

Results of the circulation trial of a R\$10 polymer note commemorating the fifth centenary of the discovery of Brazil

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In April 2000 the Banco Central do Brasil announced the issue of a 10 real commemorative banknote to be printed on polymer, with the aim of conducting a four-year circulation trial to assess the durability, resistance to counterfeiting and public acceptance of this new material in Brazil. During 2000 and 2001, the Casa da Moeda do Brasil printed 253 million pieces, on a substrate imported from the Australian plant that is the owner of the technology.

There are now some 9.1 million polymer notes in circulation; this is just 0.24% of all notes in circulation in Brazil (approximately 3.8 billion as of 10 March 2009) and 1.45% of the 10 real notes held by the public.

Background

In 1999 the Board of the Banco Central do Brasil approved the circulation trial of a polymer banknote, motivated by the possibilities that the new material offered: greater durability (four times that of paper), greater difficulties for counterfeiters and greater resistance to soiling.

The 10 real (R\$10) note was chosen for the trial because it was the highest volume note in circulation and the note most used in ATMs and automatic processing machines. This meant that the trial would permit better assessment of the new material's security features by the public and better assessment of its performance in banknote processing equipment. Moreover, as it was an intermediate denomination, there would be less incentive for the public to keep the new notes as souvenirs, and thus more chance of success for the circulation trial.

The R\$10 polymer note was launched on 20 April 2000 to mark the 5th centenary of the discovery of Brazil. This was an ideal opportunity to test the new material and security features in a commemorative banknote, with no commitment to continue the issue as would have been the case in a normal note.

A total of 253 million R\$10 notes were issued; at that time, this represented approximately 50% of the total number of this denomination in circulation, thus permitting a more than adequate comparison with paper.

The following aspects were to be analyzed during the trial:

- how well the public adapted to handling polymer notes;
- the effective durability of polymer notes in handling conditions in Brazil;
- the resistance of the security features to counterfeiting attempts;
- how well the material behaved in cash processing machines at the central bank and commercial banks; and
- the ease or difficulty of printing on this new material at the Casa da Moeda do Brasil (CMB).

Results

Below we present the results of the circulation trial, which concluded in the first semester of 2005:

- *Durability*: The trial showed that the lifetime of the polymer notes was 3.2 times that of the paper notes. However, there were signs that the durability analysis was affected by resistance on the part of banks to use the notes in ATMs and by resistance on the part of banks and retailers to handle the notes; this could significantly reduce the effective circulation and thus increase the durability figures.
- *Counterfeiting*: A small number of counterfeits was detected, most of very low quality. The coexistence of paper and polymer R\$10 notes could have "encouraged" paper counterfeits as this is a material that is very well known to counterfeiters.
- *Automatic processing and ATMs*: Minor adjustments alone were necessary in more modern equipment, but processing of polymer notes was impossible in older equipment. Processing productivity was 24% lower than in the case of paper notes; this problem was due to banknote deformation as a result of the handling practices and Treasury procedures in use in Brazil.
- *Economic analysis*: The circulation trial represented no additional cost for the central bank.
- *Public acceptance*: During the circulation trial, the central bank conducted three public opinion polls to assess acceptance of the polymer notes. The last such poll, conducted in 2004, showed that 56% of the public was in favour of polymer and 42% against. In the case of retailers and banks, 74% and 95%, respectively, preferred the paper notes.
- *Printing process*: For production of the polymer notes, adjustments had to be made to the printing equipment at the Casa da Moeda do Brasil. These adjustments were feasible, despite the significant drop

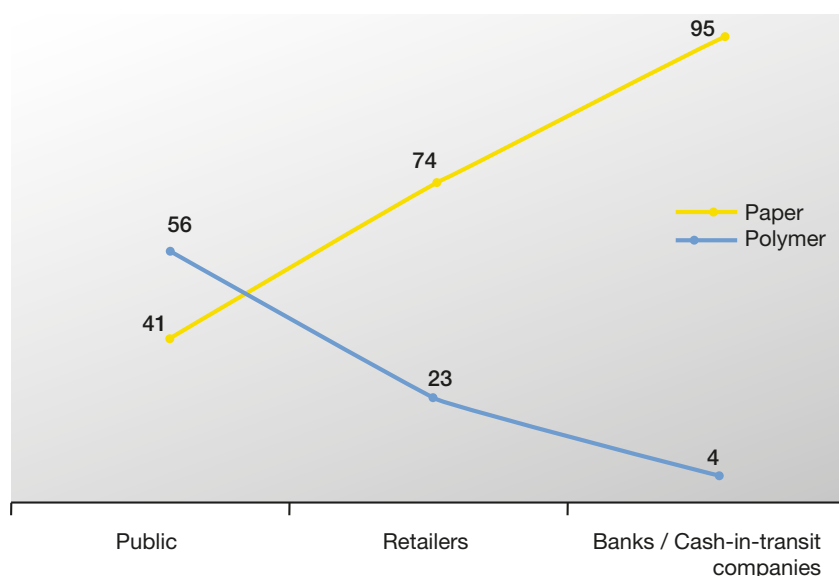


in productivity at several stages of the process. In the event of regular production of polymer banknotes, investment would be needed in varnishing equipment. Moreover, there is only one supplier of the polymer substrate worldwide, meaning that it must be imported from Australia.

Taking into account the abovementioned results, the Banco Central do Brasil considered that:

- adoption of the polymer substrate could involve a high adaptation cost, as it would require changes in handling practices by the public and in processing and storage procedures and Treasury operations at the central bank, banks and bulk cash handlers;
- for these changes to happen, and in order to benefit from all the characteristics of the polymer substrate, investment would be needed in training and education campaigns, as well as adjustments in the equipment and work procedures of the entire financial system;

Preferences



- there was no clear indication that the public preferred notes printed on the polymer substrate to paper notes; and
- professional cash handlers strongly rejected the polymer notes.

Conclusion

The central bank concluded that, at that time, there was insufficient evidence of the benefits of replacing paper banknotes with polymer notes, given the handling conditions and Treasury procedures in use in Brazil and the potential costs involved for the bank of issue, the financial system and society at large. However, the central bank reserves the right to re-examine the issue in the future, in light of the development of the use of polymer in other countries. The polymer notes are being gradually withdrawn from circulation as and when they become unfit.