

Franz-Christoph Zeitler: Strategies for combating counterfeit money in Germany

Presentation by Dr Franz-Christoph Zeitler, Member of the Executive Board of the Deutsche Bundesbank, at the 2005 Currency Conference, Montréal, 5 October 2005.

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Ladies and gentlemen I am pleased to welcome you to my presentation on “Strategies for combating counterfeit money in Germany”. I hope my lecture will live up to your expectations and provide you with an insight into some interesting new aspects of this issue.

1. Unexpected demand in cash – combating counterfeits as a pillar of confidence

On the surface, the title of my presentation appears to refer to some technical issues connected with the work of our central bank. Viewed more closely, however, I think it reflects the main overall objective of central banking, which is to promote our virtual commodity consisting of confidence and credibility.

One of the guiding principles of monetary policy is that “money matters”. This underlines the significance of the money supply for medium-term price developments. And although cash only makes up a small part of the money supply that is relevant to monetary policy, the principle that “cash matters” is also important.

Contrary to many forecasts at the time when the euro was launched, cash continues to be very popular. Over the past few years, currency in circulation in the euro area has hit double-digit annual growth rates and thus increased much more than the quantitative models based on economic growth and the rise in cashless payments led us to expect. The net issuance of banknotes by the Eurosystem went up from some €220 billion shortly after the introduction of euro banknotes and coins in 2002 to around €524 billion at the end of the second quarter of 2005. The Bundesbank alone recorded a growth of €34 billion, or 20%, in the net issuance of banknotes in 2004. This disproportionately sharp rise is also due partly to the Bundesbank’s important role as the “hub” for the supply of euro cash outside the Eurosystem.

Cash therefore remains in demand. Just as books and newspapers have their place in the age of the internet and television, cash will likewise retain its importance in the age of ‘cybermoney’. This is also supported, for instance, by the fact that, according to our findings, the share of cash used in European foreign travel has increased sharply since the introduction of euro banknotes and coins despite the risk of loss and theft: from around 30% in 2001 to some 53% in 2004.

It is often claimed that one of the reasons for the increase in currency in circulation is the growth of the shadow economy. It is important here not to confuse cause and effect: The shadow economy has not arisen because of the existence of banknotes and coins. Rather, the shadow economy has its origin in various different factors and, among other things, is reflected in the use of cash and incidentally in cashless payments as well. Increasingly, therefore, measures are also being taken at international level, including measures to prevent the illegal channelling of banknotes and coins into the legal economy.¹ Furthermore, a shadow economy also exists in countries with high inflation rates where cash only plays a minor role as a “value store”.

¹ See the standards of the “Financial Action Task Force on Money Laundering”.

As I see it, however, the crucial cause of the unbroken demand for cash is the psychological factor, ie people's preference for cash as opposed to cashless means of payment, such as credit and smart cards. In the abstract world of financial instruments (including derivatives), cash is "physically tangible" and serves as a firm anchor on which people can place their confidence in a currency – confidence which is based on a high level of security, data protection and, above all, price level stability.

The confidence placed in a currency is ultimately dependent on its stability. However, people rightly expect their currency to provide not just security against depreciation but also security of the cash in circulation – in other words, banknotes and coins that are of good quality and, in particular, protected against counterfeiting.

The Eurosystem has therefore also identified this as a major core task of the central banks in its decision on "Establishing Principles and Objectives for the Eurosystem's Role in the Cash Cycle" (Governing Council decision of 16 December 2004). While many are involved in fulfilling this task, the (ultimate) responsibility for this is borne by the central banks.

In a similar way to price stability, where people talk about "perceived inflation", it is likewise important when preventing counterfeiting to ensure that no "perceived insecurity" arises in the population. The Bundesbank therefore attaches great importance to combating counterfeit money and pursues what might be termed a "multi-dimensional" strategy based on different levels.

I would like to proceed by giving you a short outline of the individual elements of this strategy. First, however, let us take a brief look at the current counterfeiting situation in Germany.

2. Counterfeiting situation

In 2004 81,000 counterfeit banknotes were detected in Germany, while the total in the euro area amounted to approximately 594,000.² In the euro area there are currently about 60 counterfeited banknotes per 1 million banknotes in circulation. This compares with an average figure for Germany of 19 per 1 million banknotes. This nevertheless remains a challenge for the Bundesbank as indicated by the fact that the figure for the D-Mark was only ten counterfeited banknotes for every 1 million banknotes in circulation.

What can we do to strengthen the security of our currency?

3. Three main strategies: Information, commitment and involvement in the cash cycle, and improvement of security features

I think there are three main strategies to be deployed:

- Firstly, regularly informing the public about the security features, which is part of the daily work of our branches in the different parts of the country. This is important because even the highest developed security items are of little value if they are not known, not used or are too difficult to be used by the general public. To this end I think that our familiar checking routine, the "feel-look-tilt" test (with the stress being on "feel" and "tilt"), offers a very practical and convincing explanation of our "level one" security items.

² Equivalent to a counterfeit money share of 13.6%. Share of currency in circulation: Value approximately 39.8%, volume about 41.7%.

- The second strategy is the Bundesbank's commitment and involvement in the cash cycle and cash processing, with a focus on authenticity and fitness check as well as close cooperation with the police forces.
- The third strategy to strengthen the level of security of our currency is to improve counterfeit deterrence features which prevent banknote reproduction, and to develop highly sophisticated security features – security items on three levels:
 - for the general public
 - for professional use
 - for central bank purposes only

To return to the first strategy, it is obviously important to know who needs what information. Last year the ECB conducted a survey to find out how much professional cash handlers knew about euro banknotes, where they got their information from and when they received their most recent update. One of the major conclusions is that professional cash handlers have only little knowledge of security features and that they focus on classical features such as watermark, intaglio print or security thread. The slogan “feel-look-tilt”, which should remind them of several security features, is hardly known, and the terminology in brochures is often too technical. On the other hand, people do want more information, so it is the task of a central bank to offer this in an appropriate way. We see counterfeit prevention as an ongoing requirement. Regular updates of information with respect to the techniques used by counterfeiters are crucial. For this reason we have decided to play a proactive role and to offer target group-specific training sessions. Although addressed primarily to professional cash handlers, anybody may attend such a training. Furthermore, the Bundesbank is also on hand with appropriate information on this topic at public exhibition trade fairs and similar events. As Germany has approximately 82.5 million inhabitants and about 48,000 bank branches, we cannot offer training centrally. We therefore involve the staff from our branches, which provides us with a total pool of 200 trainers who are themselves trained by our central office's counterfeit experts. Training sessions are held at our branches, although our trainers can also visit interested companies at their premises on request.

We also constantly encourage our branches to hold “open days” in order to give members of the general public the opportunity to improve their skills in recognising counterfeit money.

This offer meets with a high take-up among professional cash handlers and the general public: We conduct almost 100 training sessions per month, each of them attracting an average of 20 participants.

There are many media which can be used for spreading information and publicising our “product” (the training). It is important that we are able to deliver unbiased and correct information, decreasing the likelihood of exaggeration in the press and avoiding any public overreaction such as shopkeepers refusing to accept a specific denomination.

Last but not least we support the developers, manufacturers and vendors of counterfeit detection devices by offering detection tests for their machines free of charge at our premises. The central banks of the Eurosystem have introduced common standards for these tests, including a harmonised test pack of counterfeit and genuine banknotes. The test results will be published on a joint Eurosystem website which will be accessible to everybody. We also expect further improvement of these devices thanks to competition between the manufacturers.

The second strategy for combating counterfeits is to be involved in the cash cycle and to co-operate closely with the police forces.

On the European and international level a discussion is taking place about the possibility and feasibility of “outsourcing” cash processing. It goes without saying that each central bank

must decide on this issue for itself and that the question as to whether it is better for cash processing to be organised publically or to what extent private responsibility is to be preferred cannot be answered by a simple “yes” or “no”. It can only be answered by means of co-operation between central banks and the private sector, which must each play their part as efficiently as possible.

The Bundesbank has reorganised its structure and downsized the number of its branches from some 130 to 61³ at present and 47 by the end of the restructuring process in 2007. We are not doing this in order to withdraw from cash processing but instead to enhance our effectiveness (at least as far as banknotes are concerned).

Tests within the Eurosystem have shown that banknotes in circulation in Germany achieved the highest quality thanks to a sufficient return frequency of banknotes to our branches. According to estimates, the Bundesbank has a share of around 35% in counterfeit banknote identification despite the fact that its branches are only in the second or third line of counterfeit money detection and the volume it processes has already passed through traders and possibly also banks and/or cash-in-transit companies. The Bundesbank's share in the detection of counterfeit coins is even larger: Some 50% are discovered by the branches of the Bundesbank despite the fact that it has recently reduced coin processing and restricted its activities to random checks.

From time to time, there are public calls for the introduction of some kind of compensation as an incentive to those discovering counterfeit money.

This is, of course, not possible for obvious reasons, as it would mean that the central bank was subsidising the sale of counterfeit money. Although the main focus of combating counterfeiting in terms of its proportional value is on banknotes, we must not lose sight of counterfeit coins either, especially since the coins in the euro area have a high value.

Another requirement for combating counterfeits effectively is good co-operation with the police. Our police forces have online access to the relevant databases. CMS is the Counterfeit Monitoring System, a database hosted by the ECB in which all euro counterfeits – banknotes and coins – can be found, including classification details, descriptions and images. We supply valuable information about the technical characteristics of imitated security features.

As currency counterfeiting is increasingly becoming an internationally organised crime, the EU has established a European police force – Europol – which benefits from the same support as that mentioned above. Alongside Europol and on a case-by-case basis, direct contacts to foreign police forces are established with the support of our national police.

4. Details on the improvement of security features

Our third strategy refers to the improvement of security features. Here we are at the front line of economic and technological developments. The experience to be gained by the Bundesbank from the first euro series is that while there is a large number of level 2 and level 3 features, there is a lack of effective level 1 features for the general public in everyday situations. (Level 1: general public, level 2a: verification aid and human sense, level 2b: retail detectors yes/no, level 2c: cash machine centres, level 3: machine authentication features exclusively for NCBs/ECB.)

³ 61 branches and 17 operating units (part of the branches) as at 30 September 2005.

There is therefore a strong need to develop overt security features for the second series of euro banknotes that are self-explanatory and self-verifying.⁴

Firstly, we must improve and continue to develop existing security features in order to achieve better quality and ensure resistance to counterfeiting.

Today, **intaglio printing** uses new engraving technology and enhanced artwork and scientific techniques to produce a range of unique security benefits. The following overview contains some examples of applications of this advanced engraving technology: - Multitonality: A very different appearance of the same colour can be achieved by varying the thickness of the ink layer.

- Fine line printing: very fine details within images or text (microtext).
- High tactility areas: high relief that everybody can feel on the banknote (eg enhanced tactility areas for the visually handicapped).

In addition, **enhanced optically variable inks (OVI)** have been developed. For instance, colour shifting effects can be combined with three-dimensional and moving effects within one ink.

Furthermore, **special security threads and foils** with transparent and opaque areas can show very brilliant effects in colour (switch) and gloss.

Secondly, the “intelligent” combination of security elements allows the creation of new and more complex effects. Registered intaglio overprints of silkscreen printed motifs, special offset printed patterns and diffractive foils can enhance the security of existing elements. Furthermore, blind embossing of other printed features produces layered, variable images.

Nevertheless, for the next series of euro banknotes we need at least one new level 1 security feature that can be used by the ordinary citizen in everyday situations. For instance, there are the newly developed “transparent window” techniques which allow the authenticity of a banknote to be checked quickly by simply altering the background and without giving one’s business partner the impression of mistrust, as would certainly be the case if one were to hold up the banknote to the light to check the watermark.

Finally, efforts have been made to use new technologies areas and to adopt them for banknotes. One potential solution for the future would be eg to have banknotes with liquid crystal displays for a variable alternating display of digits and letters in combination with power generating devices (for instance solar cells). A liquid crystal display (LCD) could, for example, allow a hidden text or image to be revealed by simply touching the banknote. Other potential areas of interest are “nano” and laser technology.

I hope to have provided you with an insight into some interesting new aspects of this topic. I also hope to have fulfilled my other aim which was to give you the correct impression that counterfeit money really is a key issue for the Bundesbank.

Despite all these measures, however, no hopes should be nurtured that they will provide a definitive solution to the problem of counterfeiting. The same principle applies as with weapons and defence weapons: the latest sword calls for the latest shield. Or to put it within the context of today's day and age: the most modern missile calls for the most modern anti-missile system. Preventing and combating counterfeits remains an ongoing task for the central banks.

⁴ Self-explanatory function: clear and easy to understand without the need for extra information, eg colour shift inks; self-verifying function: a hidden feature becomes visible through the “verifier”, a special device integrated in the banknote such as fresnel lenses or polarisers.

In the ancient world, the famous Athenian statesman Pericles ensured the prevention of counterfeiting. At that time of precious metal currencies, this involved combating the filing or snipping off of the edges of gold coins, which is why Pericles made use of unique coin stamps in order to prevent this. It is therefore not without good reason that an EU project aimed at combating the counterfeiting of banknotes and coins has been given the name "Pericles".