

# Historical Reflections on the Transition between Money Technologies

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Uses of the Past in International Economic  
Relations

[www.UPIER.web.ox.ac.uk](http://www.UPIER.web.ox.ac.uk)



# The Long History of the Future of Fintech

- Money
  - Means of Exchange (settlement systems)
  - Store of Value (assets)
  - Unit of Account (denomination of transactions, valuation)
- Incentives for Technological innovation
  - Efficiency (gold to notes)
  - Network externalities
  - Monopoly rents/Seigniorage
  - Fee generation/commercial interests
- Environment for transitions
  - ICT innovations (telegraph to TCP/IP)
  - Inflation (destroys fiat money)
  - Political disruption/War - legal tender for tax purposes

# What is Money

Means of Exchange

Notes and Coin  
FinTech:  
Card Payments  
Mobile Payments etc

Store of Value

Gold (safe haven)

Unit of Account

National Currency  
Global Currency?

Crypto-currencies: speculative, unstable value, limited means of exchange  
Environmentally damaging to mine



Grasberg mine Indonesia  
(13,000 feet deep)

Bitcoin mining is not directly  
extractive – also providing settlement  
system

Sebastião Salgado, SERRA  
PELADA,  
GOLD MINE, BRAZIL, 1986



Hut 8 Medicine Hat  
Canada: uses as much  
electricity each day as  
entire city  
Most is fossil fuels  
(CBC.ca)



# International Currencies Transitions

- **Sterling until 1950s, then USD**

**Loss of stable value, shrinking share of UK in world trade, transition delayed by institutional controls, fragility of the USD until 1970s floating era**

- USD remarkably stable share of global reserves, dominant in means of exchange, unit of account and settlement
- 2008: China and Frankel 'Why the Euro will rival the dollar', *International Finance*.
- 2010: RMB Internationalisation

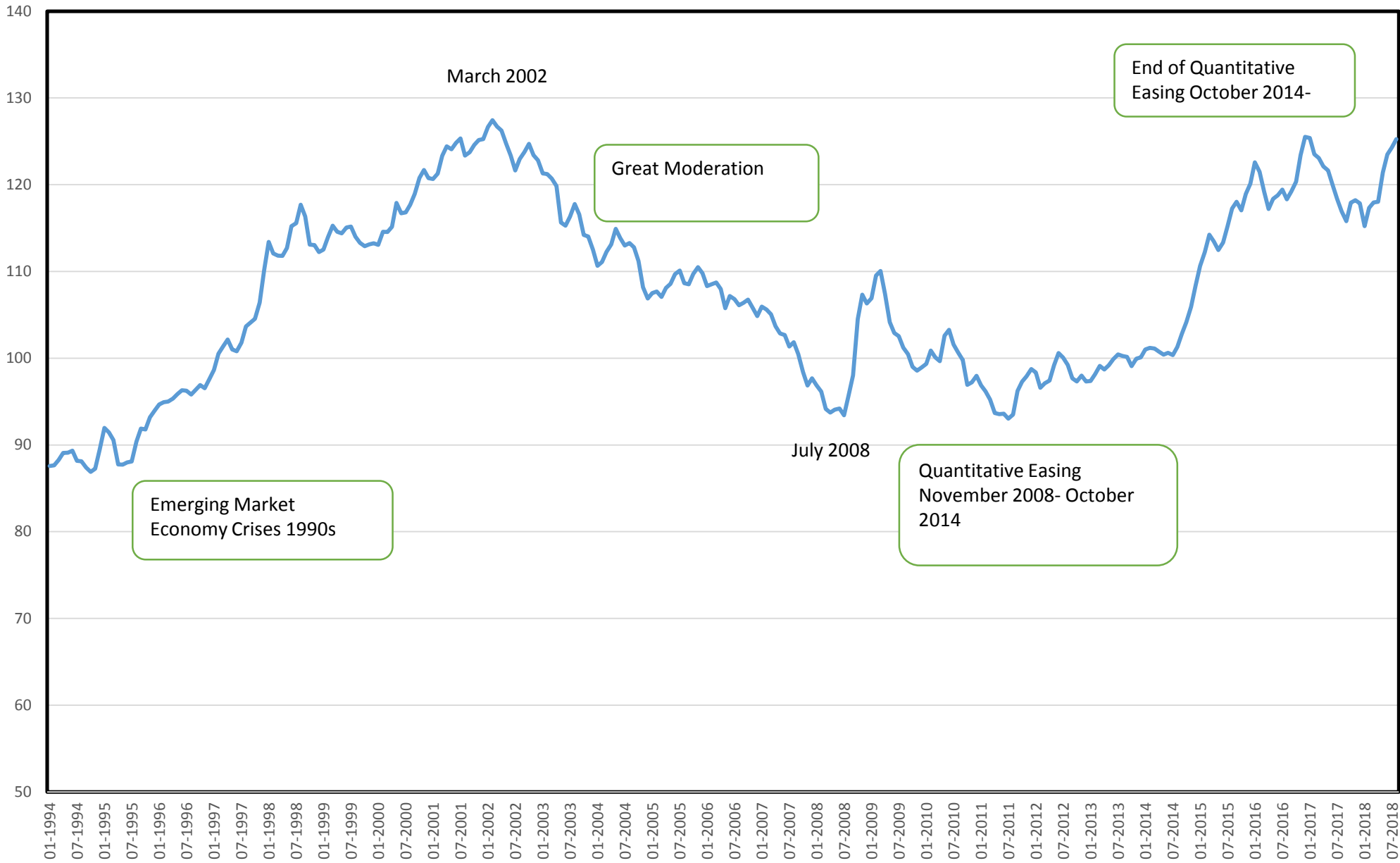
**Currency Distribution of Foreign Exchange Reserves 1950-1982**  
**(SDR Valuation)**



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US Dollar Broad Effective Exchange Rate Index (2010 = 100)



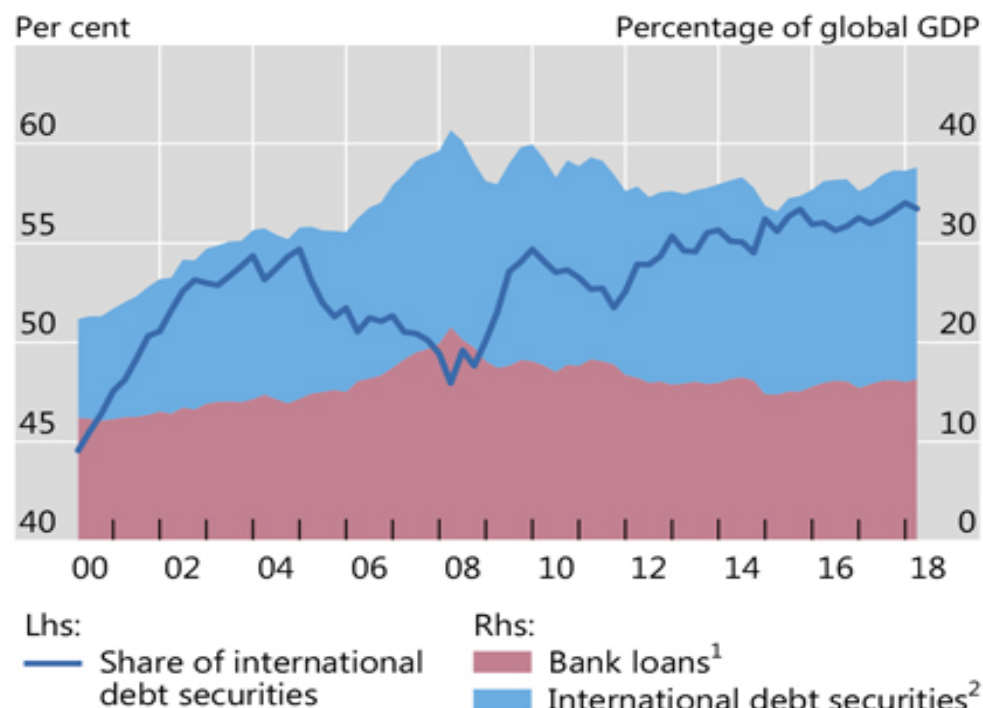


## The share of debt securities and the US dollar in international credit has risen

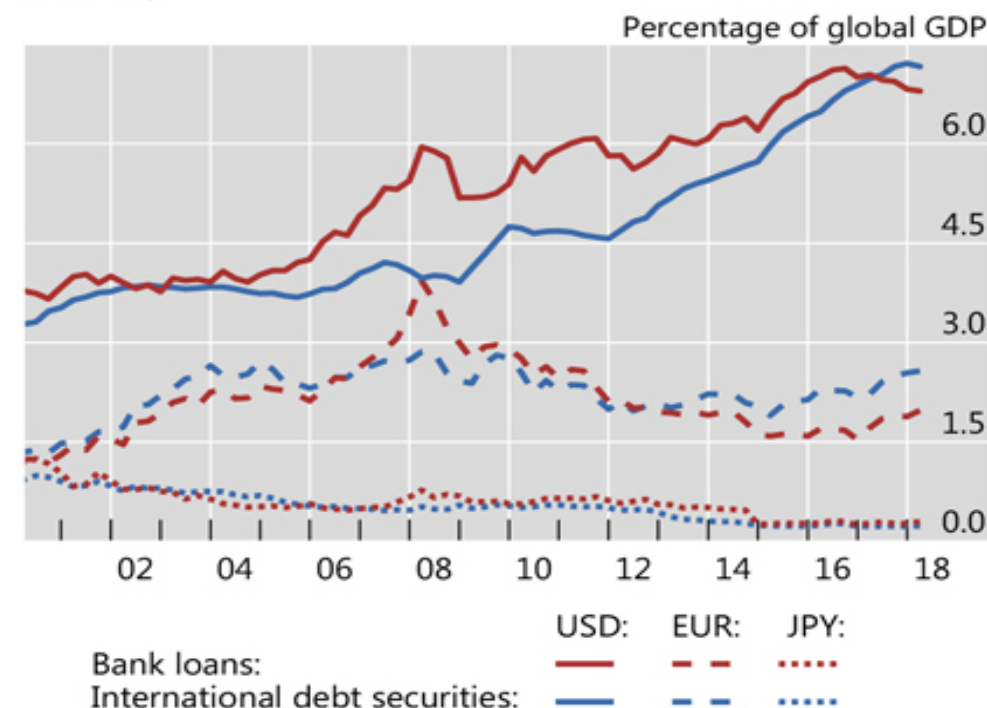
International credit to the non-bank sector, amounts outstanding

Graph 1

International credit to non-banks by instrument



International credit to non-residents by instruments and currency



Further information on the BIS global liquidity indicators is available at [www.bis.org/statistics/about\\_gli\\_stats.htm](http://www.bis.org/statistics/about_gli_stats.htm).

<sup>1</sup> Cross-border loans and local loans in foreign currency to non-bank borrowers. <sup>2</sup> By residence and immediate sector of issuer; all instruments; all maturities; non-bank issuers. International debt securities are debt securities issued by non-banks in a market other than the local market of the country where the borrower resides.

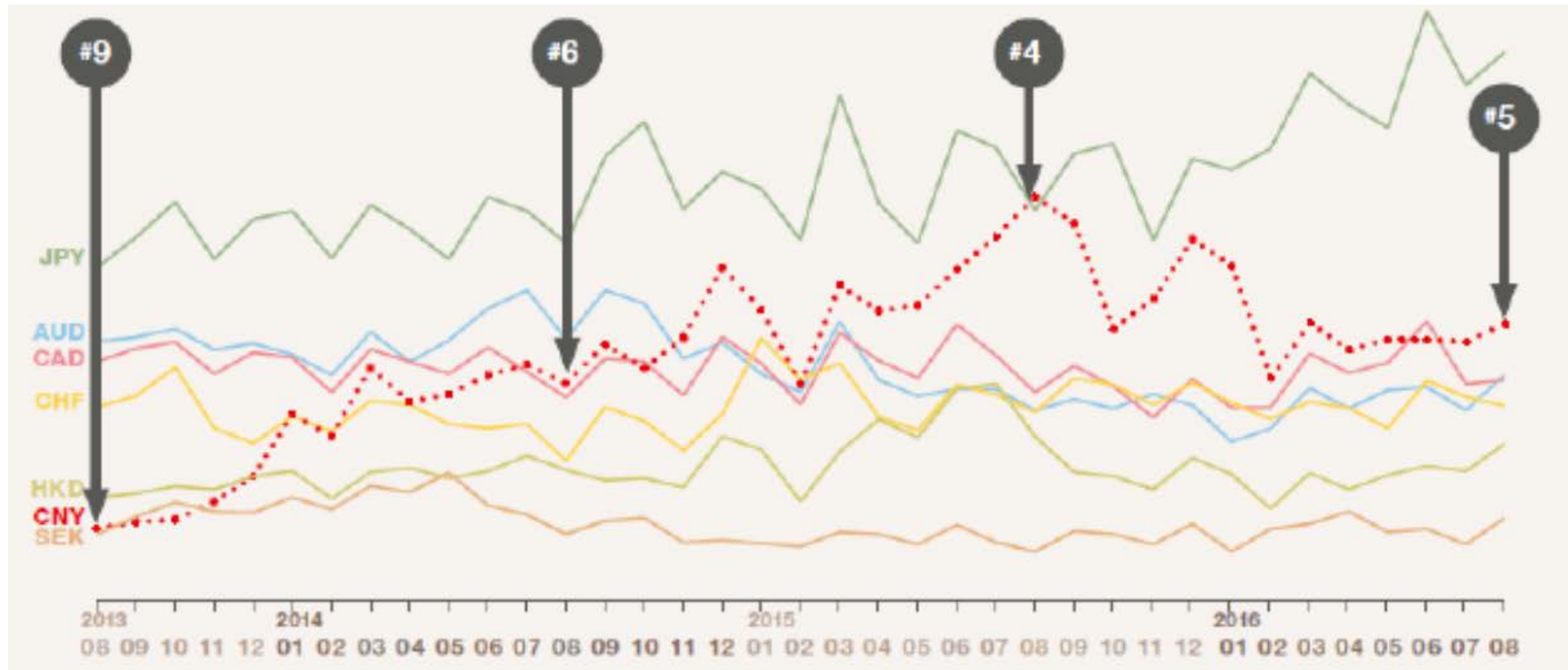
Sources: Dealogic; Euroclear; Thomson Reuters; Xtrakter Ltd; BIS locational banking statistics and global liquidity indicators; BIS calculations; authors' calculations.

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- **2010: RMB Internationalisation**
  - **Trade settlement**
  - **Accumulations for speculative purposes**
  - **August 2015: downward price risk, new exchange controls**

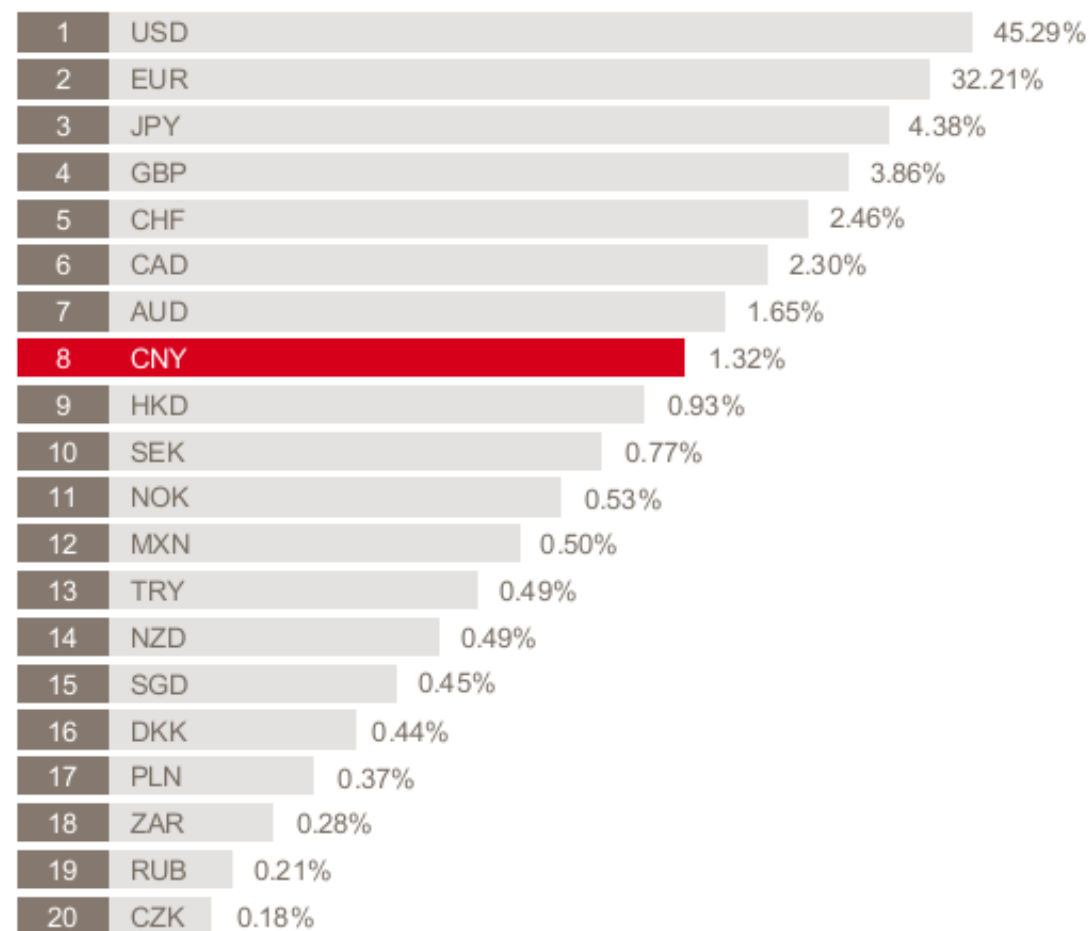


Customer initiated and institutional payments. Messages exchanged on SWIFT. Based on value.

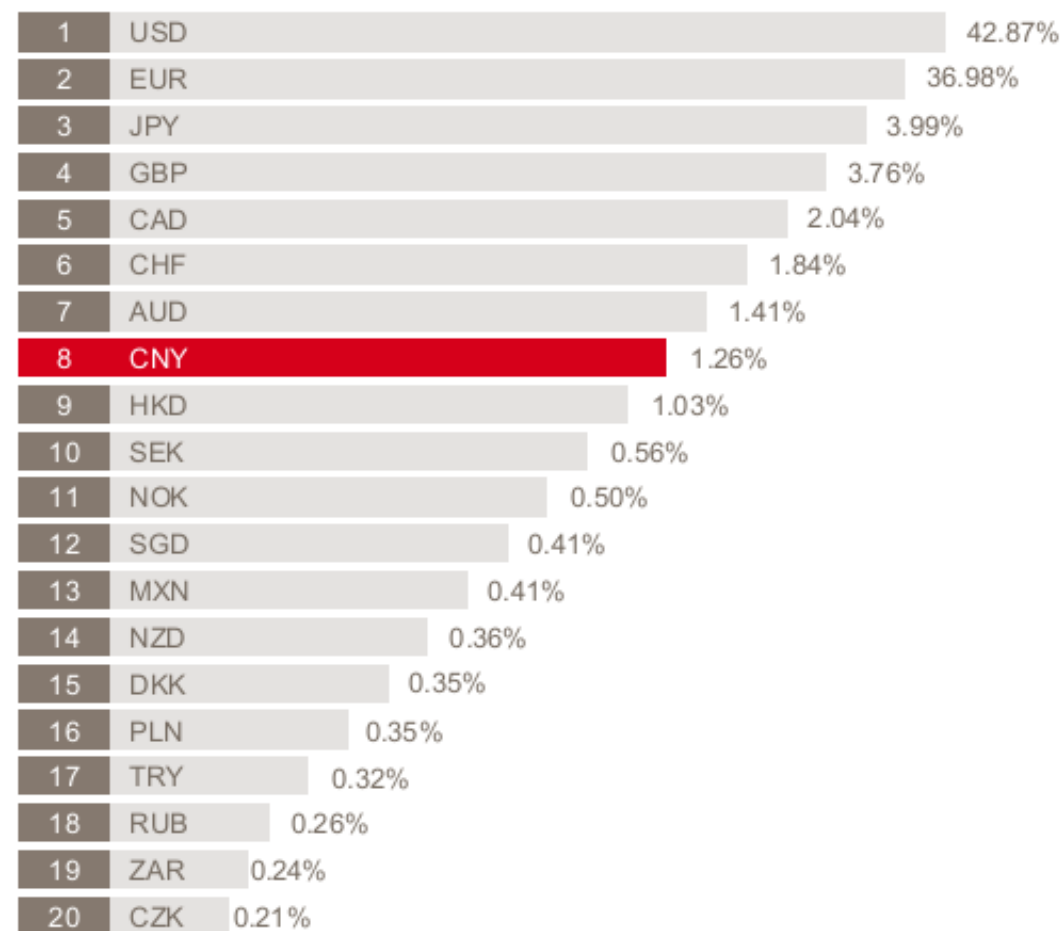
## RMB's share as an international payments currency

Customer initiated and institutional payments. Excluding payments within Eurozone  
Messages exchanged on SWIFT. Based on value.

### August 2016



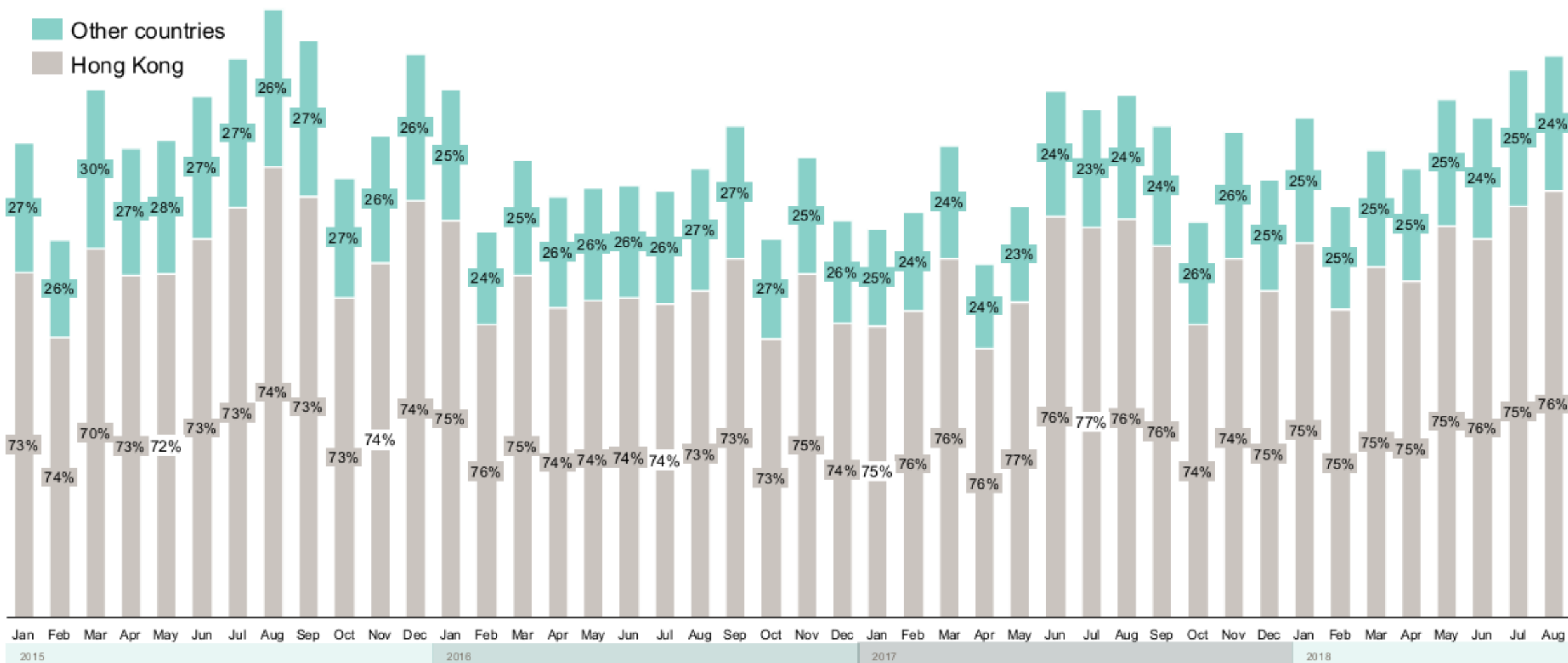
### August 2018



## Offshore RMB payments evolution

Customer initiated and institutional payments. Excluding China.

Messages exchanged on SWIFT. Based on value.



# Supranational Currency

- IMF Special Drawing Right (SDR) 20 years to develop and refine (1961-81)
- Triumph of compromise over clarity: 1967
  - Ambiguity about purpose:
    - Replace or supplement USD as a reserve asset?
    - Form of credit or reserve asset?
    - NOT an international money: unit of account, not store of value or means of exchange
- Efforts to develop Market SDR
  - 1980s denomination of oil trade (geopolitical obstacles, but also liquidity)
  - SDR denominated bonds
  - SDR – diversification easily replicated
  - Few advantages over dollar or diversified currency portfolio
- Enthusiasm tends to increase with dollar volatility/depreciation and recede with appreciation (only 3% global reserves)

# The Long History of the Future of FinTech

- Accounting systems: long distance trade (trust, security, stable value)
- 12<sup>th</sup>C -17<sup>th</sup>C: Promissory notes, letters of credit, Bills of Exchange (negotiable)
- Correspondent Banking: enhanced by Telegraph from 1851 Dover-Calais/1866 Transatlantic (underwater cable still used)
- 1973 SWIFT: Electronic cross-border message system to allow settlement: secure correspondent banking - first message 1977
  - 2012 – Ripple/XCurrent (Blockchain wth Santander 2018)
- 1980s: Real Time Gross Settlement (RTGS) – large value transfer systems between banks and central banks

1986 Big Bang – 1987 Stock Market crash



**THE EASTERN AND ASSOCIATED TELEGRAPH COMPANIES' CABLE SYSTEM.**  
( INDICATED IN RED. )  
WIRELESS STATIONS (Extension of telegraphic system) shown by means of a red dot. •

[illegible]



# Cashless Society?

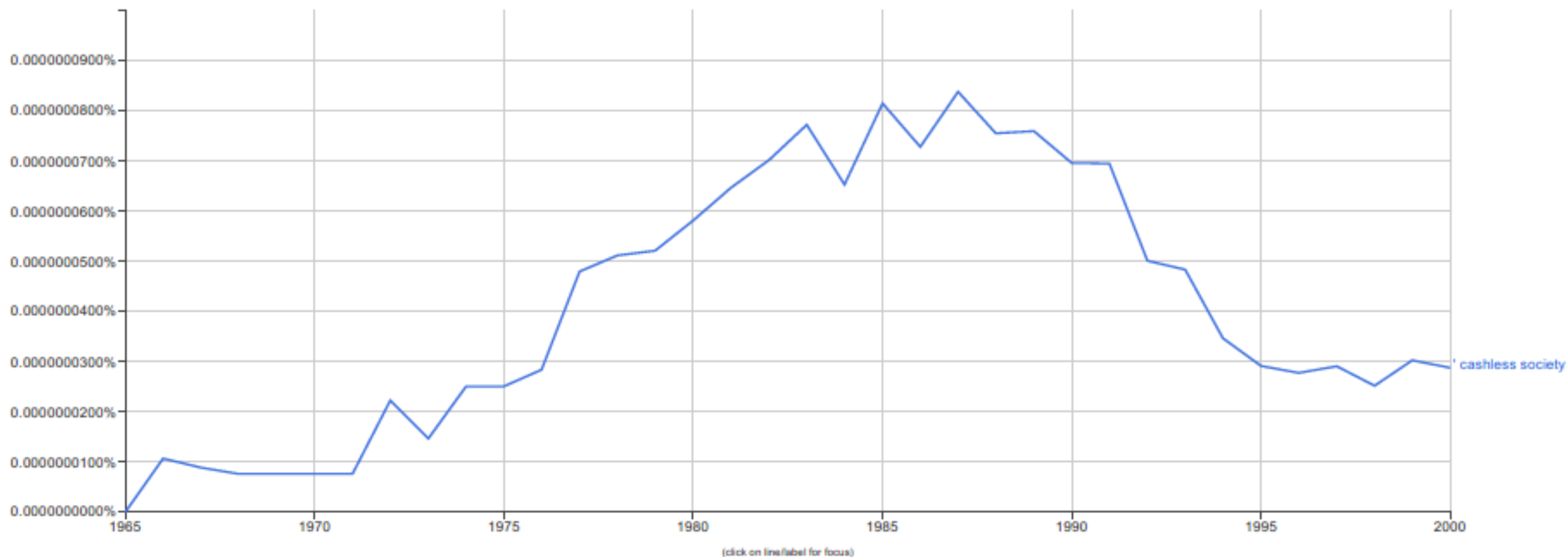
- **Originates in late 1950s, prevalent in 1980s (Batiz-Lazo et al 2014)**
  - **Highly anticipated: 60 years to arrive?**
- Card Payments: Credit to Current payments
  - 1958: Bankamerica and American Express
  - 1965: Bankamerica licenses other banks
- Mobile payments: still linked to banks
- Central Bank Digital Currency (additional liquidity)
  - Need to balance additionality against risks (BIS March 2018)
- Requires secure protocols

# Google Books Ngram Viewer

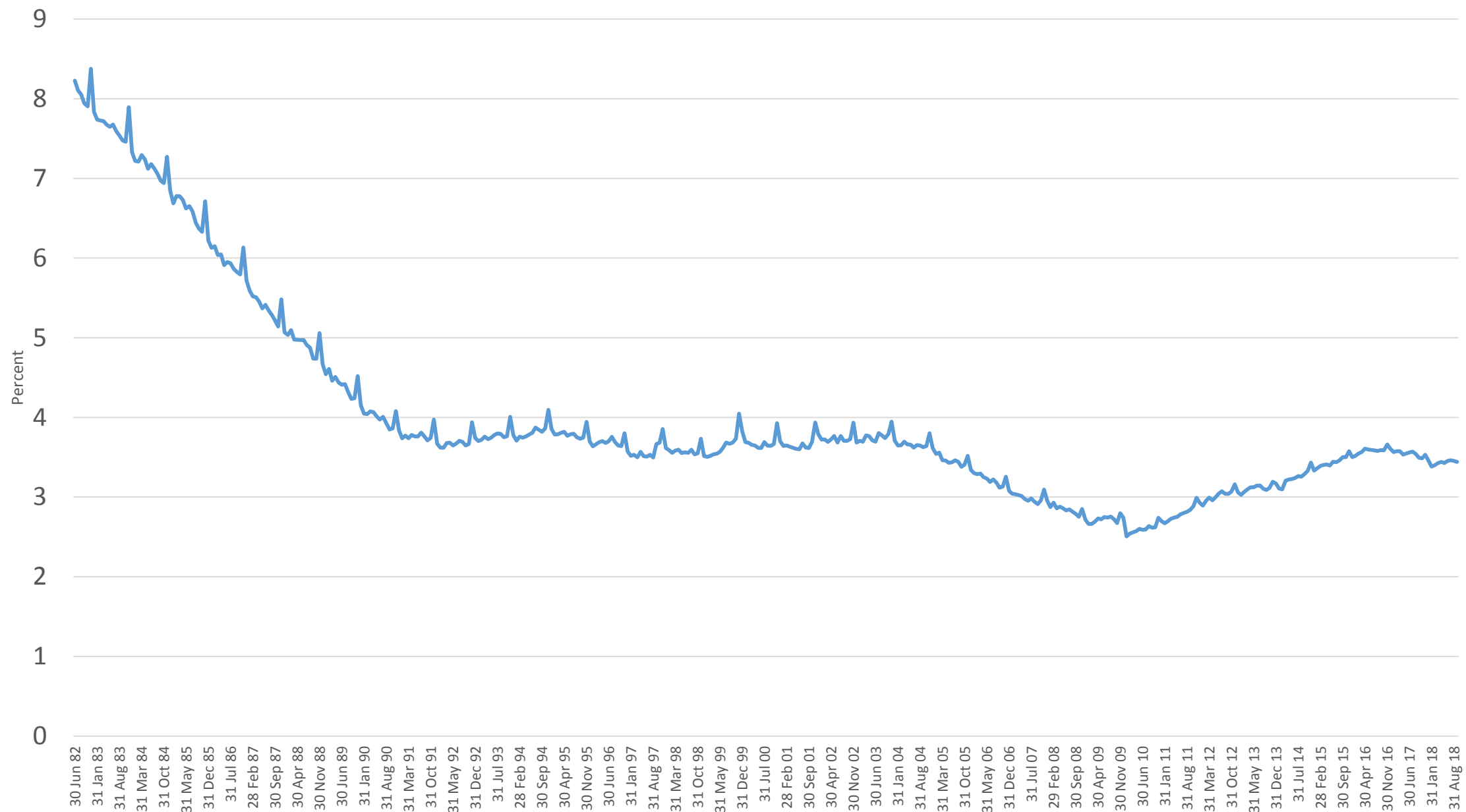
Graph these comma-separated phrases: 'cashless society' ☐ case-insensitive

between 1965 and 2000 from the corpus English with smoothing of 3 [See all books](#)

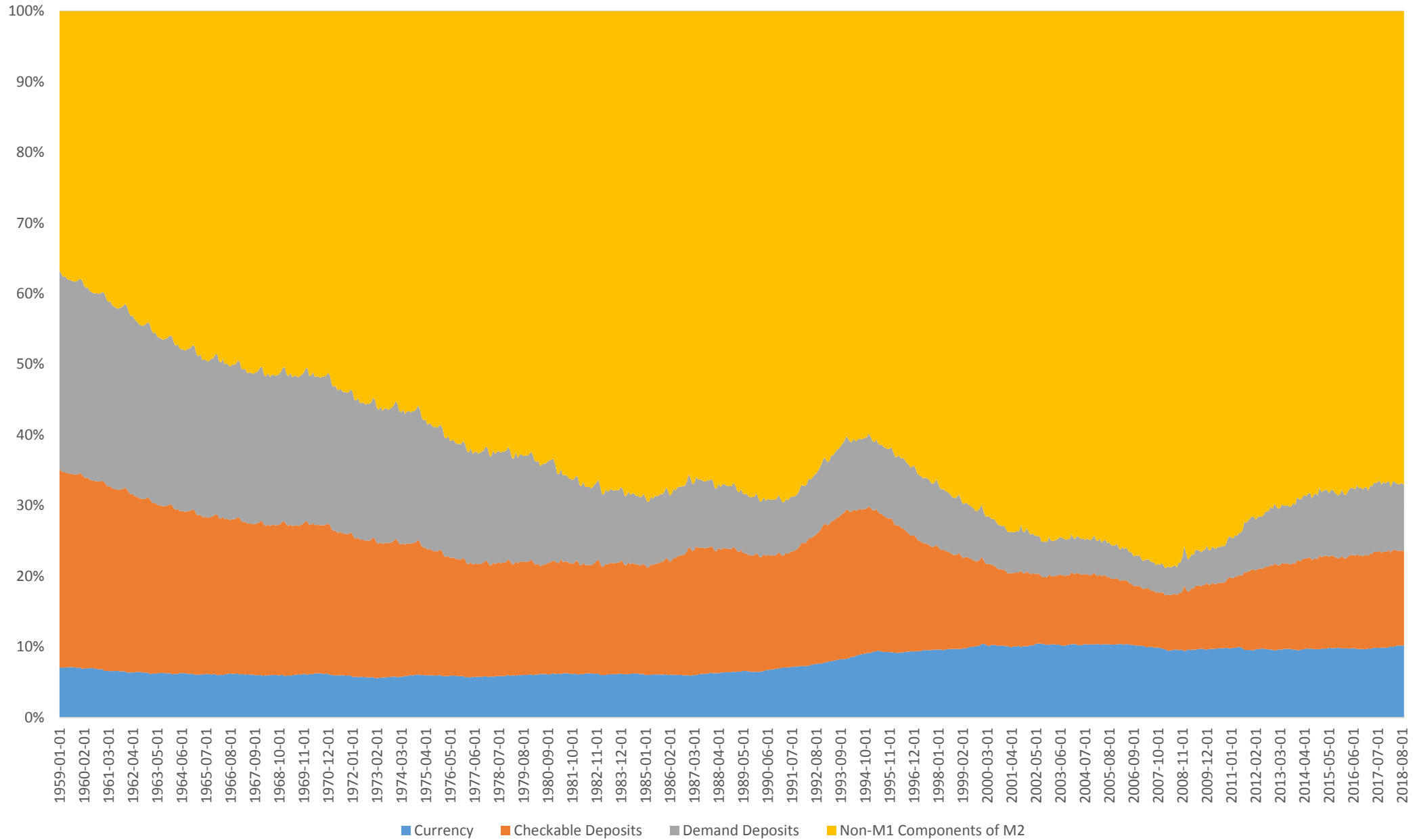
Replaced 'cashless society' with ' cashless society ' to match how we processed the books.



Notes and Coin as a Percentage of M4 1982-2018



USA Components of M2 1959-2018

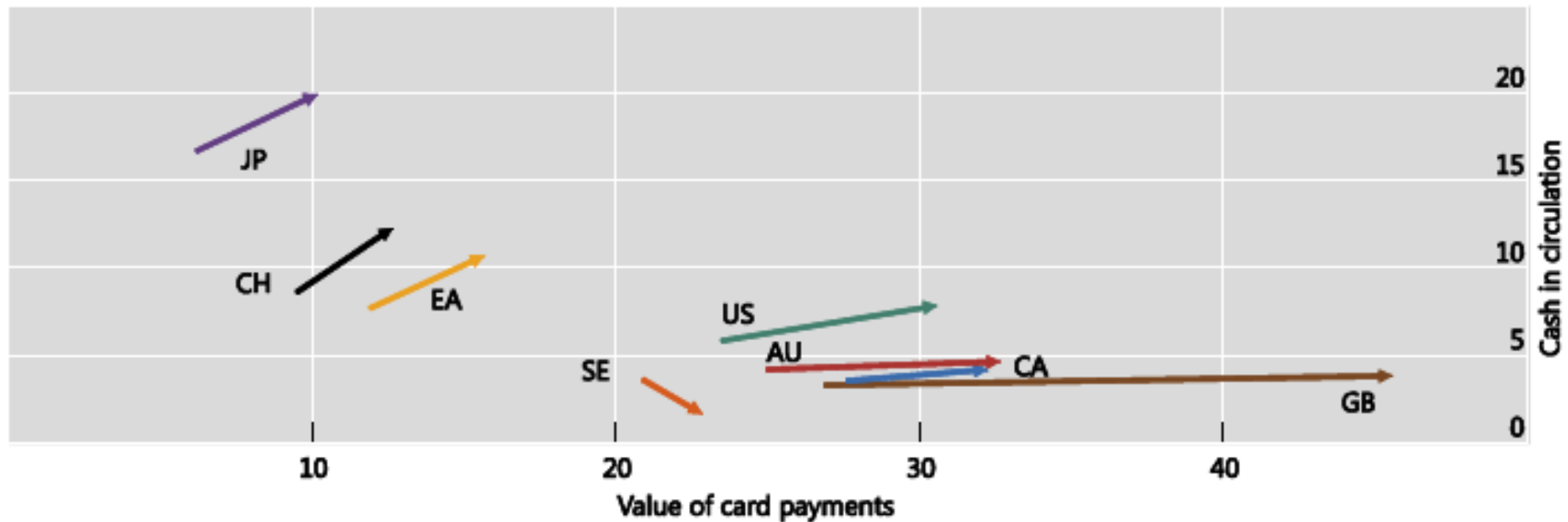


# Increase in Card Payments is not related to a decrease in Cash in Circulation (except in Sweden)

Card payments and cash demand, change 2007–16<sup>1</sup>

As a percentage of GDP

Graph 2



<sup>1</sup> The start of an arrow represents 2007 data while the end represent 2016

Source: Bech et al (2018).

Source: Committee on Payments and Market Infrastructures BIS (2018)

# Cashless Society

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## RBS: 'Mary' 1968-1976

Here's your new  
**Royal Bank  
Chargex® Card**

- a new way to organize your family shopping...
- a better way to control your cost of living.



## The bargain hunters.



## Master Charge® makes a good thing better.

Buying something special is a lot of fun. Especially when you can save some money at the same time. Well, your Master Charge card can help you do it. That's because Master Charge is good just about everywhere. So you can shop all over. Compare prices.



Accepted all over town  
all over America

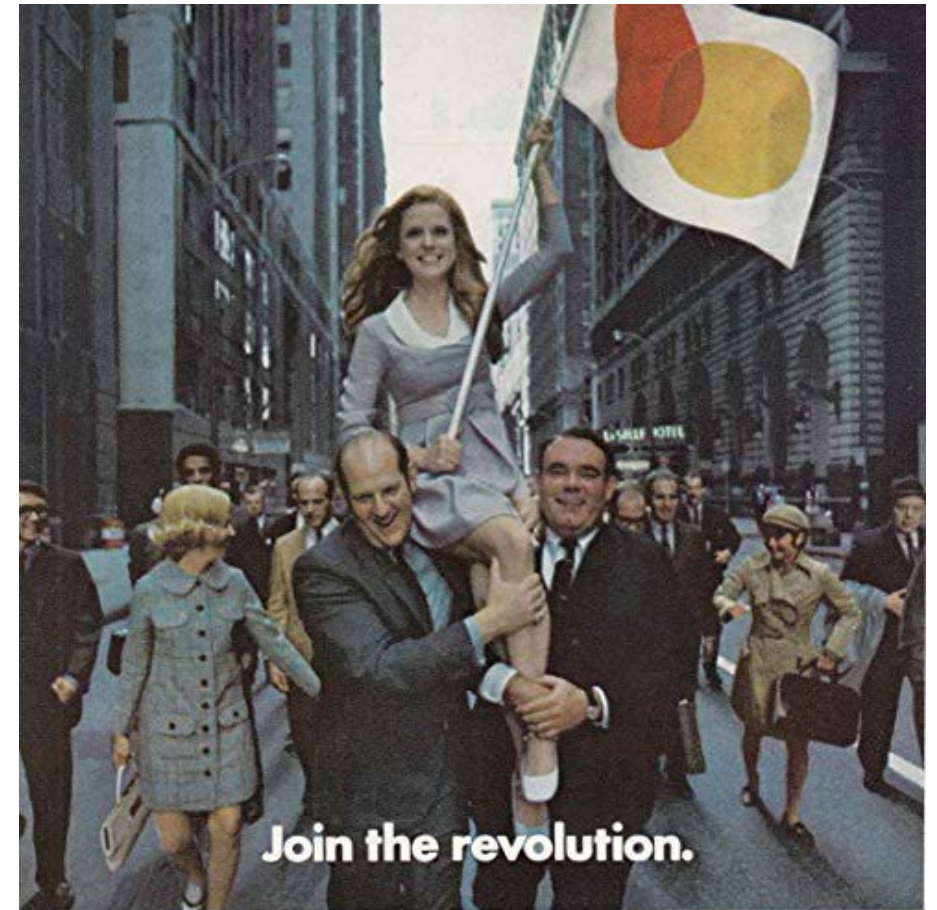
Go where the sales are. Chances are, you'll find just what you're looking for. At a bargain price. Master Charge. It cuts the whole town down to shopping size.

If you don't have a Master Charge card, you can apply for one at any Master Charge bank.

MEMBER  
NATIONAL STATES BANKING ASSOCIATION

1971

1969



## Join the revolution.

## Be a card carrying capitalist

Finally there's a credit card worth carrying. The Idea Bank's Master Charge.

You can use it in more stores, hotels, restaurants and service stations than any other card.

Across the United States and in 44 countries. Buy anything from airplane tickets to prescription drugs.

American National's Master Charge is the card of the future.

But don't wait, it can be yours today.



Use your Master Charge card wherever you see these symbols.

## American National The Idea Bank

American National Bank and Trust  
Company of Chicago Member FDIC

Join the Idea revolution. Be a card carrying capitalist.  
American National Bank Master Charge  
P. O. Box 240 Dept. G  
La Salle at Washington, Chicago 60690  
Please send me Master Charge Application.

NAME \_\_\_\_\_ (Please print)  
ADDRESS \_\_\_\_\_  
CITY \_\_\_\_\_ STATE \_\_\_\_\_ ZIP \_\_\_\_\_





Switz 1991



Greece 2015



Hong Kong 2008



2007



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# Conclusions: What might be different?

- New money is difficult to introduce: need demand, stable value, liquidity
- ICT technology cheaper and easier to access:
  - lower barriers to entry for start-ups
  - Competition vs externalities (less need for conformity?)
  - Quicker to tipping point for Network Externalities?
- ICT also poses Risk and supervisory challenges
  - Bank of England bringing Fintech into its settlement systems, Payments Systems Regulator
- Secure protocols, distributed ledgers, quantum computing?