a loss of \$6 million in FH 2023. The operating margin was 5.1%. Similarly, non-GAAP operating profit for FH 2024 was up by 60.3% to \$192.2 million, with the operating margin increasing from 6.8% in FH 2023 to 10.5% in FH 2024.

The adjusted non-GAAP operating profit (EBITDA) increased by 50% from \$148.1 million in FH 2023 to \$222.1 million in FH 2024, increasing the adjusted operating margin from 8.4% to 12.1%. (NB The non-GAAP adjustment excluded the results of the non-core business that was sold in September 2023, thus allowing better comparability).

The company has raised its full-year adjusted EBITDA guidance to a range of \$435-\$450 million.

## ■ Crane NXT Includes OpSec Figures for First Time

Crane NXT is now an independent industrial technology company with two business segments, Crane Payment Innovations and Crane Security and Authentication Technologies, the latter comprised of Crane Currency and the newly acquired OpSec business which is focused on product authentication.

In the first half of this year, revenues were £684.2 million, compared with the \$681 million in FH 2023, an increase of 0.04%. Crane Payment Innovations (CPI) sales fell by 3.6% to \$433.4 million, while Crane Security and Authentication Technologies sales increased by 8.2% to \$250.8 million, primarily due to the new revenue from OpSec in the second quarter.

The company's operating profit fell by 8.7% to \$123 million, with operating profits falling in both business segments. CPI's operating profit fell by 9.9% to \$114.1 million and Crane Security and Authentication Technologies' by 15.5% to \$44.2 million, mainly due to the impairment from OpSec in Q2.

Based on its first half performance, Crane NXT made no substantial changes to its performance guidance for the full year other than to increase Currency core sales growth from 2%-3% to 3%-5%, stating that it has a record high order backlog.

It noted that OpSec was on track for sales of \$80-\$90 million for the eight months of 2024 and that, as expected, it would dilute NXT's adjusted operating profit margin.



# Central Banks and Cash Round-Up

In this periodic series of articles covering cash information in central bank annual reports, we turn out attention this month to England, Iceland, Kazakhstan and Switzerland.

## Bank of England (BOE)

**Cash in circulation:** banknotes in circulation increased to £87 billion as of the end of February 2024 (2023: £85. billion). The introduction of banknotes featuring King Charles III (£5, £10, £20 and £50) was also announced (which entered circulation this June).

**Issue and destruction:** 119 million unfit notes were returned for destruction, just over 50% of which were the old paper notes.

The cost of banknote production was £36 million (2023: £28 million) and a further £31 million (2023: £26 million) was spent on issue and custody.

**Sustainability:** the Bank's efforts to reduce carbon emissions in banknote production resulted in a 22% decrease from the previous year, reflecting the impact of lower production volumes.

**Awareness:** the BOE's education and museum programs have continued to thrive, focusing on financial literacy with significant outreach to schools and the public through various events and exhibitions. Under the Bank Ambassador volunteer programme last year, volunteers visited 411 schools across the UK, delivering banknote handling sessions in primary schools, exploring security features and the historical figures in the notes.

The Bank of England Museum also had a busy year, attracting over 107,000 visitors from the UK and worldwide. The museum delivered over 288 presentations to school groups and expanded its programme of family-friendly holiday activities, launching a new children's trail, Data Detectives, where super sleuths had to crack the case of the forged banknotes.

## Central Bank of Iceland (CBI)

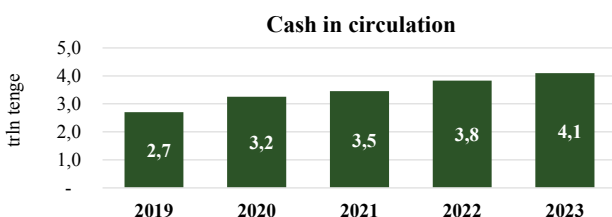
**Cash in circulation:** at the end of 2023, the value of banknotes and coins issued amounted to ISK 75.7 billion, down from ISK 80.7 billion in 2022. This included ISK 71.1 billion (2022: 76.1 billion) in banknotes and ISK 4.6 billion (2022: 4.5 billion) in coins.

The denominations in circulation at the end of 2023 were ISK 45.4 billion in 10,000 krona notes, ISK 16.5 billion in 5,000 krona notes, and smaller amounts in 2,000, 1,000, and 500 krona notes. The total value of coins in circulation included ISK 3 billion in 100 kronor coins and smaller amounts in other denominations.

**Issue and destruction:** the CBI destroyed 1.4 million notes that were considered unfit for use, compared with 1.6 million in 2022 and 1.9 million in 2021. By the end of 2023, it had issued 18.7 million banknotes (2022: 19.1 million).

## National Bank of Kazakhstan (NBK)

**Cash in circulation:** despite the active development of a cashless payment infrastructure, cash circulation in Kazakhstan has steadily increased. The average annual growth rate of cash in circulation over the past five years has been 9.8%, with the amount in circulation reaching KZT 4.1 trillion by the end of 2023.



According to public surveys, cash still plays a crucial role in the lives of Kazakhstanis, with about 60% of the country's residents preferring to pay in cash. At the end of 2023, the nominal amount of banknotes and coins in circulation was equal to KZT 4 trillion and KZT 97.9 billion respectively.

**Banknotes:** The NBK issued 1.7 billion banknotes in 2023 and processed 1.1 billion banknotes.

It is introducing a new series of banknotes based on elements of the 'Saka style' reflecting Kazakhstan's heritage from the unique culture of nomads to modern times. The new series will be gradually introduced with the first, the new 5,000 tenge, issued last December. In addition, in 2023 the NBK issued a commemorative 10,000 tenge to mark the 30th anniversary of the currency.

**Counterfeiting:** 181 counterfeit notes were identified by the NBK and second-tier banks, amounting to just over KZT 649,100, a 53.7% decrease from 2022.

## Swiss National Bank (SNB)

**Cash in circulation:** the value of banknotes in circulation in 2023 decreased to an average of CHF 76.5 billion, a 12.2% decline year-on-year. The total number of banknotes in circulation also fell by 3.5% compared to 2022, with the SNB attributing the decrease to reduced use of large-denomination notes, primarily used as a store of value.

In 2023, the value of coins in circulation averaged CHF 3.2 billion, corresponding to 5.8 billion pieces. The overall change compared to the previous year was small. The value of coins in circulation increased by 0.2%, while their number grew by 0.5%.

KEY FIGURES ON BANKNOTES AND COINS IN CIRCULATION (ANNUAL AVERAGE)

	2019	2020	2021	2022	2023
<b>Banknotes in circulation</b>					
In value terms (in CHF millions)	79 809	84 450	88 281	87 174	76 498
Year-on-year change (in percent)	1.0	5.8	4.6	-1.3	-12.1
Number of notes (in thousands)	488 060	513 381	531 983	537 573	518 997
Year-on-year change (in percent)	3.6	5.2	3.6	1.1	-3.5
<b>Coins in circulation</b>					
In value terms (in CHF millions)	3 180	3 189	3 182	3 210	3 217
Year-on-year change (in percent)	1.2	0.3	-0.2	0.9	0.2
Number of coins (in millions)	5 693	5 737	5 745	5 795	5 824
Year-on-year change (in percent)	1.3	0.8	0.1	0.9	0.5

**Issue and destruction:** the SNB issued 47 million new banknotes (2022: 61.7 million) with a nominal value of CHF 5.9 billion (2022: CHF 10.9 billion). It destroyed 34.7 million damaged or recalled notes (2022: 51.4 million) with a nominal value of CHF 4.4 billion (2022: CHF 10.4 billion).

**Counterfeiting:** 4,082 counterfeit banknotes were seized, half the number of those seized in 2022.

# The Evolution of Asian State Security Printers – From Currency Makers to Digital Authentication Providers

■ By Chander Jeena, Editor, Authentication & Brand News™

**State security printers in Asia are transforming as a result of a fast-changing economic and technological landscape. Traditionally known for producing banknotes, coins, and secure documents, these institutions are now repositioning themselves as digital identification and authentication (DIA) players, as this article, adapted from sister publication Authentication & Brand News, explains.**

A central question around this transformation is whether the decline in cash usage can be considered the primary driver. Some parts of Asia, like South Korea, show a noticeable trend towards cashless transactions. However, the situation is more complex across the region.

Data from countries such as Indonesia suggests a resurgence in cash usage post-COVID-19, with many businesses still relying on cash transactions. In nations like China, India, Japan and the Philippines, even if the growing use of electronic payments has reduced the demand for cash, that demand is still far from approaching zero, at least in the medium term, largely because of consumer preference.

This apparent paradox – rising digital transactions alongside robust cash economies – presents both a challenge and opportunity for state security printers: they must continue to meet the demands for cash production while positioning themselves as leaders in the emerging DIA sphere.

## KOMSCO: a blueprint for digital transformation

Korea Minting and Security Printing Corp (KOMSCO), established in 1951, is one example of how a traditional state security printer can successfully navigate this transition. Once solely responsible for manufacturing Korea's banknotes and coins, the company has expanded its focus to include various digital services to compensate for the fact that 50% fewer banknotes are being produced this year compared to 2014, while 90% fewer circulating coins have been minted over the past 10 years.

KOMSCO's diversification strategy centres on three pillars: information and communications technology (ICT), export expansion, and creative cultural content. This has seen the company venture into bullion medal minting, mobile voucher issuance, and anti-forgery certification services. However, the most significant aspect of KOMSCO's transformation is its

foray into digital identity and blockchain.

The company's K-DID solution – a blockchain-based mobile ID platform – is at the forefront of its digital innovation. The solution securely stores users' personal information on mobile devices, allowing for the management of digital identities. KOMSCO has so far rolled out mobile IDs for public officers, drivers, and veterans, with a national rollout scheduled for 2025.

KOMSCO's international projects with regard to digital identity include collaborations with Costa Rica and Uzbekistan's state-owned banknote and security printer, Davlat Belgisi. The latter collaboration, in particular, highlights the potential for exporting digital identity solutions as intangible assets.

The company is also mobilising its ICT experience to develop a central bank digital currency (CBDC). The Bank of Korea (BOK) is among 100 central banks worldwide working on CBDCs, and the Korean CBDC ecosystem is expected to have a two-tiered structure: institutional central bank currency traded between the BOK and financial companies and tokenised deposits between financial companies and the public. KOMSCO is seeking a role in the latter.

KOMSCO is now eyeing the brand protection and tax stamp arena, with its unveiling, in August, of two new products: photonic crystal film and digital tax stamps. Inspired by the natural nanostructures found in peacock feathers and morpho butterfly wings, the photonic crystal film produces vivid and variable optical effects without the use of pigments.

As for the digital tax stamps, these were developed in collaboration with VOICEYE, a 2D high-density barcode solution specialist, and combine physical security features such as micro-print, colour-changing latent image, and tamper-evidence, with KOMSCO's digital certificate technology.

These various diversification and international outreach initiatives have proven fruitful, with digital technology-based businesses now accounting for over

half of KOMSCO's annual revenues of KRW 450 billion (\$330.39 million).

## Peruri: balancing tradition and innovation

Perum Peruri (Peruri), Indonesia's state-owned security printer and mint, provides another case study. Founded in 1971, Peruri was initially responsible for printing the nation's banknotes and other secure documents. However, with the advent of digital technology, Peruri recognised the need to adapt to remain relevant.

Peruri's digital transformation began in earnest in 2019 when it became an electronic certification provider under the Ministry of Communication and Information. This marked the start of its journey from traditional security printing enterprise to creator of a trusted digital ecosystem.

Today, Peruri offers a range of digital security products, including e-stamps, product authenticity codes, and e-passports. As a result, its revenue from digital products has surged by over 600%, driven by an expanding customer base across various sectors, including government agencies and state-owned enterprises. Last year, sales were INR 3.9 trillion (\$ 261.9 million), up 21.5% on the previous year.

Initiatives like the Peruri Sandbox, a platform for digital innovators to experiment and share ideas, further demonstrate Peruri's commitment to innovation.

Despite its digital advancements, Peruri has not abandoned its roots. The company remains a key player in traditional security printing, particularly in producing banknotes and passports in Indonesia and internationally.

## Embracing digital

The evolution of KOMSCO and Peruri underscores a broader trend among state security printers, and not just in Asia. These institutions are not merely reacting to the decline in cash usage; they are proactively redefining their roles in the global economy. By leveraging their expertise in security and authentication, they are well-positioned to become leaders in the digital landscape.

However, this transition has its challenges. Balancing legacy operations with the demands of digital innovation requires careful planning and significant investment in new technologies.

In this new landscape, the future of state security printers lies not just in their ability to produce physical currency but in their capacity to secure the digital economy. By embracing this shift and investing in emerging technologies, these institutions can ensure their continued relevance and play a pivotal role in shaping the future of global finance.

# Authentix – Positioned as a Multi Service Solutions Provider for Currency and Beyond

**Last month, the uncertainty over the future of the authentication business of Meta Materials was resolved by the acquisition of its assets by Authentix. This is the latest in a string of acquisitions that has seen Authentix grow from its early days as a developer of taggants for fuel integrity programmes to a full service and solutions provider to the banknote industry of covert technologies, sensors, overt features, security print and design.**

Currency News™ spoke to Kevin McKenna, CEO of Authentix, about the company's history, capabilities and strategy for consolidating and expanding its position in the currency and other sectors.



**Q:** *First of all, can you give some personal background?*

**A:** I started my career as an officer in the US Army, where I served for seven years as a helicopter pilot. I entered the civilian workforce in 1999, with IBM Global Services as a business development professional. I left IBM in 2003 and served in a variety of progressive leadership roles in technology, security, and risk management sectors. In 2012, I left HID Global as VP of Government ID for the Americas and joined Authentix. I served in a variety of executive positions at Authentix prior to becoming CEO in May 2018.

**Q:** *And now some background to Authentix?*

**A:** Authentix has a rich history that began in the 1990s. It was initially formed as Biocode, which became independent from Royal Dutch Shell in 1992. In 1996, Isotag was formed by acquiring technology developed by Los Alamos National Labs in the US. In November 2003, Authentix was officially established through the merger of Isotag and Biocode. The early 2000s saw additional acquisitions to augment Authentix's technology portfolio, especially in security ink and packaging expertise. In 2008, Authentix was purchased by

an investment group led by The Carlyle Group and JH Whitney, Inc, which enabled the company to continue its growth strategy. In September 2017, Authentix was acquired by Bluewater, a global private equity firm specialising in energy transition and industrial supply chains, further solidifying its position as a leader in authentication solutions.

Since the Bluewater acquisition, Authentix has made five acquisitions to strengthen its authentication and information systems portfolio to serve governments, central banks, and commercial owners.

We are headquartered in Texas, and today there are over 575 Authentix employees serving our customers on six continents to ensure the integrity of products and global commerce.

**Q:** *With reference to those acquisitions, what were they and what was/is the strategy behind them?*

**A:** They include Security Print Solutions in 2019, Traceless Security (a former division of Kodak) in 2020, Strategic IP Information (SIPI online brand protection) in 2021, Royal Joh Enschedé in 2023, and this most recent acquisition of the assets of Nanotech Security Corp in July 2024.

Our approach to these acquisitions has consistently been guided by three main objectives:

1. Increasing our clients' access to an expanding technology offering in the authentication and security printing industry
2. Bringing the industry's top technical and business development experts onto the Authentix technical and sales consultation teams, and
3. Diversifying our business and growing our market share and venturing into new markets and geographies.

**Q:** *What percentage of your business is derived from banknotes versus the other sectors in which you operate (fuel integrity, tax stamps, brand protection, others)?*

**A:** As you know, Authentix is a private company and does not publicly disclose any specific financial details. However, what I can tell you is we have a well-

diversified business in physical brand protection, online and digital brand protection, high security document printing, branded fuel integrity, government fuel protection programs, government fiscal marking and excise tax optimization, and our currency and banknote business with major central banks.

In the currency and banknote sector, we hold significant market share with a diversified offering of high-speed authentication and fitness sensors, multiple overt and covert authentication features for banknotes, and partnerships with other complementary providers for combined technology solutions as well.

**Q:** *What specifically is your offering to currency issuers? Can you describe your portfolio?*

**A:** We have a strong and diversified offering in the currency business.

Jewel™, for example, is our Level 3 covert authentication solution, which includes customizable, signature based taggant materials, Jewel high speed sensors for used note and single note inspection, and online and offline QC systems. Jewel can be added into paper, polymer or composite substrates or applied by several different printing methods.

Our GemVision™ high speed imaging sensors are built upon the new Common Detection Interface 2 (CDI2) standard, first released in 2016 by the European Central Bank in collaboration with the US Federal Reserve. CDI2 was created to standardize the integration of sensors onto high speed sorters with a particular focus on the requirements for the hardware responsible for determining note fitness.

And we have a strong lineup of overt solutions based upon next generation nano optics for currency and other lines of business.

They include QUANTUM® stripe, launched last year, which offers motion and colour change based on nano-structures, ie. without the need for inks or lenses. We also offer QUANTUM® thread.

Another product is LumaChrome®, which is a colour shift feature – similar to optically variable ink but without the ink since, again, it is based on nano-structures within the film.

LiveOptik™ is more of a traditional optically variable device (OVD), which looks like a hologram but, again, isn't. It offers both colour shift and motion effects.

We also offer Nano® protect and PICO™ secure.

Additionally, we offer specialized banknote design services drawing on the extensive knowledge and history of Royal Joh Enschedé in the Netherlands, which boasts centuries of experience in secure banknote design and printing.



**Q:** *How do you market your products for currency? Do you sell/work directly with end users (ie. central banks) versus integrators (ie. printers) versus feature or substrate suppliers?*

**A:** We work directly with many central banks around the world. When it makes sense for the benefit of the currency issuer, we also have worked with selected integrators and partners on particular projects.

**Q:** *Going back to CDI2, to what extent is this a gamechanger in the currency business?*

**A:** As noted, the Common Detector Interface 2 (CDI2) is a standard for banknote sorting machines and detectors, set by the US Federal Reserve and European Central Bank. It enables faster and more accurate detection of banknote features and fitness. It also provides central banks with direct control regarding how their notes are sorted and provides them unprecedented access to the data that is behind the fitness determination.

In 2018, Authentix was contracted by the Federal Reserve Financial Services to design and manufacture CDI2 compliant detectors, including a Camera System and Fitness solution. Authentix, with its main partner Boulder Imaging, Inc, a machine vision and inspection company, has delivered the project on time. We are already manufacturing CDI2 sensor production units, and they will be rolled out over the next several years, dependent on the Fed's larger rollout schedule and upgrades to sorting equipment and facilities.

The CDI2 standard gives more access to banknote data and images during high-speed processing. The standard also allows central banks to choose their detectors from multiple suppliers. The CDI2 standard is expected to be adopted by most central banks in the next few years and will provide more control and flexibility for banknote processing.

The CDI2 compliant detectors from Authentix will also improve the efficiency and longevity of banknotes by making smarter sorting decisions. This helps to reduce the cost and carbon footprint of cash by keeping more notes in circulation.

**Q:** *Moving specifically to Meta Materials now, or rather, Nanotech, what attracted you in particular about the company (other than the price!)?*

**A:** We had already become familiar with the technology of Nanotech Security Corp (NSC) prior to its acquisition by Meta Materials in 2021 and found this nano optic technology platform to be quite impressive. We had previously (and recently) worked with NSC in technology partnership development projects and potential integration opportunities in both

currency and brand protection prior to our acquisition of its assets last month.

**Q:** *Do you feel offering physical (overt) features alongside your existing portfolio is important for the company going forward?*

**A:** Yes, Authentix is a full turnkey solution provider in all of the markets we serve. Bringing in the next generation of nano optic overt technology continues to put us as the leader in technology innovation for the currency and brand protection markets.

**Q:** *How will you be branding and integrating the company going forward?*

**A:** All communication and product-related matters will be transacted under the overarching Authentix brand. This approach ensures a unified and cohesive brand identity, qualifications, experience, and simplifies communication by reinforcing our market position as a comprehensive provider of innovative authentication solutions.

It has been our strategy for all our acquisitions, unless there is a very good reason not to. The name Royal Joh Enschede has been retained, for example, because of the strength of the name in the currency world and its 300-plus years of history.

**Q:** *Are there opportunities to offer features that combine NSC's technology with that of Authentix? If so, what and how?*

**A:** Yes, the integration of NSC's nano optic technology capabilities into the wider Authentix business perfectly complements the organization's strategic focus on bringing the most innovative security solutions to the industry. The acquired legacy of expertise in nano optics and colour-shifting materials offers advanced Level 1 security features that are critical for anti-counterfeiting measures. By integrating technologies such as QUANTUM stripe, LumaChrome, and LiveOptik to Authentix's wider security portfolio, we can materially enhance both the visual and covert security features of banknotes, ensuring the continued success of our customers and maintaining their confidence and trust.

Also, one of many distinguishing capabilities of our fitness sensor lineup is the ability to detect and assess the fitness level of Level 1 features. The novel optical responses of features within the acquired nano optic platform are well suited for such detection and robust authentication when combined with our high-speed sensor capabilities.

**Q:** *What do you see as your key strengths/USPs in the market?*

**A:** Our commitment to making our customers successful, part of which is bringing together the right technology for their needs, whether it's from Authentix or not. We have built or acquired significant expertise over the last 30 years and truly

understand what our customers want.

**Q:** *You mentioned earlier how your CDI2-compliant detectors will help reduce the costs and carbon footprint of cash. Looking at sustainability more generally, how important is this in your business.?*

**A:** Very. Not least because we are owned by Bluewater, who are leaders in energy efficiency, decarbonisation, digitalisation and security. We have detailed ESG policies and reports, and are working across all areas of the E, the S and the G. Regarding the 'E', the environment, we are actively working with national governments and commercial companies to reduce toxic pollutants that harm air quality and contribute to climate change. Our national fuel integrity programs, for example, use clean, non-halogen and metal free markers to authenticate product, resulting in up to a 30% improvement in national air quality due to elimination of illicit and toxic fuel adulterants.

Maintaining our system for environmental stewardship including responsible waste reduction and proper hazardous waste removal is in accordance with the Texas Commission on Environmental Quality, and we also have a Diminishing Manufacturing Sources and Material Shortages Mitigation Policy for our supply chain.

We are regularly improving facilities, processes, and supply chains to manage adverse ecological impacts while providing innovative solutions for our customers to accomplish similar goals. Our UK-based secure print facilities are now powered by 100% renewable energy sources for electricity through biomass and wind power. These sites plan to achieve carbon neutrality by 2030 with contributions to carbon offsetting schemes via Carbon Neutral Britain and Forest Carbon.

**Q:** *Given the move to digitisation, and your strengths in this area, isn't buying a materials company a retrograde step?*

**A:** It's true we have a strong and growing business in secure track and trace solutions, digital consumer engagement and authentication, and a growing and dedicated business division devoted to protecting online brands and licensed goods in the e-commerce marketplaces. In that respect, we are developing and will continue to acquire additional digital technology platforms where appropriate. However, we expect to continue growing our business protecting physically merchandised products such as pharmaceuticals, spirits, wine, electronics, apparel and footwear, luxury goods, banknotes, fuels, foods, and highly taxed consumer products where governments need physical tracking and authentication solutions for excise control.

## AI: a Practical Bootcamp

Currency Research has launched the AI Bootcamp, facilitated by The Centre for Alternative Finance at the University of Cambridge Judge Business School, which will explore AI tools and strategies for revolutionising supervisory innovation, with practical insights and a tailored roadmap for AI adoption.

Key topics include

- AI fundamentals: machine learning, natural language processing, and more
- Ethical considerations and public-private partnerships in AI
- Practical case study: Python programming and AI data analysis
- Designing and optimizing AI implementations
- Developing strategies for AI adoption and digital transformation.

This session will be of interest to organisations seeking to understand the implications, benefits and potential challenges the AI revolution could provide to their sector as well as bring attendees up to speed on areas of global debate in the AI currently.

This AI Bootcamp series is offered at the following Currency Research events:

- In London, Wednesday, September 25th during Payments, Innovation & Technology Week
- In New Orleans, Monday, November 4th during the Americas Cash Cycle & Payments Seminar
- In Cape Town, Tuesday, November 26th during the EMEA Cash Cycle (ICCOS) & Payments Seminar

Participation in the workshop is complimentary for those registering for any one of the above events or 100£/\$/€ for those wanting to attend the workshop only.

## ... Currency and Beyond

As the global population has grown, the need for these physical products has also grown. The branded and premium products in these sectors, as well as currency, will continue be targets of fraud and can wreak havoc on market share, safety, consumer loyalty, and public trust.

Having a full complement of solution choices increases options available to our clients for protecting different products, market sectors, and geographies using a multitude of technology solutions. We feel this is the best way to ensure our customers' success.

**Q:** *Crane has recently bought OpSec, diversifying its product offerings in both currency and product protection. Did this influence your decision to buy Meta? Is this diversification trend market or product driven?*

**A:** We acquired the assets of NSC to support our commitment to innovation, growth, and making our customers successful. It will strengthen our position as a global leader in authentication solutions and open new opportunities for us to serve our existing and potential customers.

The technologies we have acquired are at the cutting edge of innovation, with a wide range of applications across various industries. With respect to the currency sector, we have acquired the world's first fully animated nano optic banknote security product (ie. QUANTUM). This product offers a unique combination of visual cues that can help central banks and governments protect their currencies from counterfeiting and enhance public trust.

**Q:** *To what extent do you need to become a software business, given the sectors you are in?*

**A:** Authentix is already a software solutions provider in several markets including fuel integrity, fuel quality, brand protection, and tax stamp programs. In fact, in 2002, Authentix developed one of the world's first SaaS based web platforms for product sampling, giving our customers direct access to the platform with real-time reports and results.

Since then, we've developed multiple customer web-based software platforms such as AXIS® (Fuel Marking and Supply Chain database), DigiTrax™ (Brand Protection Track and Trace), QualiTrax™ (Portable Fuel Quality Machine Learning Solution), TransAct™ (National Turnkey Excise Tax and Production Control solution), and BrandTrax™ (online brand and license protection and enforcement solution).

Additionally, we've developed multiple mobile smartphone applications that interface directly with our software and other field devices. We've always known that we live in a data driven world and the insights provided by our software and data reporting improves our

customers' decision making and reaction time to detect and solve key problems.

**Q:** *Where do you see the growth for the company coming from – currency or product/brand?*

**A:** We see strong growth opportunities across governments, central banks, commercial customers. Our customers in these sectors are faced with increasing complexity in supply chains due to globalization and growth of digital channels and tools that threaten the integrity of products and commerce.

**Q:** *What do you think will be the key developments in currency over the next 10 years, and in your particular area?*

**A:** Over the next 10 years, the currency sector is likely to experience significant developments driven by technological advancements and evolving market needs and threats. We expect that key developments may include:

- **Enhanced security features:** as counterfeiting techniques become more sophisticated, there will be a continuous need for innovative security features that are difficult to replicate, yet easy to recognize and authenticate. This could involve advanced materials, unique identifiers, and integration of digital technologies.

- **Digital currency integration:** with the rise of digital transactions, there may be a greater push towards integrating physical currency with digital platforms, possibly leading to hybrid solutions that bridge the gap between cash and digital payments.

- **Sustainability:** environmental concerns may drive the development of more sustainable materials for currency production, reducing the ecological footprint of banknotes and coins. This will also include the continuation of the current trend towards smaller banknotes, which will further increase the need for security features with robust aesthetic and functional properties.

- **Globalization of currency security:**

as the global economy becomes more interconnected, there may be efforts to standardize security features across different currencies to facilitate easier verification and reduce fraud on an international scale.

We believe that our portfolio is well positioned and ready to fully support the needs of central banks over the next 10 years.

With our expertise spanning overt, covert, and digital authentication solutions offerings, we look to play a pivotal role in these developments, leveraging technological capabilities to meet the evolving demands of the currency market.

The company's history of innovation and strategic partnerships positions it well to contribute to and benefit from these future trends.



# Escher® Portraits – Advancing Digital 3D Portrait Design

**Intaglio is a quintessential feature for high-security designs. Its unique look and tactility make it easy to authenticate banknotes and identity documents within seconds.**

Traditionally, intaglio portraits are hand-drawn interpretations of photographs or paintings. By contrast, the Escher® method, developed by Orell Füssli, uses three-dimensional (3D) models for intaglio designs. According to the company, this unlocks new possibilities for design teams and issuing authorities while posing significant challenges for counterfeiters.

The technique was presented at the recent Hight Security Printing (HSP) EMEA and Latin America conferences in Sofia and Santiago in March and June this year respectively.

## The Escher method

The Escher method explores different 3D intaglio workflows and methodologies within the context of banknote design and production. It takes its name from Maurits Cornelis Escher (1898-1972), a Dutch graphic artist renowned for his woodcuts and lithographs inspired by mathematics.

To date, Orell Füssli has produced two house notes, exploring two kinds of images. One is a 3D model designed by an artist, the other an object digitised by a 3D scanner. All digital 3D objects, from scans to computer-generated models, consist of 3D polygon meshes and 2D photographic textures, and both 3D images on the house notes are compatible with the Escher method. Using a 3D model or a 3D scan is entirely up to the design team and the central bank.

## A robust measure against counterfeiters

The base material for Escher presents challenges for counterfeiters at every step, says Orell Füssli. The 3D model provides the first level of protection. Extracting 3D data from a final Escher design is impossible. To begin with, the counterfeiter would need to remould a 3D model with the identical 3D modulation, lighting, head posture and rotation as the targeted design – a futile task.

The second level of protection is provided by Escher’s versatility. With Escher, designers can create a portrait that takes on a life of its own and adjust its posture, rotation, and lighting within seconds. Each adjustment increases the difference between an Escher portrait and its reference image – an excellent anti-counterfeit measure.

The strikingly lifelike appearance of Escher portraits further help deter counterfeiting. Re-drawing an Escher portrait is an unforgiving process. With multiple software programs, designers map security screens to a 3D model’s geometry and lighting. The resulting security pattern is too intricate and elaborate for a scanner or counterfeiter to replicate accurately. Slight deviations in line thickness can be unnoticeable in 2D replicas but are striking in 3D. Any misplaced pixel breaks the 3D effect and irritates even the untrained eye.

## Choosing a complex object

Skulls, although morbid, present exciting challenges during the scanning and modelling processes, says the company. They have many parts (large and small), different surface textures, and a complex interior that generates many shadows. Orell Füssli leaned into these challenges and worked with a skull to ensure the Escher method would be compatible with any object.

With the help of test prints, Orell Füssli’s design team selected two images for the first generation of Escher house notes: a ram skull (a 3D scan) and a cow skull (a 3D artist-generated, digital model).

The house design is filled with visual nods to 3D space, from the isometric UV motif to the intaglio security screens.

## The human side of Escher

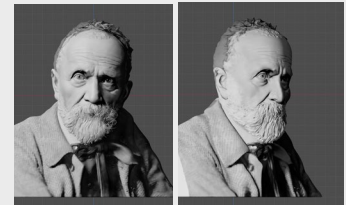
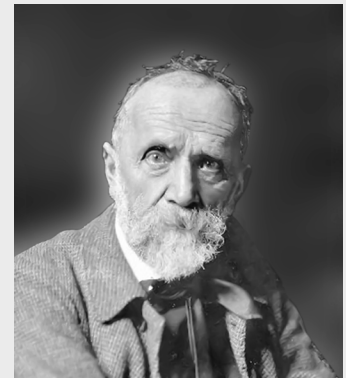
Portraits are commonly used in banknote designs. With the Escher method, designers can turn a single photograph into a 3D model and rotate, tilt, and illuminate it in multiple ways.

Working in 3D offers design teams a lot of freedom. Designers can relight and pose portraits quickly without having to recreate a portrait or start from scratch. Any visual setting, from lighting and head posture to zoom and perspective, can be recreated and applied identically across a series of portraits. The resulting portraits, says Orell Füssli, are precise, lifelike and, above all, cohesive.

The theme of the second generation of Escher notes is Albert Samuel Anker (1831-1910), a famous 19th-century Swiss painter. The banknote designers captured the versatility of Escher by featuring two different head postures on each note and printing one portrait in intaglio and the other in offset.



The first generation of Escher house notes. The cow skull (top), printed with intaglio, is a 3D model created by an artist. The ram skull (below), printed with intaglio is a 3D scan free from any artistic styling or interpretation.



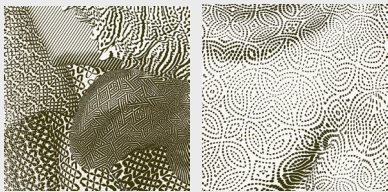
With the Escher method, designers can turn a single reference photograph into a digital 3D model. The image on the left is a photograph of Albert Samuel Anker. The screenshots of a 3D model made from his photograph are on the right, under different light conditions.



The second generation of Escher house notes. Different head postures are featured on both notes.

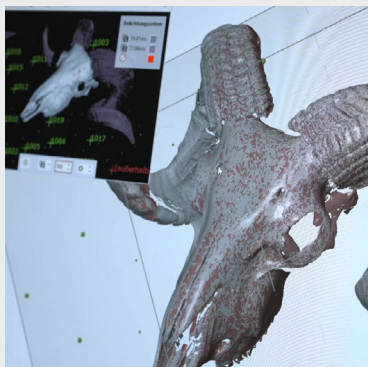


## ... Escher® Portraits



Close-ups of the security patterns in the portrait (intaglio). The designers combined distinct, refined security patterns to create more contrast within the portrait. Meshing different security patterns creates incredible intricacy and complexity and additional counterfeit protection.

With the Escher method, designers can apply multiple security screens to a portrait according to its lighting and 3D modulation. The results almost protrude from the banknote. Tilting features, such as latent images, can be hidden in an intaglio design to offer additional security. The realism is outstanding, and the results comply with the highest security printing standards.



According to Orell Füssli, Escher is the 'Swiss army knife' of security design, offering a seamless and efficient workflow that results in cohesive, striking, and highly secure designs. No additional equipment is needed, as the workflow is compatible with existing 3D and security software. Plate making and production follow the standard workflows of Orell Füssli.

'With the ability to increase collaboration between designers and issuing authorities, Escher is the perfect method for creating secure banknotes and identity documents with stunning 3D intaglio and offset designs', it concluded. 'By offering consistency, flexibility, and ease of use, Escher is an indispensable asset for designers and issuing authorities looking to enhance the security of banknotes and identity documents.'

## Two Seminars Drive Discussion and Debate on the Future of Cash and Payments

The Cash Cycle Seminars (ICCOS) are annual events from Currency Research (CR) that bring global knowledge to regional markets in the Americas, Asia, and EMEA.

In 2023, acknowledging the expanding role of payments, CR introduced payments topics to the Americas agenda. For 2024, it will continue this focus, adding a dedicated payments track themed 'Payments Trends Across Africa' at the EMEA Cash Cycle & Payments Seminar.

### Americas Seminar

The 2024 Americas Cash Cycle & Payments Seminar is set for 4-7 November in New Orleans. It kicks off with two programmes on the Monday:

- **LatAm Day:** a full day dedicated to exploring the Latin American market with discussions on the Behavior of Cash, Evolution & Growth of Retail, Innovation in Cash Handling, Banknote Forgery, Cryptocurrencies and more.
- **AI for Supervisory Innovation Bootcamp:** an intensive afternoon session facilitated by the Cambridge SupTech Lab (see page 10).

Building on this, the seminar's agenda covers:

- Regional Trends in the Cash Cycle and Payment Methods
- Advancements in CashTech: Innovation in Cash Handling at Central and Commercial Banks
- Where's My Cash? Cash Visibility Implementation and The Path Forward
- Digital Currency and Digital Asset Use Cases
- Universal Access to Payments: Financial Inclusion and the Importance of Payment Choice
- The Changing Payment Experience: Retailer Round Table
- US Currency Design Updates and Counterfeit Identification
- AI in PayTech: Efficiency, Risks, Ethics, and Sustainability
- Cash Cycle Innovations: From Recyclers to Cash Center Consolidations, What is Driving the Cash Cycle Forward?

The seminar finishes on Thursday with a tour of the Federal Reserve New Orleans Branch Cash Operations.

### EMEA Seminar

The programme and planning for the EMEA Cash Cycle & Payments Seminar (ICCOS) - 25-27 November in Cape Town and co-hosted by the South African Reserve Bank (SARB) - is already well-advanced.

This year's event will feature three pre-seminar workshops.

First is the 'Central Bank Summit', for which SARB has developed a series of discussion topics of key interest for open discussion between attending central banks, including:

- Future Skills
- Data Visibility Across the Value Chain
- Enhancing Sustainability in Cash Management: From Procurement to End-of-Life
- The Future of Cash
- The Implications of the new BnEI Standard for Central Banks (provided by the Banknote Ethics Initiative).

Second is 'Currency Training', by the Federal Reserve Currency Education Program, providing a comprehensive training session on US currency. Conducted in partnership with the US Secret Service, the workshop will include practical tips for authenticating currency, insights on current counterfeit trends, currency education materials, and guidance on how to report suspected counterfeit banknotes.

The third workshop, 'Cash Forecasting: Unlocking the Future of Cash – Navigating Trends and Challenges in a More Uncertain 2030 World', will use the strategic foresight scenario method to examine how the intersections of a more crisis-prone environment, economic volatility, and cyber risks, together with evolving consumers' expectations and a fast-moving digital payments landscape, will likely reshape cash uses and perceptions.

Following the pre-event workshops, the seminar will dive into a wide array of topics that are shaping the landscape of cash and payment systems, such as:

- Cash & Payment Trends; Local, Regional, Global
- Cash Cycle Efficiency & Sustainability
- Contingency & Resilience
- Modernizing the Cash Cycle
- The Rise of FinTechs and AI
- Instant Payments
- Financial Inclusion
- Digital Assets & Tokenisation
- Innovative Technology.

The event will conclude with optional tours of SARB's Cape Town cash centre, the Cape Mint's production facility, and a wine tasting lunch in the Cape Winelands.

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# All Set for the Coin Conference 2024

**The Coin Conference takes place in Lisbon 28-30 October, against a backdrop of considerable change (no pun intended) in the world of circulating coins. Not surprisingly, the agenda is busy and full of substance, reflecting the key challenges, and opportunities, that face issuers and producers.**

The conference starts with two workshops.

## That was then, this is now

The first – ‘That was Then, This is Now – the New Priorities for Coin Issuers’ – is for central banks and coin issuers. It is a continuation of the workshop held at the 2017 Coin Conference in 2017, where the then MDC Technical Committee Customer Taskforce led by Dieter Merkle of Schuler brought together national authorities (central banks and finance ministries/ treasury departments) to discuss and identify their key priorities for circulating coins. Participants from 23 different countries were asked to rank these priorities in terms of public perception, seigniorage, security, trust, attractiveness, innovation and obligation – with a survey at the start and end of the workshop resulting in a surprising shift of views.

This workshop will examine what has happened since then, and whether the global pandemic, geopolitical and economic turmoil, and the rise of digital payments have changed the perception and priorities of national authorities towards cash and coins? If so how, and to what? And what does this mean for issue departments, producers and others in the cash cycle?

The Taskforce (now under the auspices of the International Mint Industry Association and still led by Dieter Merkle) will revisit the attributes of coins, involving national authorities in discussion and debate about the importance of coins and ensuring that their changing priorities (if, indeed, these have changed) are understood and acted upon by all those in the coin cycle.

The second workshop - Commemorative Coins for an International and a Domestic Market’ – will be led by Ursula Kampmann of FAMA and CoinsWeekly.

There is a large and growing market for commemorative coins both domestically and internationally that not only celebrate cultural attributes, special events and achievements, but also anchor the value of coins in public consciousness and generate revenues for issuing authorities and mints. At least, that’s the theory. But whilst some issues are spectacular successes, others flop. To avoid this, it is essential to choose themes and motifs that will resonate with collectors. But how to do this?

This workshop is aimed at central banks and mints that are considering producing and distributing commemorative coins commercially. It is about the rules they need to know to enter an international market. In particular, when it comes to the choice of themes and motifs, different markets have different preferences and, above all, different taboos.

In this workshop, participants will work together to identify the most important markets and connect them with the most popular motifs there, learning about how the collectors market works, how to avoid intercultural sensitivities and differences, new techniques for commemorative coins, and what it takes to offer coins that are interesting to collectors.

## Programme sessions

The main programme, taking place on Tuesday 29 and Wednesday 30 October, will be formally opened by the Bank of Portugal and is divided into seven sessions:

- Setting the Scene – Cash and Coins
- Circulation – the Central Bank and Issuer Perspective
- Circulation – the Market Perspective
- Sustainability
- Production, Inspection, Authentication and Innovation (Parts 1 and 2)
- Around the World in 80 Minutes (case studies).

The agenda will conclude with a panel discussion – ‘Coins in 2035 – What Will the Industry Look Like?’ – led by Simon Lake, formerly of the Royal Mint and now an advisor to the Mint of Poland.

The first session, ‘Setting the Scene’, will comprise a series of presentations on The Circulating Coin Landscape (Currency Publications); Cash, Cryptos, CBDC: What is Money? (Monnaie de Paris); Analysis of Legislation in Favour of Cash (International Mint Industry Association); Coin Usage in Countries with High Inflation (FMA Secure); and Recent Coin and Currency Matters: A European Commission Perspective.

## Challenges of circulation

Given that one of the most urgent issues for central banks and treasuries as regards circulating coins is getting them to circulate effectively once issued, rather than

disappearing from circulation, leading to artificial shortages and high replacement costs, two sessions will be dedicated to Circulation, from the issuer and market perspectives respectively. The former session will hear from the Federal Reserve, European Commission, Bank of Portugal and Bangko Sentral ng Pilipinas. The latter will hear from companies involved in technologies and programmes to facilitate coin recirculation and repatriation, including Brinks, Crane Payment Innovations, Global Coin Solutions, Leftover Currency and Proditex.

The theme of circulation, aligned to recycling and end of life coins, continues into the next session on Sustainability, with speakers from the UK’s CIEC, Arrandene, M-One and the European Mint Directors Working Group, who will give an update on a research study they are conducting on the environmental impact of cash versus digital payments.

Participants will also hear from the Royal Canadian Mint, Schuler, Carveco, Spaleck, ACSYS Lasertechnik, IQ Structures, Inorcoat, Mint of Poland and INCM, in what promise to be two fascinating sessions on production and innovation, with some of the topics being presented for the first time.

The penultimate session – Around the World in 80 Minutes – will hear about coin programmes and initiatives in Pakistan, Austria, Spain, Canada and Morocco.

Following the conference, there will be a tour (for central banks and coin issuers) of the Portuguese Mint INCM, the honorary sponsors of the conference, along with Valora, the Portuguese state banknote printers. Those unable to take part in the tour will still have the opportunity to visit INCM earlier in the programme, as they are hosting the welcome reception at the start of the conference.

Other events include the presentation of the IACA Excellence in Currency Awards 2024 (voting on which will commence shortly), a reception and dinner on the evening of 29 October and, following the conclusion of proceedings on 30 October, the customary Coin Conference Football Match, sponsored by M.One, to which all are invited (as players and/or spectators).

The Coin Conference focuses specifically on circulating coins as part of countries’ currency strategies and normally attracts an audience of around 200+, divided equally between issuers (central banks), mints and suppliers. With the current focus on circulation and sustainability, and the recent changes among suppliers, this conference comes at a critical time for issuers and producers alike in debating the future of circulating coins.

[thecoinconference.com](https://thecoinconference.com)



# A New Series of Bank of Japan Notes

■ By Eriko Yaya, Currency Issue Department, Bank of Japan

On 3 July 2024, the Bank of Japan (BOJ) started issuing a new series of banknotes consisting of 10,000 yen, 5,000 yen, and 1,000 yen notes: a historic moment in Japan, as this is the first time in 20 years that a new series of banknotes has been introduced.



All three denominations were introduced on the same day. The front of the notes features portraits of historical figures who shaped modern Japan: Eiichi Shibusawa, a prominent business leader and entrepreneur, on the 10,000 yen note; Umeko Tsuda, a pioneer in higher education for women in Japan, on the 5,000 yen note; and Shibusaburo Kitasato, a renowned microbiologist, on the 1,000 yen note.

The back of the notes features aspects of Japan's culture and nature, with an illustration of the Tokyo Station Marunouchi Building on the 10,000 yen note; Japanese wisteria flowers, or *fuyji*, on the 5,000 yen note; and 'Under the Great Wave off Kanagawa', an iconic *ukiyo-e* print by Katsushika Hokusai on the 1,000 yen note (*ukiyo-e* is a genre of Japanese woodblock print that flourished from the 17th to 19th century).

The notes come with the latest security features, including 3-D holograms that rotate when tilted, and high-definition watermark patterns embedded

in the background of the portrait watermarks.

Efforts have also been made to enhance the universal design of the notes, a design that caters for all people. For example, the face value of the notes is displayed in Arabic numerals larger than their corresponding Japanese *kanji* characters so that their denominations can be easily distinguished by all people, including foreign nationals.

Despite the trend toward cashless payments, the new series of banknotes was introduced because cash is a secure means of payment that can be used by anyone, anywhere, and at any time, and it will continue to play a significant role. Additionally, advances in printing technology require more stringent anti-counterfeiting measures.

The existing series of banknotes remain valid after the introduction of the new series. For more information on our new banknote series, please visit the BOJ's website ([https://www.boj.or.jp/en/note\\_tfjgs/note/n\\_note/index.htm](https://www.boj.or.jp/en/note_tfjgs/note/n_note/index.htm)).

# Note and Coin News

## In Other News...

■ Bank Al-Maghrib has issued new 50 dirham banknote, the third in its new series. The new banknote, which highlights Morocco's sustainable development through the national strategy for clean energy and the protection of natural resources, is understood to be the first note to feature a TRILUMIC® thread from Hueck Folien.

In common with the new 100 and 200 dirhams issued last year, the front of the note includes a portrait of King Mohammed VI and the Kingdom's coat-of-arms, along with an architectural motif inspired by Moroccan doors, and a stylised view of the Ouzoud Waterfalls.

The back of the banknote includes vignettes of the Noor Solar Station in Ouarzazate, wind turbines, the Ouirgane dam, and the Agadir seawater desalination plant.

The new banknote incorporates a series of advanced security features, including the TRIMULIC windowed thread with a dynamic blue-to-green colour shift, a metallised five-pointed star, DH (dirham), and 50.

TRIMULIC, developed in conjunction with the Banque de France, was launched in 2019 for stripes. In 2021, the product range was extended to threads. It combines Hueck Folien's ColorSwitch™ technology with proprietary hidden halftone images that create brilliant RGB true-colour images when exposed to UV light.

Other features include a watermark of the King with electrotype of the denomination numeral, two raised five pointed stars for the visually-impaired and, on the reverse, an iridescent stripe.

The new 50 dirham note was designed and produced by Morocco's printworks, Dar As-Sikkah.



■ The Central Bank of Azerbaijan (CBA) is conducting a public survey to determine the concept for the next generation of the country's currency, the manat.

According to a statement from the CBA, this not only involves updating the banknotes to reflect national values and historical and cultural heritage, but also ensuring their alignment with current national priorities and challenges.



Citizens participating in the CBA's online survey – entitled Concept of National Currency of the New Generation – have until the beginning of October to share their suggestions.

The manat comprises seven denominations, most of which have been recently upgraded with new security features. However, the overall designs and themes have remained the same since 2005.

■ The Central Bank of Egypt is set to issue a new low denomination 2 Egyptian pound (EGP) note in 2024/25, subject to final approval from its Board and the government. Banknotes are currently in denominations of EGP 1, 5, 10, 20, 50, 100 and 200. In the last year, the Bank has introduced new EGP 20 and 10 notes on polymer.

According to the Bank, the rationale for the new low value note is to address the need for smaller denominations and forms part of its clean note policy. The most commonly used notes are in denominations of EGP 20 and upwards.

■ The Central Bank of Venezuela has issued two new high denomination notes – the 200 and 500 bolivares digitales (VED) – as part of the government's ongoing efforts to control hyperinflation in the country, which has eroded the value of the currency to cents in international terms.

The new notes will circulate alongside the existing denominations of VED 1, 5, 10, 20, 50 and 100, issued as part of the country's latest redenomination in 2021.

This redenomination involved the removal of six zeroes and a change of name from bolivares soberanos (which, in turn, had replaced the bolivares fuertes in 2018). All the notes feature a portrait of the South American liberator and political leader Simon Bolivar on the front, and the Battle of Carabobo (which led to Venezuela's independence from Spain) on the reverse.

The new VED 200 and 500 feature three different portraits of Simon Bolivar on the front, and the Naval Battle of Lake Maracaibo, along with the General Rafael Urdaneta cable-stayed bridge at the end of the lake, on the reverse.

In keeping with the other notes in the series, they have a portrait orientation on the front, and a vertical orientation on the reverse.

■ Türkiye's Treasury has announced the introduction of a new high denomination 5 lira coin, featuring an eight-pointed Seljuk star motif and the 'Century of Türkiye' logo on the obverse and, as with the other coins in the series, the country's first president, Mustafa Kemal Atatürk, on the reverse.

The bimetallic coin will be the largest in the series, with a diameter of 28.15mm, a thickness of 1.7mm and a weight of 8.25g.

Commemorative 5 lira coins have been issued in the past, the most recent being in 2023, but this is the first circulating coin, and will co-circulate with the banknote of the same denomination.



■ The Eastern Caribbean Central Bank has launched a special \$50 commemorative banknote in honour of Grenada's 50th anniversary of independence. Grenada is one of the eight island countries that form the ECCB monetary union.

This new banknote, designed on De La Rue's SAFEGUARD® polymer substrate, is the latest addition to the all-polymer series that began in 2019, and follows on from the multiple award-winning ECCB \$2 note issued last December to celebrate the ECCB's 40th anniversary.



The new note features portraits of former prime ministers Eric Matthew Gairy and Maurice Bishop on the front and back respectively, paying homage to their pivotal roles in Grenada's history.

The security features, among others, include Enhanced GEMINI™, SPOTLIGHT™ and PUREIMAGE™. SPOTLIGHT is present in the holographic foil as a counter-rotating '5' and '0', while PUREIMAGE appears twice in the holographic design, on either side of the main window which features Grenada's coat of arms.

■ The Bank of Guatemala has unveiled the design of a new 1 quetzal note commemorating the 100th anniversary of the currency. It features a portrait of José María Orellana, who was President of Guatemala from 1921 to 1926 and oversaw the introduction of the quetzal. The note

will go into circulation in September and will be distinct from circulating notes, the lowest denomination of which is the 5 quetzales.

A commemorative silver coin with same face value will also be issued.

■ The Central Bank of Armenia has begun issuing new 5,000 and 10,000 dram banknotes, on the reverse of which the denomination numeral is printed in optically variable ink, in place of the intaglio print of the 2018 versions.

■ The UK's first £1 coins featuring King Charles III have entered circulation. Almost 3 million of the bimetallic coins have been issued to post offices and banks across the country.



The coins not only feature the new monarch's effigy, but have been redesigned to celebrate the King's love of the natural world. Each of the eight coins in the series (all but the 50p and £1 have yet to enter circulation) features a native species of flora or fauna on the reverse. In the case of the £1, it is a pair of bees. For the 50p it is an Atlantic Salmon.

'We know there'll be a 'buzz' of excitement amongst collectors and the public to get this special piece of history in their change', commented The Royal Mint on the new coin.

■ The Central Bank of Guyana has issued new 1,000 and 500 Guyanese dollar banknotes with upgraded security.

The \$1,000 features a RAPID® Vision micro-optics thread from Crane Currency, with a brown-to-green colour change and a pulsating image of a jaguar. It replaces the RAPID 6mm wide thread on its predecessor, which was issued in 2013.

The holographic stripe on the \$500, meanwhile, which dates back to 2011, has been replaced with a 10mm wide RollingStar® LEAD Pure stripe from Louisenthal, featuring a macaw and a magenta-to-green colour shift when tilted.



## ... In Other News

■ The State Bank of Pakistan has stated that one of the denominations in its new banknote series, due for introduction next year, will be produced on polymer. Depending on public acceptance, others could follow suit. A decision on the substrate and the designs will be made in December, and the new notes will be issued in a 'phased manner'.

The notes will be in denominations of Rs 10, 50, 100, 500, 1000 and 5,000.

The State Bank originally planned to issue two commemorative Rs 75 notes on polymer in 2022, marking the 75th anniversary of independence and the 75th

anniversary of its foundation, but the plans were shelved and the notes were printed on paper instead.

■ The National Bank of Ukraine is issuing modified hryvnia banknotes bearing the slogan of modern Ukraine – 'GLORY TO UKRAINE! GLORY TO THE HEROES!' – on the reverse to mark the 33rd anniversary of the country's independence.

The notes are being issued in two tranches – starting with the UAH 500 and 1,000 notes, followed by the UAH 50. Next year, revised UAH 20, 100 and 200 notes will be issued.

The modified banknotes will circulate as legal tender alongside corresponding denominations of previous years' issue, which will be gradually withdrawn as they wear out.



### Events

9–11 SEPTEMBER 2024

SECURITY DESIGNERS FORUM

Warsaw, Poland

securitydesignersforum.com

30 SEPTEMBER–3 OCTOBER 2024

GLOBAL CURRENCY FORUM

Muscat, Oman

globalcurrencyforum.com

28–30 OCTOBER 2024

THE COIN CONFERENCE

Lisbon, Portugal

thecoinconference.com

4–5 NOVEMBER 2024

THE AMERICAS CASH CYCLE & PAYMENTS SEMINAR

Louisiana, USA

currencyresearch.com

25–27 NOVEMBER 2024

THE EMEA CASH CYCLE SEMINAR

Cape Town, South Africa

currencyresearch.com

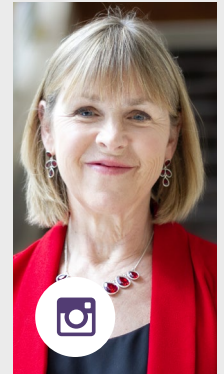
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**Contributors:** Chander Jeena, David Tidmarsh, Eriko Yaya.



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Currency Publications Ltd

2.4 The Beacon, Beaufront Park, Anick Road, Hexham, Northumberland, NE46 4TU, UK  
Tel +44 (0)1932 785 680 Email: [info@currency-news.com](mailto:info@currency-news.com)

