The surprising resilience of cash

Helmut Stix
Oesterreichische Nationalbank

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Based on joint work with Clemens Jobst. The views expressed here are exclusively those of the authors and do not necessarily reflect those of the OeNB or the Eurosystem.
Motivation

- no decrease, increase after 2007
- Per capita holdings 2014 ~3000 euro → foreign demand, hoarding
Motivation

“World” Currency in Circulation over Nominal GDP (in %)

Note: The figure shows the currency in circulation to nominal GDP ratio for a sample of economies which comprise about 95% of World GDP (see Jobst and Stix 2017). All aggregations are based on market USD exchange rates that are fixed at 2006.

Source: Jobst and Stix (2017).
Demand for currency has increased in many economies

- Change in CiC / NGDP Ratios from 2003/04 to 2013/14 in 72 economies

  Mean increase 17%
  63% of economies had an increase
  50% of economies had an increase of >13%
A long-run view on currency in circulation (over nom. GDP in %)

- Financial innovations ↓ cash
- Cash resilient
- Recent increase strong
- Increase also in Great Depression
- Increase also in GBR

Note: The shaded area marks the period from 1929 to 1933 and from 2007 to 2015. Sources: See Jobst and Stix 2017.
Comparison with the 1930s banking crises

Sources: See Jobst and Stix 2017.
...other economies

Sources: See Jobst and Stix 2017.
Key questions

- To what extent and why is cash still used for transactions?
- What are the drivers of recent increases of currency demand?
To what extent and why is cash used for transactions?

- Technological innovations → direct effect on cash
- Cash balances used for transaction balances comprise only small share of total currency in circulation

- Payment diary survey studies provide information on use of cash at the point-of-sale
- Bagnall et. al. (2016, IJCB): Compare results from 7 advanced economies
  - Payment card ownership almost universal
Share of cash at point-of-sale transactions

Source: Bagnall et al. 2016.
Cash share (value) by education

Socio-demography & preferences matter

• Cash for expenditure control, to economizing on fees
• Use of payment instruments largely in line with what consumers prefer, how they assess attributes of payment instruments
Future

• Evidence from past payment diary surveys:
  • Trend decline
  • Changes have occurred gradually

• New technologies (NFC, electronic wallets, etc.) will have a sizeable effect but cash will continue to play a role
What are the drivers of recent increases?

- Foreign Demand
- Lower interest rates

Additional explanations:
- Shadow economy
- Crisis effect after 2007/08:
  - Portfolio rebalancing: shift from deposits to cash (confidence, uncertainty)
  - Temporary fall in income: Agents hold currency according to their permanent income and have not adjusted their expectations of permanent income (Friedman and Schwartz, 1963)
Study large set of economies

- Data on 80 economies, 60 used in estimation
- Separate economies by foreign demand
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Back-of-the envelope calculation:

- ~1/3 foreign demand
- ~1/3 explained domestic (interest rates, GDP)
- ~1/3 unexplained domestic
Study large set of economies

- Data on 80 economies, 60 used in estimation
- Separate economies by foreign demand
Can evolution of demand for currency be explained by a standard money demand model?

- Focus on changes over time, fixed effects panel model

- Currency demand reacts to interest rates → Part of increase due to lower interest rates
  - Reaction smaller as interest rates approach zero

- No effect of size of shadow economy

- In higher GDP economies: Demand for currency is higher after 2009 than it should be according to GDP and interest rates
  - On average +15%

→ Reason for the shift?
Shadow Economy Declined in Most Economies

Change from 2003/04 to 2013/14:

- High Income OECD: decrease in 30 out of 32 economies
- Euro Area: Increase only in Spain, Portugal, and Cyprus
- USA, GBR, JPN slight decrease

Source of Shadow Economy Data: F. Schneider
Which other factors behind level shift?

1. Use permanent income instead of period income → does not explain entire unexplained shift

2. Alternatively: Study whether cash demand differs by financial crisis exposure and financial crisis experience

• No data on confidence / trust
• Compare groups of economies. 80% of richer economies had financial/banking crises
• Results (with caution):
  • Higher cash demand in economies with a financial crisis in 2007/08, a financial crisis before 2007/08
  • No higher cash demand in economies without a financial crisis
Conclusions

• Demand for currency has been remarkably resilient over a longer period

• Use of cash for transactions has gradually declined

• In recent years, demand for currency has increased not only in the Euro Area and the US but also in many other economies

• In higher GDP economies: cannot fully be explained by evolution of interest rates and GDP
Conclusions

- Cash as a safe haven asset

“The more uncertain the future, the greater the value of [the] flexibility [of cash] and hence the greater the demand for [it] is likely to be.”

(Friedman and Schwartz, 1964, p. 673).

- Conjecture: important reason for increase in cash demand