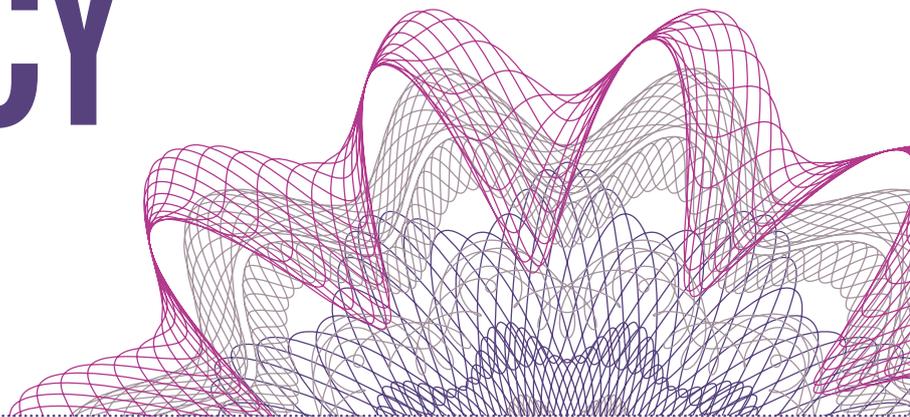


CURRENCY NEWS™

VOLUME 15 – NO 12 / DECEMBER 2017



A New Powerhouse for Cash as Crane Co Buys Crane & Co



Crane Co, a diversified manufacturer of highly engineered industrial products listed on the New York Stock Exchange, has signed an agreement to purchase Crane & Co Inc (Crane Currency) from private equity firm Lindsay Goldberg, members of the Crane family, and other shareholders, for \$800 million on a cash free and debt free basis.

The purchase is dependent on regulatory approvals and closing conditions. It will be financed through a combination of cash and additional debt. Closure is expected to take place during the first quarter of 2018.

Crane Currency is well-known in the currency industry as one of the leading banknote papermakers, printers and security feature suppliers, supplying over 50 central banks worldwide. Founded in 1801, it is headquartered in the US and is the exclusive supplier of paper for the US currency.

It has a paper mill in and a thread production facility in New England, and an advanced micro-optics facility (for the MOTION® security technology) in Georgia. In Europe, it has a printworks and mill at Tumba in Sweden and is in the process of building a new printworks in Malta, which will open early next year.

The company is expected to have sales for 2017 of approximately \$500 million, with adjusted EBITDA of \$94 million. Its compound annual growth rate in sales since 2002 has been 13%, compared with an equivalent growth rate worldwide in banknote production of 4.5%. Around one third of its sales are in the US, and two third from international markets.

Crane Co, which was founded in 1855, expects sales of \$2.8 billion in 2017 and has 11,000 employees around the world. It operates four business segments – Fluid Handling, Aerospace & Electronics, Engineered Materials and Payment & Merchandising Technologies.

It has expanded rapidly in the latter arena in recent years, through the acquisition of companies such as NRI (a German-based coin validation and dispensing equipment supplier), Cash Code (which specialises in niche applications for bill validation and dispensing devices), Telequip (which provides coin dispensing equipment) and Money Controls, which produces a range of payment solutions for coins and bills.

In 2013, Crane Co acquired MEI Conlux, its largest acquisition to date. MEI Conlux was a market leader in payment technologies for the transportation, gaming, retail, financial services, and vending markets, primarily providing bill and coin acceptors and recyclers, along with payment card acceptors, and the acquisition more than doubled the size of Crane Co's payment business. The purchase price was \$820 million.

The activities of what was then known as Crane Payment Solutions were merged with MEI Conlux to form Crane Payment Innovations, one of two divisions within the Payment & Merchandising Technologies segment.

Continued on page 16 >

Jamaica to Drop Low Value Coins

The Bank of Jamaica is dropping the 1, 10 and 25 cent coins in early 2018, after which they will no longer be legal tender (although the Bank will continue to redeem them indefinitely for face value). This will make the J\$1 the lowest coin denomination. The others are the J\$5, J\$10 and J\$20 coins.

The changes will affect cash transactions only – all electronic transactions will continue as before. All prices will be rounded up or down to the nearest dollar and the effect on inflation, says the Bank, should be negligible.

According to the Bank, the decision follows a review indicating that, between 2005 and 2016, there has been a drastic decline in the use of these coins. As a proportion of the demand for all coins in circulation, demand for the 25 cent declined from 11.1% to 1.6% over the period, and from 14.2% to 2% for the 10 cent. Demand for the one cent coins was almost zero.

Moreover, whereas there is a general problem with coin redemption in the country (ie. coins being issued but not circulating and returning to the Bank), this is particular marked in the case of the cent coins, with an average redemption rate of just 16%, compared with 52% for the higher value coins.

It is also costing more to make the coins than their face value (J\$1.73 for the one cent, J\$1.54 for the 10 cent and nearly J\$2 for the 25 cent).

It also costs more to produce the J\$1 coin than its face value (J\$2.30). However, says the Bank, since demand for this coin remains heavy, amounting to nearly 50% of all coin demand, it will be maintained, but the Bank is looking to redesign it in order to reduce its cost.

Headlines of 2017 That Was the Year That Was...

January

Innovia Group acquired by CCL Industries Inc; South Korea plans to go 'coinless'; Trinidad & Tobago drops one cent coins; Saudi Arabian Monetary Authority (SAMA) begins circulating its sixth issue banknotes and coins; Indonesia introduces latest series of banknotes and coins; FNMT gets ready for new paper mill.

February

European Commission (EC) proposes initiative to restrict cash payments; Sequana Capital announces IPO of Arjowiggins Security; ECB reports drop in counterfeits; Groep Heylen buys the Royal Dutch Mint; Loomis expands into Belgium with acquisition of Cobelguard CIT; ATMIA celebrates 20th anniversary; AGIS explains the hidden cost of cards.

March

Abu Dhabi opens new printworks; Prosegur floats cash business; Diebold-Nixdorf announces plans to close manufacturing facility near Budapest; African banks' pledge against counterfeiting; Reserve Bank of India permits field trials of polymer Rs 10 notes; Singapore proposes S\$18.50 limit for use of coins for payments; IBDA launches the World Banknote Project; Swiss National Bank makes the case for cash.

April

China set to become first country with central bank-issued digital currency; SMPCIL reports increased sales; Bank of England considers palm oil in future polymer notes; De La Rue beats profit forecast; record sales and a new structure for Giesecke & Devrient; De La Rue's Centre of Excellence opens in Malta; new 12-sided £1 coin for UK – the most secure in world; the new €50 begins circulating.

May

6 months on – the effects of India's demonetisation; ATMIA report predicts two billion adults worldwide live without a bank account; Australia opens new National Banknote site; Royal Canadian Mint (RCM) reports 15% increase in sales; Austria's Dr Friedrich Schneider reports on whether cash restrictions really fight crime; Banknote Ethics Initiative – ten years on.

June

Italy to drop 1 and 2 cent euro coins; Toshiba restructures to overcome losses; large increase in European CIT losses; IBDA completes major study on human perception of intaglio printing; Kurz showcases four of its latest innovations in optical security technology; *SUSI Optics*® makes its debut; IACA presents Excellence in Currency Awards; Bahamas confirms *Durasafe*® and *Hybrid*®, as well as paper, for its CRISP Evolution banknote series; ICA launches Cash Matters campaign; Innovia Security rebrands as CCL Secure.

July

Visa's latest assault on cash branded 'desperate'; G+D acquires German coin machine company Procoin; Belgium to close its mint; Brinks extends CIT operations in Argentina; ECB's Mersch speaks out for cash; centralised ATM service for Switzerland; Goznak launches new polymer substrate; Fiji in seventh heaven with commemorative banknote and coin; new 200 rupee for India; Pakistan's central bank buys its printworks .

August

Public against cash restrictions in the EU; Oberthur Fiduciaire is new owner of VHP; China clamps down on cashless providers; counterfeit euro banknotes fall again in first half of 2016; Korea reclaims over 290 million coins thanks to a nationwide coin collection campaign; cash still predominates in South Africa; Australia's Payments Study – cards overtake cash; cash logistics market continues to grow; Louisenthal introduces *Galaxy*® thread; Oberthur Fiduciaire launches *STARsheen*™ *MULTI* thread; design of new £10 unveiled.

September

Cash visibility on its way in the US as Fed adopts global standards for the cash supply chain; ICA debunks link between cash and crime; demonetisation in India – was it worth it?; Brazil's printworks and mint a target for privatisation; Malawi's new anti-counterfeiting policy; the need for transparency on banknote developments; Reserve Bank of India issues new ₹50 denomination; KBA NotaSys and SICPA restructure; Pakistan studies mint upgrade.

October

Australia's banknote upgrade on track with release of A\$10 banknote; Bank of England splits contract for new £20 between De La Rue and CCL Secure; Royal Dutch Kusters Engineering adds sustainable twist to Indian banknotes; another record year for the Royal Mint; Banknote Checking Scheme launched; new app for Barbados; Holograms – 30 Years on Banknotes and Still Going Strong; perspectives on better cash management; Russia launches new denomination 200 and 2,000 rubles.

November

India cancels contracts for paper; Indonesia to set up production of own blanks; Chile drops low value coins; number of ATMs reach record levels; Banque de France's Counterfeit Research Centre celebrates 30 years; *MOTION SURFACE* – a step forward for micro-optics; Madagascar's new banknotes reflect biodiversity hotspot; Argentina rolls out new series; Timor-Leste issues new high value 200 centavo coin.

December

Crane Co acquires Crane Currency, creating a new powerhouse in the cash industry; De La Rue on track at the half year; Jamaica latest country to drop low value coins; ECB publishes first study in payment habits; more members for Banknote Ethics Initiative; Kenya banknote tender finally goes ahead; KURZ leads the way in foil features.

Inside this Issue

- 1 A New Powerhouse for Cash as Crane Co Buys Crane & Co
- 1 Jamaica to Drop Low Value Coins
- 2 Headlines of 2017
- 3 Significant Growth for De La Rue Currency
- 3 Two New Members for BnEI
- 4 News in Brief
- 5 The Complexities of Forecasting for Coin
- 6 Cash Remains Dominant Throughout the Eurozone
- 7 Book Review – The War Against Cash
- 8 KURZ – Leading the Way in Foil Features for Banknotes
- 10 Instability in the World, but Not in Markets!
- 12 Gleitsmann Celebrates 170 Years in Ink Manufacturing
- 13 Europe Cash Cycle Seminar in Ireland
- 13 Making Banknotes Work for all Users
- 14 Banknote of the Month
- 15 Note and Coin News

Significant Growth for De La Rue Currency

De La Rue announced its interim results for the half year in November, reporting a significant improvement over the first half last year.

Group revenue increased by 29% to £244.7 million compared with the same period last year, with adjusted operating profit up by 11% to £26.6 million. All three product lines – Currency, Identity Solutions and Product Authentication & Traceability – performed well and contributed to the improvement.

The group's 12 month order book at the end of the period was 10.6% lower at £363 million – due primarily to the timing of orders, reflecting the lumpy nature of the business.

Currency

The Currency business – comprising banknote print, banknote paper, polymer and security features – is De La Rue's largest product, line accounting for 75.7% of revenue and 62.4% of adjusted operating profit in this year's first half.

The business benefitted from high volumes, particularly in banknote paper – 7,200 tonnes were produced compared with 5,300 tonnes in the first half of 2016/17, but countering this to some extent were lower volumes in the security features business (no figures were given).

Some 400 tonnes of polymer substrate were produced compared with just 60 tonnes in the first half last year, with particular note made of the company being awarded a 10 year contract to supply the company's polymer for the forthcoming Bank of England £20 note.

Banknote print volume for this year's first half at 3.5 billion was only slightly higher than in the first half of 2016, but the company noted that this year's volume was achieved on two fewer lines.

However, it did have to outsource the printing of 110 million banknotes to meet demand, but indicated this to be part of its strategy to create flexibility.

Overall revenue for the Currency business increased by 36% to £185.3 million and the adjusted operating profit of £16.6 million was 16% higher. The company stated that it expected margins to improve in the second half through a better product mix.

Both volumes and revenues were lower for the security features business, said to be due the timing of orders. To accelerate product development and broaden the company's product range, a strategic partnership was established in October with security features developer and manufacturer, Opalux.

At the end of the first half the Currency order book, including estimated call-off orders for contracts, was £282 million, compared with £322 million at the same time in 2016.

Strategic Progress and Investment for Growth

The company stated that good progress has been made on its five-year strategic plan at this halfway point. Investment has and is being made in R&D, product development and sales as well as efficiencies in operations.

DLR Analytics™, the company's cash cycle management software launched in May 2017 at the Currency Conference, was reported to have gained traction, with some 60 central banks now having signed up to the pilot programme.

To increase efficiency in banknote printing, two banknote print lines in Malta have been decommissioned, a line in Gateshead has been refurbished and upgrades to the remaining two lines in Kenya and Sri Lanka are underway. The programme to improve manufacturing efficiency was reported to be progressing well – 7% more banknotes were produced with two fewer lines.

Despite the 36% increase in the production of banknote paper with 7,200 tonnes sold, the company's view of the banknote paper market remains unchanged and it continues to engage in discussions with a view to reducing its exposure to this market.

Investment is also being made in sales and marketing. A number of regional offices have been set up – in addition to Dubai and Miami the company is opening offices in China and Kuala Lumpur and assigning sales representatives to multiple locations in Africa as part of its the strategy is to be closer to its customers.

Two New Members for BnEI

The Banknote Ethics Initiative (BnEI), founded in 2013, now has ten members, after Orell Füssli Security Printing and SURYS were formally accredited by the BnEI Accreditation Council in November. The two companies join Canadian Bank Note Company, CCL Secure, Crane Currency, De La Rue plc, Giesecke + Devrient, KBA-NotaSys, Note Printing Australia and SICPA, which were previously accredited after having completed the rigorous audits undertaken by GoodCorporation and KPMG.

'BnEI sends a strong message across the industry and supports the ongoing trend towards transparency and ethical business practices. We are delighted to join this important initiative which supports our core values and principles', said Philipp Seewer and Dieter Sauter, Managing Directors of Orell Füssli Security Printing.

For SURYS, founder and President Hugues Souparis, said: 'as a founding member of the IHMA (International Hologram Manufacturers Association), SURYS actively cooperates with the world's leading hologram companies to maintain the highest professional standards and the highest principles of business ethics since 1993. Today, SURYS is proud to commit to the BnEI global ethics initiative that reflects our values of integrity, trust, honesty, and transparency.'

Antti Heinonen, BnEI Chairman, welcomed the new members: 'now 12 companies in the banknote industry have successfully completed the audits and have been accredited. Ten of them are currently BnEI members after some reorganization in the industry. Besides that, 37 central banks from all continents have expressed their support to the overall objectives of BnEI. These are strong signals, that a collective action, by banknote suppliers and customer central banks working together, can be a powerful tool towards reducing corrupt and anti-competitive practices.'



News in Brief

Kenya Tender Goes Ahead

The Central Bank of Kenya (CBK) is now going ahead with the tender for the production of its new currency series, after De La Rue and De La Rue Kenya EPZ, in which the Kenyan government has a 40% stake, withdrew their petition to stop the process.

In this petition, the two firms wanted the High Court to halt the tender pending determination of the case on the grounds that, with local companies excluded (ie. DLR Kenya), the printing of the currency overseas would lead to irreparable harm to the local industry. They also challenged the process itself and argued that there would be a security risk in allowing the tender to proceed without the benefit of both local production and the destruction of the old notes being taken into account.

The Central Bank of Kenya succeeded in its quest to have the petition struck out, stating that the procurement process is fair, transparent, competitive and legal, and that no local firms were able to meet the specification.

The new notes and coins are needed following a 2010 change to the country's constitution, requiring the removal of national figures from the currency. They were originally due to be issued in 2015. This was put back to 2017, but held up by the lawsuit. They are now expected to be issued between April and June next year.

Next Step in India – Remove Cheques?

Following the demonetisation debacle in India, which was in part driven by a government attempt to force the pace of digital payments, the government's next disruptive step in its digital transformation quest is likely to be phasing out cheques.

The country is still heavily reliant on both cash and cheques – which between them account for 95% of all transactions. The demonetisation exercise has resulted in a 10% increase over the year in cashless payments, but this was at its highest immediately following the withdrawal of the Rs 500 and 1,000 notes at the end of last year, and has since fallen back with more banknotes now coming into circulation.

The demonetisation was also intended to flush out criminal and tax evaders but singularly failed to meet government expectations in this respect. It did, however, cause considerable hardship to large parts of the population – a situation that could be repeated if cheques are removed from the system.

Ouguiya Loses a Zero

The Central Bank of Mauritania is to revalue the currency, the ouguiya, by removing one zero. A new banknote and coin series will be issued in January, with the six notes – currently denominated from 100 to 5,000 ouguiyas – replaced by notes from 10 to 500 ouguiyas. The coins will be denominated in 20, 10, 5, and 1 ouguiyas.

According to the Bank, the move is intended to better control the circulation of money and control inflation. There will be a transition of one year, during which the old and new currencies will co-circulate.

Fewer Job Losses at KBA-NotaSys

Further to the news that KBA-NotaSys could lose staff at its Lausanne headquarters (see CN September 2017), it has now been confirmed that 47 people will be laid off, fewer than expected. The layoffs, which will be spread out over nine months, are necessary for the future of the company, in order to consolidate its technological lead and position in the market, said Eric Boissonnas, CEO of KBA-NotaSys.

In September, the company – which employs 185 people in Lausanne – launched a performance improvement programme to strengthen its leadership position, involving reduced costs, the optimisation of internal procedures and the adaptation of certain technology.

International Quest for Schoen + Sandt

Schoen + sandt Machinery, which manufactures – among other products – the machinery for making watermark moulds, is joining forces with CGS to take a strategic step towards further internationalisation of its business.

CGS specialises in investing in German-speaking industrial companies and building them into international operations. It is acquiring a majority stake in schoen + sandt from the current investors, who acquired the company in 2007 (and who will retain a minority share).

Schoen + sandt was founded in 1867 and has around 250 employees and three subsidiaries in Germany, Hungary and the US. Its products include cutting machines for non-metallic materials, shoe making machines and embossing machines, with cylinder mould systems and peripheral equipment for security paper and printing operations (see CN August 2013).

The two Managing Directors, Jürgen Schneider and Bernd Heitzmann, will be working closely with CGS to further internationalise the business, which could include add-on acquisitions.

Central Bank Payments and Currency Interests Converge in Singapore

The second Central Bank Payments Conference (CBPC) will be held in Singapore from 25–27 June 2018.

This exclusive and niche payments conference is focused on issues currently under examination by payments departments of central banks worldwide. The inaugural CBPC attracted 40 central banks earlier this year in Amsterdam.

Topics on the agenda for 2018 include the borders of central bank oversight, retail payments issues, and cross-border payments. The conference will also look to the future for central banks, examining the possibilities offered by distributed ledger technology, digital currencies, and mobile payments to potentially foster financial inclusion.

Payment market infrastructure leaders are also invited to join the proceedings to provide unique perspectives whilst offering feedback on implementing mandates from oversight and regulatory bodies.

Conference organisers Currency Research are anticipating a substantial delegation in 2018. According to Gonzalo Santamaria, Vice President, Payments, 'after the success of our inaugural conference this past June, we are confident of the benefit and value this conference brings to central banks – not only those leaders in the payments function, but we are gaining interest also from the leaders in currency issuance departments who are wishing to stay apprised of the progress, developments and growth in payment systems.'

'Our mission is to raise awareness of the most relevant matters facing the central bank in their oversight role and responsibility for an efficient and effective payment system. This will surely continue to drive further interest from more central banks, thereby making this an important platform for central banks around the world.'

Registration is now open at www.cbpayments.com.

The Complexities of Forecasting for Coin Demand

By Cash Management Solutions

The topics of one of the workshops at the recent Coin Conference in Warsaw was 'Forecasting Demand', which – for coins – is notoriously difficult. Get it wrong, and banks will either be holding large (and expensive) stocks of unwanted coins, or there will be insufficient coins in circulation. But it is difficult to know how to accurately forecast future demand, given that coins – unlike banknotes – rarely return from circulation and hence do not provide the key data that enables future demand to be assessed?

Four participants in this workshop – from the EU Commission, Bank of Mexico, UK Cash Services and Cash Management Solutions – all described different models and tools for coin forecasting to throw some light on how it can be done. In this follow-up article, Cash Management Solutions stresses the importance of consumer behaviour and technology as indicators for demand.

With the payments industry and consumer behaviour undergoing a sustained period of change, coin forecasting has become increasingly difficult for those in the cash industry. Despite this, many still use generic software packages and other one-size-fits-all solutions that can't, or don't, integrate, recognise or forecast consumer trends.

Disconnected

At a national level, many mints are disconnected from consumer behaviour and reliant on the inflows and outflows of coin between the largest cash and coin processors to measure coin demand. This fails to recognise trends at the point where cash and coin interact with the consumer, and can often fail to provide an accurate picture of coin demand.

Despite the complexity, the industry is seeking to minimise excess coin stocks and drive efficiency. To achieve this endeavour understanding consumer behaviour is key.

Technology

With consumer behaviour shifting favourably, or forcibly, towards technological advancement at the point of sale (POS), there are now several technologies to improve and streamline the customer experience.

These technologies can drastically impact demand for coin and this impact can also differ between the type of technology deployed.

Self-service checkouts and self-service retail order points are evidence of this. The latter cannibalises coin demand as they don't provide the option for cash payment. If these gain enough traction and draw cash users away from the traditional till format, net coin demand will decline.

In contrast, even though there are a number of card-only self-service checkouts, the vast majority still take cash payments. Self-service checkouts' impact on coin demand stems from the recycling capabilities of the machine.

The economic level impact on denomination demand will be dependent on the adoption rates of technology and alternative payment methods in each merchant sector. This is due to the inherent differences in their demand profile (see Fig 1: Merchant Mix). Understanding these changes allows the cash supply chain to improve forecasting.

Consumer Preference

Inflation and changes in price points within the retail landscape play a large part in determining the volume and denominational mix of the coin required.

However, changing consumer preferences towards securing greater convenience is leading to more fundamental change.

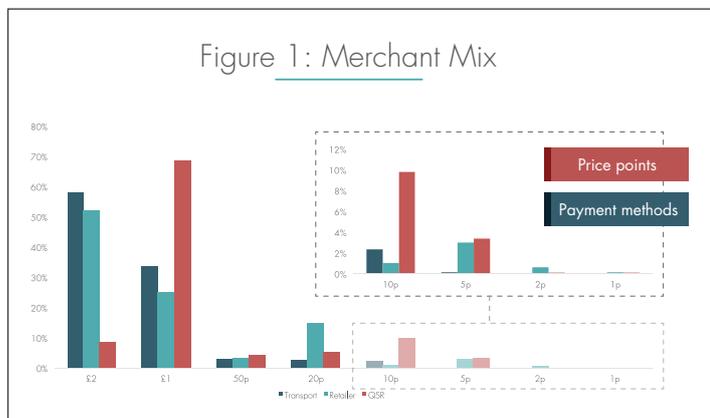
There has been a rise in demand for a smaller, more local retail experience traditionally consistent with a lower transaction value and non-rounded psychological pricing. These traits increase the change requirements of the merchant. With the changing scale of retail, from large to small, comes a corresponding shift in the importance of smaller coin denominations (see Fig 2: Store Type).

Online retail cannibalises coin demand in the same way that self-service order points do. If consumers move their purchases online then net cash usage will fall, but if merchants continue to encourage convenience style stores, demand for specific coin denominations can increase, even as overall coin demand falls.

Forecasting for the swings between these two channels is a difficult task which is susceptible to seasonal change.

At CMS, we believe understanding idiosyncrasies and consumer behaviour is essential to forecasting the demand for coin. There are a multitude of variables that can impact consumer behaviour and as a result coin demand.

However, the biggest threat to coin demand is contactless payments. Low value transactions have previously been a stronghold for cash transactions, but this is now under considerable pressure from contactless. Now more than ever merchants and mints must pay attention to consumer interactions at the POS.



ECB Study: Cash Remains Dominant Throughout the Eurozone

Although the euro currency was introduced 15 years ago, little is known about how cash is used by the public within the Eurosystem. For the first time, therefore, the European Central Bank (ECB) has conducted a comprehensive study to analyse the use of payments at the point of sale. Contrary to media reports that cash is dying, the results of the study have concluded that cash is in fact the dominant payment instrument within the euro area the POS. *Currency News™* takes a look at the study.

Rejecting reports that cash is disappearing, the ECB advises that the quantity of euro banknotes in circulation is increasing year on year. With 20.7 billion euro banknotes in circulation at the end of August this year, the ECB recently confirmed that the number of circulating banknotes has an annual growth rate of 6% (4% by value) – a trend which is predicted to continue.

Whilst the growth of banknotes and coins in the Eurosystem is well documented, as is the number of identified counterfeit notes, one area that is less well understood is how the cash is used.

To address this, the ECB undertook a major study titled 'Study on the Use of Cash by Households' (SUCH). Specifically, the study's objective was to estimate the value and volume of both cash and non-cash payments at the various points of sale in all euro area countries.

The study analysed data collected from almost 130,000 transactions, gathered from more than 65,000 respondents across 17 countries. Whilst the data primarily consisted of point-of-sale (POS) transactions, person-to-person and online transactions were also included. The survey was completed in three waves of online panels, telephone and face to face interviews held between November 2015 and July 2016.

The results of the study, published in November, had already been revealed to the industry by one of the study's authors, Henk Esselink of the ECB, at the ATM & Payments Security conference in London in September, and also by the ECB's Head of Currency Management, Doris Schneeberger, at the Future of Cash conference in Vienna in October. During her presentation, she revealed that cash was the overwhelmingly predominant payment instrument at the point of sale both by volume and value.

Cash by choice

When examining the total number of transactions, cash payments accounted for 79%. This was followed by card payments at 19% and the remaining 2% accounted for all other payment types. By value, the share of cash payments was still high at 54%, followed by cards payments at 39%.

Interestingly, 12 out of the 19 countries of the Eurosystem use cash for more than 75% of their transactions (by volume), including Germany, Italy, Spain and Austria. Just two countries, the Netherlands and Estonia, recorded a lower level of cash usage (under 50%).

By value, the average cash transaction in the entire euro area is €12.40, but this ranges widely between countries – from €7.50 to €18. Greece was found to be a high user of cash by value (> 75% of transactions) whilst six countries were considered low cash users by value (< 50%), including Finland, the Netherlands, France and Ireland.

When analysing the use of payment instruments by value range, the report reveals that the vast majority of cash use is for low value transactions.

The largest share of payments analysed in the Study (34%) was worth less than €5, followed by 19% valued at between €5 and €9.99 and 13% valued at €10 to €14.99. Of these three transactional ranges, cash was overwhelmingly the popular choice at 92%, 86% and 79% respectively. In fact, cash was used in more than half of transactions valued at under €45 and 92% of transactions under €5. Even for transactions valued above €100, 32% were still paid for using cash.

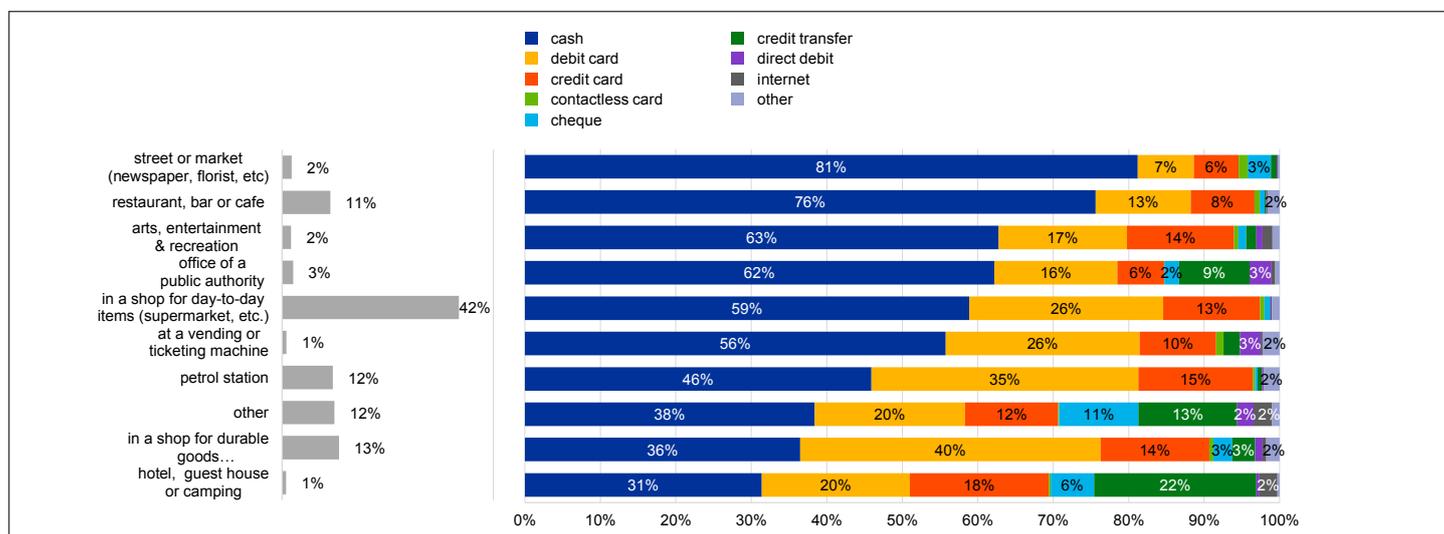
Cash on location

The study also analysed the locations where payments took place.

The most popular category, accounting for almost half of all transactions by volume, consists of shops selling day to day items eg. supermarkets, of which 80% is paid for with cash. This is followed by establishments such as restaurants, bars and cafes which account for almost a quarter of transactions, of which even more (90%) are paid for using cash. In fact, for all 10 purchase location categories identified by the report, cash was used in 45% or more of all recorded transactions, with debit cards being the next most popular payment choice.

One surprising outcome for analysts working on location data was the payment choice used at petrol stations. It was widely assumed that the majority of transactions used in such locations were paid for using payment cards. The study, however, identified that 60% of transactions made at petrol stations were made using cash, followed by debit cards (26%) and credit cards (11%). It is thought that this trend is due to many petrol stations offering daily shopping products in their stores, and subsequently cash is still a popular choice.

Continued on page 7 >



Market share of main payment instruments (source: ECB).

Book Review – The War Against Cash

This book has a sub-title – ‘The Plot To Empty Your Wallet And Own Your Financial Future – And Why You Must Fight It’ – which in 17 words pretty well describes what it’s all about.

According to the book’s promotional summary, we are constantly being told that we are on the cusp of a cashless society. The financial services industry would certainly like to see it that way. We are being enticed with contactless cards, mobile phone payment apps, and methods of bank transfer: all, apparently, for our convenience.

But as the author Ross Clark argues, it is not in our interests to surrender the right to use cash. Commercial interests want us to pay electronically in order to collect valuable data on our spending habits, while governments would love us to move to cashless payments in order to control the economy in ways which suit them, not us.

‘If we choose to pay electronically, that is one thing, but we will regret it if we do not defend the right to pay with cash’, he says.

Ross Clark is a respected journalist who has written extensively for a number of UK newspapers. He is also a best selling political author focussing on matters that are affecting society such as bureaucracy,

globalisation and the surveillance society. In ‘The War on Cash’ he is perhaps more concerned about the future than the present, but by making the present danger clear, he exposes a future world not unlike that described in George Orwell’s 1984.

Each of the 14 chapters focuses on a different battleground in the war on cash, including such titles as My Little Car Park Problem, A Matter of Choice, The Cashless Nightmare, Who Would Trust a Bank?, The Negative Interest Rate Trap, Snooping On Our Shopping Habits, Finding Guinea Pigs in the Developing World, and What Would a Cashless Society Really Look Like?

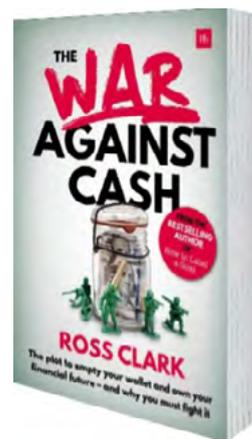
He explains what is happening and why, and the implications if that battle is lost. This is from someone who isn’t against alternative forms of payment – indeed he actually prefers to use these rather than cash in many circumstances.

What he extols is freedom of choice and in particular that cash, which can be used by anyone and everyone, should remain as a means of payment.

This book presents the case for cash based on events taking place now right across the globe aimed directly or indirectly, at eliminating cash as a means of payment.

What he says is happening is a programme of turning economies cashless by stealth. His plea – ‘don’t fall for it. Don’t let anyone tell you this is the modern way to pay and you are being a fuddy-duddy in resisting it. The electronic payments industry is doing its best to control us. We need to understand what is going on and do everything within our power to stop it’.

The War on Cash, published by Harriman House, has just been released, and is available digitally or in book form.



ECB Study *(continued)*

The effects of contactless payments

Within the Eurosystem, 93% of adults have a payment card. Interestingly, the study found that almost three quarters of all cash transactions were paid for by customers who had the means and opportunity to use an alternative payment method. As mentioned, cash payments are most commonly used for low value transactions, but these are also the target for the increasingly popular contactless payment methods. Is there change on the horizon?

During 2016, almost two billion transactions were paid for using contactless technology. For countries where such payments are already commonplace, it is evident that the popularity of contactless payments can only occur when the related infrastructure is in place. Heavy investment has occurred in countries including the Netherlands, Slovakia and Austria and, unsurprisingly, the study identified higher shares of contactless payments in these areas.

Of all the transactions identified, more than 80% were below €25 – which is the contactless payment limit in many countries. According to the ECB, those customers who are already choosing to

use contactless payments are those who already had a preference for payment cards rather than cash.

However, it is now evident that cash users are starting to move towards contactless payments, and so the share of cash payments is predicted to reduce in future as the share of contactless payments increases.

Whilst it is evident that cash is still a major player in the payments industry, it cannot assume that it will always be in future and, consequently, there are several challenges facing the cash industry.

Technology giants such as Apple or Google are looking to revolutionise the alternative payment industry. There is an ever-growing list of payment applications that are available to consumers such as Apple Pay, Android Pay and Samsung Pay to name a few. Many retailers already accept such payments, and with increasing investment in the technology’s infrastructure as well as an increase in consumer acceptance of the technology, it is thought that contactless payments will have a big impact on low value payment transactions in future.

Another challenge to the industry is that of cost. If non-cash payments take a bigger share of payments in future as predicted, cash must stay competitive. For central banks to provide cash in an efficient way, costs throughout the entire supply chain will need to be evaluated.

Schneeberger also made reference in her presentation to the importance of public opinion. There have been many reports recently that have had a negative impact on the public’s view of cash. This includes payment limit restrictions, the personal safety implications of using cash, and its use for illicit activities. The question of whether people prefer using cash is often questioned, yet the ECB’s study proves that this is in fact the case. The key question is whether this will continue to be the case in future.

As it stands today, cash is an important payment choice and the majority of central banks recognise their responsibility to ensure its availability and acceptance for members of the public for the foreseeable future.

KURZ – Leading the Way in Foil Features for Banknotes

The foil manufacturer KURZ, a leading provider of optical variable devices (OVD) for banknotes, has successfully continued on a path of innovation over many years, launching many ground-breaking products which have been reported on in *Currency News*[®]. We caught up with Peter Mühlfelder (Head of Business Area Security, Managing Director OVD Kinegram AG) and the KURZ team at their headquarters in Fürth, Germany to find out more about the company, its success, competition, future developments, and vision for the future.



Peter Mühlfelder.

Q: Can you give a brief history/background to KURZ and also the relationships between KURZ and OVD Kinegram and with the rest of the KURZ group.

A: KURZ was founded almost 125 years ago as a manufacturer of fine gold leaves. It quickly developed into a foil specialist, pioneering hot stamping technology for foil in the 1930s.

Family owned and currently managed by the 4th and 5th generations, the KURZ group employs more than 5,000 people worldwide, in 24 subsidiaries and 14 production locations, including in Germany, Switzerland, the US, Malaysia, and China (with our banknote foils being produced exclusively in Germany). Offices are also located in the UK, France, Japan, Brazil, Australia and several other countries.

The company is engaged in various business areas and industries. First is the graphics area, where decoration foils for various consumer goods are being produced. Second is the plastics area, which is heavily dominated by the automotive industry.

And third is the Business Area Security with the sub-divisions Trustconcept, Cards, Government Documents, and Banknotes.

Looking at the banknote industry, KURZ was the pioneer in OVDs for banknotes and has gained immense expertise over the past three decades.

Our relationship with OVD Kinegram started in the early eighties when the Swiss National Bank (SNB) approached OVD Kinegram, then still called Landis + Gyr, to conduct a feasibility study on applying an optically variable security device onto banknotes. Landis + Gyr turned to KURZ for help, as a reputed foil specialist.

Both companies developed together an OVD for the use on banknotes, which was successfully introduced for both Austrian schilling and Swiss franc banknotes after years of intense ground breaking development work.

The collaboration of the two companies in these first, and many subsequent, banknote foil projects culminated in the acquisition of OVD Kinegram by KURZ in 1999.

Today OVD Kinegram is the competence centre for optical technology of the KURZ Group and takes care of the governmental document market, including production of related foil.

Q: KURZ has been very successful as a leading supplier of diffractive security foils and products over many years. To what do you attribute this?

A: Success is always a combination of many factors. We strongly believe that our key strengths are:

- 1 The quality and reliability of our products which – according to our customers – set the benchmark in the industry as a result from decades of experience;
- 2 Our leading technological know-how and capability of innovation;
- 3 The comprehensive service which we provide from design to application;
- 4 And our total independence, which allows us to work with any partner in the banknote industry, something that a vertically integrated ‘one stop shop’ supplier certainly can’t provide.

Q: How much does KURZ invest in new product development?

A: As a standard rule, around 8-10% of the total turnover goes into R&D and we try to maximize our R&D efforts wherever we can. The investment is directed to optical technology, chemistry and processes. Due to a close network within the company, we are sometimes able to benefit from findings that come from other business areas.

An example is our expertise in plastic applications which helped us to develop foils for polymer banknotes.

In addition we have established ‘KURZ Digital’ as a think tank for solutions in the context of internal and external digitalisation.

Q: Diffractive security foils continue to be one of the most enduring public features on banknotes and yet there is a perception that they can be easily copied. What is your view on this perception?

A: As a matter of fact, EVERY single security feature can be copied – and is being copied. I agree that foils are in the focus of counterfeiters – however, the reason for this is not that they are so easy to imitate, but that the public is so aware of them! Counterfeiters know that the public is much more likely to recognise and investigate the foil, rather than other security features.

In this context, I’d like to quote the study presented by the De Nederlandsche Bank at this year’s Currency Conference – where it was shown that the *KINEGRAM*[®] features are by far the most trusted and most used features on the euro banknotes. And this confirms many previous studies on the same subject that were conducted in the euro region, and also the US and Canada.

Banknotes in general have always been a prime target for counterfeiters. And it is true that the technical possibilities for criminals have multiplied in the past few decades, starting from the rise of high-performance colour copiers to modern-day digital printing.

However, we have to distinguish professional counterfeits, which make up a very small percentage of the forged notes entering circulation – in the eurozone for example, we are talking about 1-2% of all counterfeits – from simple, low quality simulations.

In order to help the public detect both ‘hobby’ forgeries and real counterfeits, the aim of our work is to develop security features which are technically complex, so as to make counterfeiting as difficult as possible, and at the same time interesting to look at and intuitively easy to check.

This includes, for example, bold movement effects, possibly in bright and attractive colours, clever optical illusions such as virtual 3D effects, or sophisticated foil-over-window solutions, as is the case for the new €20 and €50 notes.

For these two banknotes which have been issued very recently, KURZ and OVD Kinegram provided a foil stripe with *KINEGRAM REVIEW*[®] technology.

This means that the foil, which is applied over a die-cut window in the banknote, displays two entirely different optical effects on the front side of the note, and on the reverse side when seen through the window. In addition, when being held up against a light source, a third image – the goddess Europa – becomes visible inside the window.

The President of the European Central Bank, Mario Draghi, called this 'portrait window' a real innovation in banknote technology. And we are very proud to say that it is actually working in keeping our cash safe, as you will note from the ECB's most recent figures on counterfeiting in the eurozone.

Q: *There are a variety of other optically variable features now available for public verification. Do you see these as a threat and, if so, how can they be countered?*

A: It's true that there is a growing trend in the banknote industry for launching more and more optically variable security features – at ever shorter intervals. On the one hand, established companies are trying to diversify their portfolios by venturing into the manufacture of previously unfamiliar security features, and on the other hand, new players are attempting to enter the field with seemingly interesting, but often technically unproven, novelties.

In general, we believe that this shows how much optically variable features are appreciated and sought after, and also, how serious they are being taken by the market. Therefore, we rather call this a welcome development.

And we know that central banks evaluate with caution any promises and statements on other features, especially regarding uniqueness and future safety. They know that there is much more to a security feature than its novel look.

The advantage of our foils is that we can offer both a highly reliable, fully proven and trusted product, and at the same time an enormous potential of individualisation and versatility. In fact, the optical appearances which other security features are limited to, for example particular movement effects, is something that our foils can provide on top, or rather, in addition to other optical elements. Our foils can offer the best of many worlds, all combined in a single security feature.

Q: *Where do you see the market for diffractive security foils going in the future, particularly with the rise of digital payment technologies?*

A: The entire banknote industry is facing unprecedented pressure from non-cash payment providers. However, based on numerous conversations with customers and our personal perception of the situation, we trust that these digital technologies, and in particular mobile

payments, are to be seen as a welcome addition to cash, rather than a means towards its end.

Some consumers may prefer this type of payment and should have a choice to do so, but in light of the serious danger for hacker attacks, data theft, and various forms of cyber criminality, cash will always remain important.

Speaking particularly of foil elements, there is actually a growing tendency in the market to equip banknotes with foil based security features – the Reserve Bank of India is just one example where a central bank is asking for a foil patch to upgrade their banknotes.

In addition, we notice that some central banks shy away from solely diffraction-based effects. This is why KURZ started quite some years ago already to look at various other ways of adding security into foil features, in particular developing novel optical appearances which are not based on diffraction.

To name just one example, the new High Definition Metallization (HDM) technology which we recently launched allows for metallized designs in a higher than print quality, so you could for example include finely detailed greyscale and half-tone portraits into the foil that match the printed portrait.

A counterfeiter would never be able to replicate this in any convincing way. We are certain that there is a steady or even growing demand for surface applied features in the future.

In a nutshell, we believe that foil is here to stay.

Q: *What new product developments are KURZ looking at for the future?*

A: We are convinced that the potential of the KINEGRAM, and of optically variable devices in general, is far from being fully exploited yet. At the same time, we are looking at security beyond diffraction, for example by ground-breaking new application methods or cutting-edge metallization techniques, as described just now with the new HDM technology.

Besides, design integration remains a major issue in the banknote industry and we are able to propose many solutions for central banks in this regard, one of them being the novel KINEGRAM COLORS® technology, which overcomes previous limitations of foil-based security features -namely, that they are in only one colour. With KINEGRAM COLORS, the banknote user sees the expected metallized image in a specific colour of choice, or a set of colours, with these colours in perfect register to the partial metallization.

In the near future, you will see several new banknotes, both circulation and commemorative notes, being issued which are using foil with this technology.

Indeed, three are already now in circulation. First were the new Bank of England £5 and £10 notes, which include a KINEGRAM COLORS registered stripe applied over a clear window.

And only last month, the National Bank of Kyrgyzstan issued a new commemorative 2,000 som banknote, which incorporates the feature as a patch in three distinct colours – gold, green and blue – taking the form of a traditional Kyrgyz yurt. It is the first banknote in the world to carry a KINEGRAM COLORS foil patch, and the first paper note.



Kinegam Colors patch feature on the Kyrgyz commemorative 2000 som banknote.

We are also well prepared for the current popularity of micro-lenses. We are able to propose exciting solutions, as was shown for example in the recently presented *SUSI Optics™* specimen notes together with KBA-NotaSys, LenSys and other partners. Our leading competence in foil application helps us offer readily engineered solutions for central banks, aiming to be effortlessly workable on all current application machine types in the market.

Finally, there are a few other novelties which we are currently working on, but we can't say too much about this yet. However, you are warmly invited to meet us at the Banknote Conference 2018, where we are going to launch a revolutionary new product, one that tears down mechanical barriers in the surface application of security features, and enables the use of certain features which up to now were not applicable on banknotes.

Q: *The banknote supply industry has traditionally been centred in Europe, but this is now shifting to Asia. Will KURZ consider setting up satellite production plants and/or joint ventures in other parts of the world (eg. India) for its security foils?*

A: Even though KURZ already makes lots of commercial foil in China and Malaysia, producing the banknote foils in Germany exclusively has been a real success model for KURZ.

Continued on page 11 >

Instability in the World, but Not in Markets!

The predicted market downturn is still to happen. In the past, a bear market has inevitably followed a bull market, and there have been some huge so-called 'corrections', when markets have suddenly been deemed to be over-valued.

Many financial specialists view the current situation as unstable for this very reason – and with some of President Trump's announcements inclined to unsettle markets too, one would expect the markets in the USA, in particular, to be somewhat fragile and most likely static or falling in value.

But in the last three months the Dow Jones Industrial Average, the NASDAQ Composite and the S&P have gained between 6.5% and 12%. In the last year their gains are even greater – between 20% and 28%. So much for that theory.

In the rest of the world, however, things are a little different: the Japanese Nikkei has gained 17%, the Hong Kong Hang Seng and the FTSE Xinhua have gained around 5% while the Shanghai Composite lost 2%. But over the last year, all of these have gained – the Nikkei by 24%, the Hang Seng by 30% and the Shanghai Composite by 3.5%.

It's a similar situation in Europe. In the last three months all show gains of between 4% (mixed European stocks) and 7.5% (German DAX) and in the last year all show significant gains of 12-15% (mixed European stocks) and 22% (German DAX), with the French CAC and Swiss SMI making gains of 17.5% and 18.5% respectively. The exception is the UK FT 100, which lost 0.5% in the last three months, but in the year gained 10%.

These gains are all in the context of political turmoil around the world, and so for the time being, the markets remain robust and continue to flout predictions of an imminent crash.

The companies we cover in our industry on the whole have not kept up with their markets this last quarter. There are two exceptions, both in the CIT/services sector, and both show substantial gains of around 18%, whilst the greatest decline was 39%.

Substrates and banknotes

De La Rue's interim results (see page 3) showed substantial gains. However, the company headed off any euphoria by stating that its forecast for the year remained unchanged. The market value gained 2.9% to reach £654.4 million, but in the quarter declined against its market by 2%. However, it is 10.3% ahead in the 12 month period.

Fortress Paper's share price suffered a major setback this quarter when the company made a profit warning following the cancellation of a large paper contract. Its market value fell from C\$77 million to C\$46.7 million, underperforming its market by 49% in the quarter and by 60% in the 12 month period.

Orell Füssli's share price fell around 10% in the last three weeks of the quarter despite a 4% improvement in the earlier period. Its market value had fallen in the previous quarter after it announced first half operating results significantly lower than in the previous year. The company's market value fell 6.5% in this quarter from CHF 230.7 million to CHF 215.8 million; it underperformed its market by 8.5% and in the 12 month period by 25%.

Spectra Systems Corp's spectacular price increase of 89.5% in the previous quarter and a 49% increase in the quarter before was not repeated this quarter – its market value fell by 21.7% from £47.4 million to £37.5 million, underperforming its market by 24%. However, in the 12 month period it has outperformed it by 216%.

Gains for most CITs

Brink's has now, with its third quarter results release, reported improved results for all three quarters this year. Year to date revenues at \$2.44 billion are 10% ahead of last year and operating profit at \$186 million is 61% ahead. Its forecast for the year is adjusted EBITDA of \$425-435 million, it is achieving growth both organically and by acquisition, and notes that its three-year strategic improvement plan is on course.

The market's expectations must have already been fuelled, as the company's market value edged up by only 0.1% to \$4.03 billion. In the quarter it underperformed its market by 11.8% but in the 12 month period it is ahead well ahead, with a 74% improvement.

Despite improved first half results, **G4S'** share price fell by around 20% at the end of the previous quarter. It maintained that value this quarter until early November when it fell again by around 15%, but has since recovered somewhat.

In the period G4S' market value fell by £510 million to £3.9 billion and it underperformed its market by 11%. In the 12 month period its value compared with its market is unchanged.

Company Performances – December 2017

Company	Current Share Price	Market Cap	% Share Price Change – Sept-Dec	% Change Versus Market – Last 3 months	Price/Earnings Ratio	% Change Versus Market – Last 12 months
De La Rue	633p	£654.4m	+2.9%	-2%	13.2	+10.3%
Fortress Paper	C\$3.15	C\$46.7m	-39.4%	-49%	-	-60%
Orell Füssli	CHF 112	CHF 215.8m	-7.9%	-8.5%	23.6	-25%
Spectra Systems	82p	£37.49m	-24.1%	-23%	12.8	+216%
Brinks	\$79	\$4.03b	-0.25%	-11.8%	49.4	+74%
G4S	250p	£3.90b	-9.4%	-11%	13.6	0%
Loomis	SEK 350.6	SEK 24.59b	+22.7%	+18%	19.3	+31%
Prosegur	€7.05	€4.28b	+23%	+18.5%	-	+8.8%
Diebold Nixdorf	\$18.73	\$1.44b	-7.85%	-19.5%	-	-43%
NCR	\$31.6	\$3.85b	-12.5%	-24%	21.62	-47%

Loomis' market value has had its ups and downs this year, but apart from the downward trend between mid June and end August it has always been positive. At the end of this quarter Loomis' market value reached SEK 24.6 billion, just exceeding its previous high for this year.

This gain reflected the company's positive results for the first nine months – revenue of SEK 12.87 billion with organic and real growth of 3%. Operating income, EBITDA, improved by 15% to SEK 1.55 billion, taking its operating margin to 12%.

In the period Loomis outperformed its market by 18% and in the year by 31%.

Prosegur is also having a good year. In the first nine months, revenue at €3.18 billion is 12% ahead of last year, while operating profit, EBITDA, at €371 million is 19.5% ahead.

Predictably with those results, the company's market value has grown – it is now €4.28 billion compared with €3.57 billion at the end of the last quarter.

In the quarter Prosegur outperformed its market by 23%, and in the 12 month period by 8.8%.

ATM and services lose value

Diebold Nixdorf is a newly-merged company and so exact comparisons with last year are not possible, but in its first nine months the company reported revenue of \$3.36 billion, compared with \$3.72 billion, down 9.8% compared with proforma accounts for the same period last year.

Of note in the third quarter accounts was a downgrading of the forecast for this year – net profit by \$15-20 million, approximately 12-15%. Obviously the market has concerns, reflected in the company underperforming its market in the quarter by 19.5% and in the year by 43%.

NCR outperformed its market for the first five months of this year but has since underperformed. When it released its 3rd quarter results on 19 October, it reduced its revenue forecast for 2017 by 2.3% to 3.3% and its earning forecast by approximately 6.25%. Its share price immediately fell.

In the quarter, NCR's market value fell by \$480 million to \$3.85 billion: it underperformed its market by 24% and in the 12 month period by 47%.

Central banks expect a 100% process and technology control and protection, and production under strictest security conditions. This is what we provide.

We have a high security plant here in Germany that is fully certified according to latest standards, regularly audited by various central bank customers such as the ECB, responding to all security needs, and with extensive contingency plans in place in case of need. The production capacity of our plant is enormous, but there is still room for further investments.

Having said this, if a central bank customer requires the inclusion of local content, KURZ would nonetheless be prepared to positively respond to such requests.

Q: *What do you think has been KURZ's biggest achievement over the last few years in the diffractive security foil sector?*

A: That is a tough question!

I can't really single out any specific project, but rather say that we have had major achievements in many entirely different fields. Let me give you a few examples.

For the recent polymer banknotes such as Canada, Australia and New Zealand, the objective was to make our foils applicable in a hot stamping process with significantly lower temperatures – because of the polymer – and at the same time not compromise their adhesion to the substrate nor their durability in circulation.

We succeeded in reinventing the chemical composition of the foils, and worked very closely with industry partners, in order to fully comply with these requirements.

For the new €20 and €50 banknotes, the ECB raised the bar extremely high by demanding a 'Quantum Leap Feature'. So we developed an entirely novel application method – a laminate foil stripe for paper banknotes with a window. Here, KURZ not only achieved the right foil solution, but also developed an application machine for paper mills that allows in an efficient web-to-web process to create the window, apply the foil stripe, and finish it off with a stabilising solution for substrate flatness, so as to facilitate the later printing process.

For the new Swiss banknotes, the aim for our foil was to achieve an optical appearance that had never been seen before in the banknote world. We had to move away from classic partially metallized foils and reinvent our product by creating *KINEGRAM VOLUME*® – which turned out to be a great success.

So all in all, we have had many different achievements over the past years, all of which make us really happy. It has been and continues to be a privilege to work in the banknote industry.

And we are very pleased that our tireless efforts were recently graced with the award as 'Banknote and Currency Services Provider of the Year' – it is certainly a great motivation for the future.

Q: *You have introduced some groundbreaking new features on banknotes recently. Are you able to say which your favourite is?*

A: Again a tough question!

It is quite impossible to pick a single favourite, since all of the recently presented banknotes and features are so very different from each other. Let me just quote a few examples.

There's the *KINEGRAM VOLUME* stripes on the new Swiss series, which received the IACA Best New Banknotes Award earlier this year.

There's the *KINEGRAM COLORS* on the new English £5 and £10 which was chosen by the Bank of England after a rigorous feature evaluation, and was voted 'Best Applied Security Feature' by the IHMA.

There's the *KINEGRAM ZERO.ZERO*® patches for the 'Brighter Money' series in New Zealand, which is really wonderfully designed and which has received two 'Best Banknote' awards.

All these and other successful projects have one common characteristic: they have been executed in a partnership approach of excellent experts from various fields – printing, machines, substrate, ink, and foil.

For me this is clear evidence that interdisciplinary team work is the basis for great new banknotes and I am grateful that KURZ had the opportunity of being a part of these teams.

Q: *Being the leading diffractive security foil provider brings its own set of unique pressures. What keeps you awake at night?*

A: Just as for other people in the banknote industry, it is certainly a concern on how to stay the decisive step ahead of counterfeiters. Also, it is of course my ambition to maintain the success of KURZ in the future by effectively managing the manifold business opportunities, and meeting the needs of our customers.

Other than that, I am a very sound sleeper.

Gleitsmann Celebrates 170 Years in Ink Manufacturing



Gleitsmann Security Inks (more commonly referred to as GSI), which is the industry's second largest supplier of security inks, is this year celebrating its 170th anniversary.

The company was founded in 1847 near Dresden by Emil Theodor Gleitsmann as ET Gleitsmann GmbH. It expanded in the 1920s, setting up branches in Italy, Sweden and Austria and, in addition to standard inks, began focussing on inks for security printing. Among its first customers were the Reichsdruckerei (now Bundesdruckerei, Germany's state security printer) and Giesecke and Devrient, then based in Leipzig.

After the 2nd World War, in 1950, the company re-established itself in Berlin. In 1976 it was acquired by the hubergroup, based in Munich, which is even older – having celebrated its 250th anniversary in 2015. Hubergroup currently operates 38 ink manufacturing companies worldwide, has around 4,000 employees, a production capacity of approximately 340,000 metric tonnes of ink, revenue of around €700 million and is a market leader in offset printing inks and packaging inks.

Gleitsmann moved to a new site in 1990 and by 1994 had shifted its emphasis from standard ink – its prime business until then – to the development and manufacture of security inks. The change of name in 1998, from ET Gleitsmann to Gleitsmann Security Inks, reflected this change of emphasis.

Gleitsmann is now a modern company in every respect. It operates a quality management system, gaining ISO9001 as far back as 1994. Since 2007 it has worked in compliance with the environmental management requirements of ISO 14001 and the occupational health and safety OHSAS 18001 standards. These operate as an Integrated Management System (IMS) not only at GSI but all hubergroup's German facilities.

In addition, as a security ink manufacturer, GSI operates a security system with restricted access to the premises and covering all aspects of the operation from incoming raw materials to the delivery of finished products. Complete end-to-end control is maintained over the production process. The company has gained security accreditation from many central banks and government organisations, not least meeting the very exacting standards of the European Central Bank for the production of offset, intaglio and numbering inks.

GSI invests heavily in R&D cooperating closely with research institutions and universities. Research is focussed on both new product development and the improvement of production processes.

It also supports its wide range of security inks with customer service through its Application Technology and Technical Service team and provides training courses at its Berlin premises for its customers, which include many central bank and state printing works as well as commercial banknote and security printers.

GSI's annual production capacity is approximately 3,000 tonnes, and its portfolio includes intaglio, magnetic, dry and wet offset, luminescent (fluorescence and phosphorescence), IR, screen, colour shift and numbering (magnetic, IR and fluorescent) inks.

The company's infrared ink is branded as *air^{GSI}* – because the company claims it breathes new life into the offset technology. Overcoming the limitations posed by the application of IR to inks in dark shades, GSI has developed a range of IR-absorbing pigments and printing inks in light and bright colours which are only light coloured in the visible range of the spectrum.

The IR absorption can be combined with fluorescence, phosphorescence or up conversion. The absorption band is suitable for detection by standard banknote sorting and verification equipment. Security levels can be enhanced by detection at two separate wavelengths, by establishing a pair that provides IR visible and invisible readings from a single ink.

GSI also offers a range of eco-friendly colour shifting inks in seven colour series under the brand name *uv shift^{GSI}* for silk screen application. The process uses state-of-the-art UV curing technology which prevents any set-off and are based on an environmentally-friendly water-based ink formulation. No volatile organic compounds are involved.

For screen inks, the company also offers *uv shift pear^{GSI}* – pearlescent or iridescent pigments offering colour shifting effects depending upon both the direction of the light and the position of the viewer. Pigments without colour shifting effects are also available.

It also moved into varnishes a couple of years ago, launching *uv guard^{GSI}*. Suitable for common flexographic coating systems with inline coating and perfecting, it can be customised to specific banknote varnishing equipment, applied to paper, hybrid or polymer substrates, and is also free of volatile organic compounds.



Europe Cash Cycle Seminar in Ireland

From 16-19 April, 2018 the international cash cycle community will gather in Dublin, Ireland for the Europe Cash Cycle Seminar (ICCOS), organized by Currency Research.

The event begins with a pre-seminar Central Bank Summit hosted by the Central Bank of Ireland (including a tour at the Bank) that will focus on best practices in the cash cycle. Central bank delegates will have a unique opportunity to share their perspectives and experiences in participative round-table groups, and will be encouraged to discuss challenges and share views on the industry's latest technologies and innovations.

The 2018 Europe Cash Cycle Seminar program is organized around four topics that support the overall theme 'Cash 20/20: Innovations and Trends', namely planning for the future (cash cycle innovations); cash management (distribution, cost, and security); the future of cash (usage and trends); and cash forecasting and optimisation.

The innovation theme will examine the current and future outlook of cash models, taking into account rapid changes in consumer payment habits and the general payments landscape. Findings from a recent study among Dutch retailers will be presented by Esther van den Kommer and Nicole Engel, Senior Policy Advisors from De Nederlandsche Bank, who will provide valuable insights into the acceptance of different payment instruments now and into the future.

Turning the focus to the destiny of cash in the near future, Amir Safranovich, Head of Cash Management Division, Currency Department at the Bank of Israel (BOI) will discuss BOI's efforts, from a cash management perspective, to replace its banknote series.

Aleksandre Kochiashvili, Head of the Cash Operation and Cash Circulation Department at the National Bank of Georgia, will then describe his Bank's decision-making process and some of the policy considerations behind the design and launch of the country's upgraded banknotes.

The Royal Bank of Scotland and the Bank of England will also be on hand to provide updates on their respective experiences while introducing new polymer banknotes.

In a panel discussion led by industry experts, delegates will learn of retailers' perspectives on future transactions, the latest retailer trends concerning cash, and the disruptive technologies that are now gaining ground.

A second panel featuring central bank representatives will examine the implications of a future 'less-cash' society and will discuss how stakeholders can best prepare and adapt to the challenges inherent to the evolving payments landscape, while also embracing new opportunities to maintain cash as a viable and efficient means of payment.

Throughout the programme, industry-leading sponsors will be conducting hands-on breakout meetings about solutions designed to bring efficiencies and cost savings to cash operations.

Capping off the program is a half-day Post-Seminar Symposium, focusing on the latest innovations in the production of currency.

www.europe.iccos.com

Making Banknotes Work for all Users

From 30-31 January 2018, the International Banknote Designers Association (IBDA) will stage a seminar for banknote design decision makers in Geneva, Switzerland titled ' Making Banknotes Work for All Users (People and Machines)'.

This is the latest in a series of IBDA-organised Seminars for Design Decision-Makers. According to IBDA President, Mark Stevenson, 'we created this series of seminars because design decision-makers have the power to ultimately determine the success or failure of any banknote design project. In order for decision-making to be effective, it must be based on facts, demonstrated competencies, the experiences of others and neutral expert advice.'

'We have developed the 2017/18 IBDA Seminars for Design Decision-Makers to allow them to develop a greater awareness of the internal and external challenges and developments that confront a modern design team in their day-to-day work.'

The seminars are targeted at management-level professionals involved in the banknote design and issuing process. In particular, the IBDA encourages central bank design

project managers, cash department management and research team managers to participate, along with the managers of printworks involved in new design projects, forensic and adversarial analysis professions and design studio manager.



World Banknote Project
One World. One Vision. One Banknote

5th IBDC & World Banknote Project

Later on next year, meanwhile, the 5th International Banknote Designers Conference (IBDC) will take place in Lisbon, Portugal from 10-13 September.

As reported in the September issue of Currency News, the theme of this event will be the 'The World Banknote Project', an initiative launched back in 2016 with the aim of presenting what the banknote of the future may look like and which, with 62 designs, is now formally the world's largest ever banknote design competition (beating the previous record held for the first euro series, which involved 39 participating designs).

To support the 62 WBP designers from all around the world who have already registered to participate in this project the IBDA has created a dedicated website- www.worldbanknoteproject.com.

A secure zone for WBP designers has been provided for participants to share ideas, knowledge and solicit support from other designers and/or technology developers in an effort to improve regular contact between designers and design partners around the world.

Mark Stevenson states that, 'the objective of such a social media platform is to facilitate dialogue and exchange between designers. This is a critical component of the WBP and we believe that the sharing of such information will not only enrich the learning process for WBP designers but, actually result in a more interesting and provocative WBP project.'

As for the 5th IBDC, numbers will be limited to 180 to optimise the flow of information within a controlled and confidential environment. For the same reasons there will be no associated exhibition or sponsorship.

www.ibd-association.com

The Swiss Ninth Banknote Series – Halfway Point to New Issue



The Swiss National Bank is halfway through the launch of its Ninth Banknote Series, due to conclude in 2019. With a new design style and modern security features, the eye-catching banknote series has caught the public's imagination, right from the initial release of its award winning first denomination, the CHF 50, in April last year. *Currency News™* takes a closer look at the new series.

The Ninth Banknote Series project began back in 2005 with the launch of a banknote design competition held by the Swiss National Bank (SNB). Of the top three designers selected by the Bank, the work by graphic designer Manuela Pfrunder was thought to be most suitable.

Pfrunder was in fact placed second in the original competition, behind designer Manuel Krebs whose designs featured blood cells and embryos. However, his designs were less well received by the public and, following further development of the designs by the top three finalists, Pfrunder was selected.

The design

The new series consists of the same denominations as are currently circulating, ie. the CHF 10, 20, 50, 100, 200 and 1,000. The colour schemes remain the same as the eighth series, to aid their identification whilst they co-circulate, and each note is vertically-orientated.

The cultural focus of the new banknote series has changed from featuring portraits of prominent Swiss figures. Instead, the design of each denomination is inspired by a key motif that represents an aspect of Switzerland.

With a theme titled 'The many facets of Switzerland', the CHF 10 note focuses on time and organisation; the CHF 20 note features the elements of light and creativity, while the wind and the wealth of experiences feature on the CHF 50. Water and humanity will be the themes of the CHF 100, the CHF 200 will focus on matter and science, and the CHF 1,000 on language and communication.

All six denominations are being produced by Orell Füssli Security Printing on *Durasafe®* – a composite substrate consisting of a central transparent polymer core surrounded by two outer layers of cotton banknote paper – produced by Landqart. *Durasafe* was developed specifically with the new series in mind (and in partnership with the SNB). In addition to increased durability over conventional paper, it provides opportunities for multiple new security features based on combinations of transparent and translucent windows that can be put anywhere in the substrate, in any shape.

The SNB decided on a total of 15 overt security features that are shown on the front and back of each denomination, five of which are specifically for public authentication. Each feature is located in the same place on each denomination, providing continuity for the public and other cash handlers.

One of the key public recognition features is *SPARK®*, which is used to illustrate a globe on the front of each of denomination. When the note is tilted from left to right, the ink changes to display a golden arc moving over the globe, but when tilted backwards and forwards, the colour of the globe alters.

Another key feature is Kurz's *KINEGRAM® VOLUME* holographic foil on the front of each note (which was a co-development with Orell Füssli Security Printing). It comprises a number of dynamic features, including red and green numbers (of the denomination) on four lines that move in opposite directions when the note is tilted, along with an outline map of Switzerland accompanied by the Alps and the names of all the alpine peaks in Switzerland that are over 4,000m high.

An embedded security thread is included, visible when the note is held to a light source. The Swiss cross and the denomination numeral are displayed at regular intervals. The Swiss cross is also recreated by series of micro-perforated holes (*Microperf*), again identifiable when the notes is held up to the light.

Other features include watermarks, a see-through feature and hidden elements which become visible when viewing the note against a light source, along with Level 2 ultraviolet and infrared security features.

An important consideration for the SNB when designing the series was to meet the needs of the visually impaired. The Swiss Federation of the Blind and Visually Impaired were consulted at an early stage of the design phase, and a new tactile element was subsequently designed in intaglio consisting of a series of short, raised lines along the notes' long edges, enabling users to identify each denomination.

Banknotes issued to date

The CHF 50 was issued in April 2016 following a large-scale public education campaign. This included the launch of a new interactive smartphone app that provides detailed information about the features that are used in the series.

The new note was widely admired by those in the banknote industry following its launch. It was awarded the International Bank Note Society's (IBNS) prestigious 'Banknote of the Year Award 2016', beating more than 60 other banknote design entrants. Furthermore, in 2017 the CHF 50 won the Best Banknote Award of the International Association of Currency Affairs (IACA).

The CHF 20 banknote, which is one of the nominations for the IBNS Banknote of the Year 2017 award, went into circulation this May, followed by the CHF 10 in October.

The next denomination to be issued will be the CHF 200 next autumn, followed by the CHF 100 and 1,000 notes in 2019.

Israel Completes Issue of New Series

The Bank of Israel has now issued the new NIS 20 and NIS 100 banknotes, the last of the new Series C Israeli banknote family consisting of four denominations. Israel began introducing the new series in September 2014 with the new NIS 50 banknote, followed by the NIS 200 in December 2015. The Bank's Governor, Dr Karnit Flug, presented the final two notes to President Reuven Rivlin and to Prime Minister Binyamin Netanyahu at a special ceremony to mark their launch.

The previous Series B banknote series has been circulating within the country for almost two decades, having been first issued in 1999. The Bank of Israel says the new series introduces advanced standards of security, innovation and accessibility. All the new notes differ in size and colour but each denomination contains similar security features, as well as tactile elements for the visually impaired.

The NIS 20 has a predominantly red colour scheme and is 129mm by 71mm, whereas the NIS 100 has a predominantly yellow colour scheme and is slightly longer at 143mm by 71mm. Both banknotes include portraits of prominent poets. Key security features include a *KINEGRAM VOLUME*® foil stripe, *SPARK*® Origin optically variable ink, and a windowed *Picture*™ security thread on the reverse.



In other news...

- The Central Bank of Armenia has released images of its new banknote family, due to be circulated during 2018. There is to be a denominational shake-up, with the addition of a 2,000 dram note and the removal of the highest value 100,000 dram note.

Instead of traditional cotton paper substrate, as used in previous Armenian banknote series, the upcoming notes will use a composite substrate. The Bank has advised that this choice will enable additional security features to be included in the design of the new banknotes as well as increase their durability, helping to minimise the overall cost of the banknotes.

It has not confirmed which composite substrate will be used. But in the meantime, the Bank has issued a commemorative 500 dram note, said to be similar the circulating version that will be circulated next year. The banknote, called 'Noah's Ark', is printed on *Hybrid*® from Louisenthal, and is the first note to be issued featuring the company's *RollingSta*® LEAD feature and *Galaxy*® thread.



© Central Bank of Armenia.

- The Banco Central de la República Argentina has now issued the new 1,000 peso note, the fourth in its new series, which follows the successive introduction of new 500, 200 and 20 peso notes.

Maintaining the design theme of 'Native Animals of Argentina', the main image is of a hornero, Argentina's national bird. The main overt security features are a *MOTION*® *RAPID* windowed thread and *SPARK*®.

Just two denominations now remain to be issued – the 100 and 50 pesos.

- Bangko Sentral ng Pilipinas has issued the new 5 piso coin from its New Generation Currency (NGC) Coin Series, in advance of the other coin denominations.

The design of the coin features Andres Bonifacio on its obverse, who founded Katipunan, the secret society that started the revolution which led to the declaration of Philippine independence in 1898. The release of the coin comes 120 years following his death, and to mark what would have been his birthday 154th birthday on 30 November.

According to the BSP, the silver coloured 5 piso contains the latest technology in minting coins as well as 'security features that help to deter counterfeiting, improve wear and corrosion resistance capabilities, saves the BSP minting costs, avoids risks arising from unexpected volatile swings in metal prices, and also deters the illegal hoarding of coins for melting and shipment to other countries'.

The other denominations of the NGC coin series will be released in January 2018.

- The Central Bank of the Solomon Islands has started circulating its new \$10 banknote, the fourth denomination to be issued in the Bank's new series. The current series began circulating in 2013 with the release of the \$50, followed by the \$100 in 2015 and the \$20 in January this year.

The theme of the new banknote family is the islands' rich cultural heritage. The design of the new \$10, which retains the predominantly red colour scheme, includes geometric designs on the front of the note representing shoals of fish. The reverse includes images portraying four traditional forms of currency. The key overt security feature of the banknote is De La Rue's *StarChrome*® colour-shifting security thread.

- The Reserve Central Bank of Peru has issued a revised version of its 100 Soles note, featuring Crane's *MOTION*® *RAPID* thread, which replaces the previous *MOTION*® thread. The new version contains even smaller micro-lenses, resulting in brighter images and in a much faster movement of the icons when the note is tilted. In another change, the note is now denominated in Soles, rather than Nuevos Soles.



Crane Co Buys Crane & Co *(continued)*

Combined sales of the two divisions are \$770 million, accounting for 27.5% of Crane Co's turnover. Of this \$770 million, 74% comes from CPI and the other 26% from Crane Merchandising Systems.

With Crane Currency set to become the third division of this segment, the combined revenues will account for nearly 40% of Crane Co's total sales.

According to Max Mitchell, President and Chief Executive Officer of Crane Co., 'Crane Currency is the fastest growing, fully integrated global currency provider in the growing global banknote supply and security industry. Making it part of Crane Co. is a logical extension of our expanding presence in the currency and payment markets.

Our combined businesses will be able to offer end-to-end currency and security solutions, from substrate manufacturing and banknote design and printing to micro-optics and banknote validation.

He added 'I would also like to acknowledge the effort and success of the extended Crane family, as well as the current Crane Currency management team led by CEO Stephen DeFalco. Over the past 15 years, they have transformed Crane Currency from a US-focused substrate manufacturer to a global leader in micro-optics and currency security solutions, as well as banknote design and printing. We are honored to welcome Crane Currency, with its strong legacy and track record, into our company'. The acquisition, when complete, will bring to an end over two centuries of family ownership of Crane Currency.

It is understood that, following the completion, CEO Stephen DeFalco will move on, and will be replaced by Annemarie Watson, former President of International Currency.

The acquisition will create a powerful force in the cash industry that brings together the production of currency on the one side, and its handling, validation and circulation, along with coins and other payment mechanisms, on the other.

And, of course, it will clear up once and for all the ongoing confusion in the market between the two companies. As Robert Morrow of CPI explained at the HSP Asia conference in Melbourne just one day before the acquisition was announced, 'Crane Co and Crane & Co are not the same company'. Well they are now.

CURRENCY NEWS™

Publisher: Currency Publications Ltd
(a Reconnaissance Currency Research company)

Editor: Astrid Mitchell (right)

Editorial Advisors: Richard Haycock, Martyn White

Contributors: Alison Poad, David Tidmarsh

Advisors: Michael Boehm, Maarten Brouwer, Mark Crickett, Tom Ferguson, Eugenie Foster, Lahcen Hadouni, James Hussey, Brian Lang, Raul Sierra



Annual subscription rate: £995 plus £25 per year for postage

Ask about multiple/corporate subscriptions.

The editorial team welcomes your news, contributions and comments.

Please send these to info@currency-news.com

10 Windmill Business Village, Brooklands Close, Sunbury, TW16 7DY, UK

Tel: +44 (0)1932 267 232; Fax: +44 (0)1932 780 790 www.currency-news.com

Charter Subscribers



No part of this publication may be reproduced, stored in a retrieval system or translated in any form or by any means – electronic, mechanical, photocopying, recording or otherwise – without the prior permission of the publishers.

While every effort has been made to check the information given in this publication, the publishers cannot accept any responsibility for any loss or damage arising out of, or caused by the use of, such information. Opinions expressed in Currency News are those of the individual authors and not necessarily those of the publisher.

COPYRIGHT 2017. ALL RIGHTS RESERVED

Events

24–26 JANUARY 2018

OPTICAL DOCUMENT SECURITY

San Francisco, US

www.opticaldocumentsecurity.com

1–4 FEBRUARY 2018

WORLD MONEY FAIR

Berlin, German

www.worldmoneyfair.de

5–8 FEBRUARY 2018

CASH CYCLE MEA (ICCOS)

Abu Dhabi, UAE

www.mea.iccos.com

6–8 FEBRUARY 2019

ATMIA US CONFERENCE 2018

Las Vegas, USA

www.atmia.com/conferences

19–21 FEBRUARY 2018

HIGH SECURITY PRINTING EMEA

Warsaw, Poland

www.hsp-europe.com

21–23 MARCH 2018

INTERGRAF SECURITY PRINTERS CONFERENCE

Dublin, Ireland

www.securityprinters.org

16-19 APRIL 2018

CASH CYCLE EUROPE (ICCOS)

Dublin, Ireland

www.europe.iccos.com