



Speech

Security Printing: A Central Banker's Perspective – Welcome Address to High Security Printing Asia

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Introduction

Good morning. Welcome to High Security Printing Asia 2017 and, for those who have travelled from overseas, welcome to Melbourne, Australia. I take this opportunity to also acknowledge the traditional custodians of the land on which we are gathered, the people of the *Kulin* nation, and, on behalf of everyone here, pay my respects to the *Kulin* elders past, present and emerging.

I am honoured to be presenting the welcoming address this morning, especially as this is the first time that Australia has been the host country in the sixteen-year history of the conference.

My address is also presented with considerable pride as Australia can claim a number of significant achievements in security printing. We were the first country to develop and issue polymer banknotes into general circulation, beginning with a single-denomination commemorative note in 1988. All five denominations of Australian banknotes have now been printed on polymer for over twenty years, which has kept counterfeiting of our banknotes low and production costs contained. We continued the innovation with the introduction of a world-first top-to-bottom clear window in our new banknote series, which we began releasing last year. The second note in the new series – our ten dollar – was released just over two months ago and a new \$50 is scheduled for release in just under twelve months from now. Australia was also one of the first countries to embed microchips containing biometric information into its passports, which, similar to banknotes, has helped to protect Australian passports from counterfeiting. It has also helped the secure movement of travellers through our air

and sea ports.

I would like to open the conference with some general observations on developments in the security printing industry in recent years as well some thoughts on the industry's outlook. You won't be surprised that most of my comments will focus on the banknote segment of the industry given my central bank background. I will, of course, also focus on the Asian region, not just because this is the Asian part of the High Security Printing conference series but because this region represents approximately half of the global high security printing market and is around four times larger than the industry's next largest market region. What happens in this region is a significant representation of the industry's global performance.

Let me begin with some observations on developments in the market.

Current State of Play

The Asian market for high security printing has experienced generally healthy growth over the past decade. Driven by good economic performance, rising incomes and infrastructure modernisation across many parts of the region, the high security printing market, as measured by the value of production, has experienced average annual growth of around 6½ per cent. [\[1\]](#) That said, rates of growth have been declining, albeit from a high base. From an annual increase of around 11 per cent at the turn of this decade, the market grew by an estimated 5½ per cent around the middle of the decade. Almost all segments, including payment card printing, have experienced slowing rates of growth, with the cheque printing segment reporting outright falls in the value of output.

Factors specific to the different market segments have, no doubt, contributed to the slower overall growth rates. However, the factor common to most market segments is the displacement of traditional printing methods by emerging digital technologies. This is both reducing production costs for existing producers through more efficient printing methods and introducing lower cost alternatives to traditionally printed high security products. The most obvious example is the growing use of mobile payment devices and digital wallets as alternatives to using traditionally printed instruments for making consumer payments.

Two segments of the market in Asia have, however, appeared to have moved against the trend of generally lower rates of growth in the value of production. One of these is ticket printing and is attributed to general upgrades in public transport infrastructure. That said, it is expected that growth in this segment will slow in the next few years as transport operators in Asia migrate from proprietary ticketing systems to more sophisticated arrangements, such as 'open-loop systems', in which value information for travel purposes is contained on the chips of consumers' existing payment cards, and digital tickets are available for use from consumers' mobile devices.

Interestingly, the other segment is banknote production. Over the past decade, the value of

banknote production in Asia has grown from around 4 per cent per year to around 5½ per cent in 2016. Although a seemingly modest increase over the period, it is significant because this segment comprises around 40 per cent of the high security printing market in Asia. It is also significant because it is occurring at the same time as the growth in production volumes of banknotes is slowing, primarily, as I mentioned, in response to the take-up of electronic and digital platforms for making payments. In the past 12 months, the volume of banknotes produced in the Asian region has risen by just 2 per cent compared with the average annual growth rate of around 5 per cent since the start of this decade. [\[2 \]](#)

Increasing growth in the value of production at the same time that growth in production volumes is slowing means, of course, that banknote prices are rising. Put differently, central banks, as wholesalers in the banknote market, are paying proportionately higher prices for finished banknotes than they have in previous years. Furthermore, the higher price is compensating printers and other input suppliers, as producers in the market, for generally slower growth in production orders.

My observation is that growth in banknote prices reflects, in part, a demand by central banks for banknotes to be printed on more durable substrates and for banknotes to have more sophisticated security features to protect against counterfeit attack. This can be seen in the increasing take-up of technologies to improve the durability of banknotes, such as polymer and polymer-composite substrates, as well as varnishes as a protective banknote overcoat. It can also be seen in the increased use of added security features such as optically variable devices – that is, foils and features that change colour and shape as the banknote is tilted. Many of these features come at premium prices compared with traditional inputs to banknote production. This is not a development unique to the Asian market but is also evident in other regions, most notably Europe and parts of North America.

Two strategies underlie the demand for more expensive substrates and security features, strategies that reinforce each other.

The first is that, as the growth in production volumes declines, central banks are having their banknotes printed on more durable substrates in order to extend banknote life in circulation and, thereby, reduce medium- to long-term printing costs. Industry estimates suggest that banknotes printed on polymer substrates, for example, cost twice as much to produce as paper banknotes, but last three to four times longer. This was certainly Australia's experience in the late 1990s, the first few years of printing our banknotes on polymer. Recent estimates suggest that the Australian \$5 banknote – our lowest denomination banknote – has a median life of around 3½ years while our largest circulation note by volume – the \$50 – has a median life of around 10 years.

The second strategy is that central banks are having more sophisticated security features added to protect banknotes partly because the technology available to counterfeiters is improving and partly because the banknotes are staying in circulation for longer. In other words, banknotes are being

printed with advanced security features to protect against current sophisticated counterfeiting techniques as well as as-yet unspecified and unknown techniques that may become available to counterfeiters over longer periods in which the banknotes are likely to be circulating.

Future State of Play

The obvious question arising from these observations is: will the current state of play continue? I would like to offer some thoughts on the future state of play, focusing, again, on the banknote segment of the market.

It almost goes without saying that the outlook for banknote printing depends on the future demand for cash. There are different views on this topic, including the view that physical cash has only a finite future. I won't summarise the various views other than to say that we cannot ignore the possibility that the use of physical cash in many countries may disappear at some stage. That said, the common view seems to be that the future state – certainly in the foreseeable future – is likely in most countries to be one of relatively less cash rather than cashless. That is, cash use may decline to a level that reflects a base demand in the community for the specific characteristics that physical banknotes provide.

Whatever the endpoint – less cash or cashless – the journey is likely to be a steady walk rather than a quick sprint. There are several reasons for this, but two, in particular, stand out.

The demand for cash

The first is that, despite its declining use in transactions, the overall demand for cash in many countries is continuing to expand. In the past few years, the median annual growth in currency in circulation across International Monetary Fund (IMF) countries was just under 9 per cent. ^[3] Similar annual growth was recorded for countries participating in the Pacific Rim Banknote Conference, which includes China, Korea, the Philippines, Australia and a number of other Asian countries as well as Canada and the United States. ^[4] In most of these countries, including Australia, the ratio of currency in circulation to measures of national production is around its highest for several decades.

Underlying the expansion is a shift in overall demand towards holding cash for non-transactional reasons, such as a store of wealth and as a precautionary balance. Even so, the use of cash for transactions purposes is still growing in most countries, albeit at a slower pace. There is, in fact, only one country in the world – Sweden – where the transaction demand for cash is in retreat. This is because cash transactions, despite losing prominence to non-cash payment methods, still offer features that people find desirable – they are anonymous, exchange and settlement is instantaneous, and they are made in a liability of the central bank, which gives people confidence in the value of their exchange. Furthermore, cash transactions can be made when non-cash payments systems are unavailable, not operating, or are relatively expensive to use compared with using cash.

The key point is that, whatever the underlying causes, there is a degree of resilience in the demand for cash. Arguably, the resilience is strongest in the Asian region because of the region's large population. In China, the world's most populous country, growth in currency in circulation has averaged around 5 per cent annually over the past four years even though the country has, at the same time, experienced a dramatic shift to electronic forms of payment – more dramatic, in fact, than in most other countries. Correspondingly, China's annual demand for banknote substrate is around 30,000 tonnes, some 30 per cent of annual global substrate demand. The picture is broadly the same in India and Indonesia, where strong cultural factors also underpin the demand for cash. Together, China, India and Indonesia, make up an estimated 55 per cent of global consumption of banknote substrate. [□\[5\]](#)

By any measure, it is reasonable to assume that the momentum behind banknote demand in these countries alone will take some time to reverse direction.

Investment in physical cash infrastructure

The second reason to believe that the journey will take a while is that central banks are continuing to invest in banknote infrastructure. Based on my own quick survey, there are 22 central banks currently upgrading their banknotes or, at least, have done so in the past few years. A slightly larger number of central banks – 23 – are underway with or have recently completed upgrading their printing and/or banknote processing centres. China, Hong Kong, India, Malaysia, and the Philippines as well as Canada and the United States feature in the group of countries upgrading their printing and processing operations. Australia features in both groups. As I mentioned earlier, we are upgrading our banknotes with more sophisticated security features. We are also in the final stages of fitting out a recently completed storage facility with automated banknote processing equipment. The facility – which is several kilometres north of Melbourne's CBD – will more than double our existing storage capacity and increase our processing capacity by around 50 per cent.

Expenditures on printing equipment, secure storage and processing are significant investments. It is difficult to get precise numbers in every case but, extrapolating on a few reported figures, the total investment in printing and processing across the 23 central banks I identified in my survey amounts to an estimated \$4¼ billion (US\$3½ billion).

The key point is that all of these central banks could not have got the investment decision wrong. Even if the endpoint is that our communities will be using much less cash, investments in new printing and automated processing equipment will serve to keep production and processing costs down as this happens. Either way, the size of the investment decisions by central banks in banknote infrastructure are based on central banks being in a position to continue managing the use of physical cash for some time.

Bringing It All Together

Pulling these thoughts together, the prospect that the decline in the use of banknotes is likely to be gradual, particularly in this region of the world, is good news for the high security printing industry, of course, at least as far as printing banknotes is concerned. It suggests that the demand of central banks in recent years for banknotes to be printed on more durable substrates and with more sophisticated security features is likely to continue.

This good news, however, is not without qualification. It would be unrealistic to believe that central banks will keep paying increasingly higher unit prices for banknotes. Underlying the demand for longer lasting substrates and new, automated cash processing centres is a desire to manage the costs of the banknote lifecycle more finely over the medium to long term. They will want substrates and security features at competitive prices. They may also change strategies. It is possible, as the use of physical cash declines and technology advances, that central banks will find it strategically better to shift to making small but regular changes to banknote design and functionality rather than large, decades-apart upgrades to a full banknote series. They will also want access to detailed data about the performance of various banknote features at various stages of the banknote life cycle, allowing them to finely manage their investment in banknote durability and security against the uncertainty of future banknote demand. This may mean that awarding contracts to design and print a new single-denomination banknote or a complete new series may become less common. It may, instead, become more common to award contracts to print a single new feature and incorporate it into an existing banknote design.

If banknotes are staying longer in the hands of the public, it seems likely, too, that central banks will require the notes to have security features that are more overt. That is, security that can be easily seen by looking at the note or by easily scanning a banknote with a smart phone. Banknotes presently have a roughly balanced mix of overt and covert security features.

So there are opportunities and challenges ahead for the high security printing industry. Both seem more acute in the Asian region because of its large population and cultural connection to using physical cash. That is why this conference is important and timely. It is an opportunity to share experiences, consider new technologies and techniques, and, with the benefit of these, discuss and plan strategy for the changes that are likely to occur over the next decade. I encourage you to make the most of this opportunity over the next few days and I look forward to talking with you and sharing ideas and thoughts. I would also encourage you to take in the Melbourne atmosphere. The city has a well-earned reputation for creativity. As always, creativity will be important in order to take the opportunities ahead in the high security printing industry.

Once again, welcome.

Endnotes

- [*] I thank Malcolm McDowell and Nuwan Kalpage of Note Printing Australia and my colleagues at the Reserve Bank of Australia Kristin Langwasser and Gordon Flannigan for assistance in preparing this speech.
- [1] See Smithers Pira (2015), 'The Future of Global Security Printing Markets to 2020', Final Report, June. Market value, production value, production cost and value of output are used interchangeably. They refer to the value of finished production, including the cost of inputs, but not necessarily the production mark-up and are compiled from a number of sources. Asia covers 28 countries.
- [2] Production volume data from unpublished De La Rue Annual Banknote Survey. Asia covers 27 countries in the Asian region.
- [3] Sourced from the IMF's International Financial Statistics database.
- [4] Information from papers presented at the Pacific Rim Banknote Conference 2017.
- [5] Sourced from Smithers Pira (2015) and papers presented at the Pacific Rim Banknote Conference 2017.