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EXCHANGE RATE VOLATILITY AND CRYPTOCURRENCIES

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Any opinions expressed here are my own and do not necessarily reflect those of the FOMC.

Introduction

LOCAL VERSUS GLOBAL UNIFORM CURRENCY

- Locally, citizens of many countries have desired a “uniform” currency, meaning that all accept and trade in a common currency.
- Globally, we do not have a uniform currency. Instead we have a system of competing currencies with exchange rates.
- I will argue that the current cryptocurrency wave may be driving local uniform currency systems toward something more like the international non-uniform currency system, with the attendant drawbacks.

The International Monetary Order

THE INTERNATIONAL MONETARY ORDER

- Generally speaking, the international monetary order remains controversial, as the currencies seem to fluctuate excessively, attracting speculative trading and altering real capital flows.
- Governments can and do devalue suddenly, forcing investors to price in devaluation risk premia.
- This could be viewed as a distraction from the real business at hand, which is to use the price system to judge and assign value to goods and services globally.

THE INTERNATIONAL MONETARY ORDER

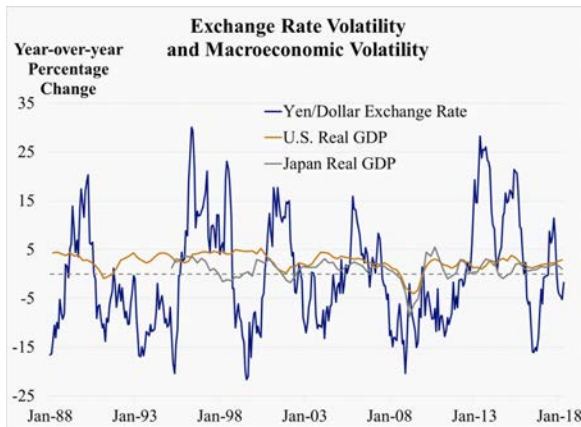


FIGURE: Exchange rate and fundamentals volatility. Sources: International Monetary Fund, Bureau of Economic Analysis, Cabinet Office of Japan and author's calculations. Last observations: April 2018 and 2018-Q1.

FAMOUS VIEWS OF FX VOLATILITY

- Here is my take on some of the many views of FX volatility:
 - Hayek: The chart shows that governments cannot be trusted to maintain the value of their currencies.
 - Friedman: The chart shows markets at work.
 - Kareken and Wallace: The chart shows that the relative price between two intrinsically worthless objects is indeterminate.
 - Mundell: The chart shows a deadweight loss from non-uniform currency arrangements.

INTERNATIONAL EXCHANGE RATE VOLATILITY

- Bottom line: The global non-uniform currency system features volatile exchange rates, apparently much more volatile than fundamentals.
- This is the case even for currencies of countries that have relatively stable monetary policies (in terms of inflation outcomes), like the U.S. and Japan.
- Will a local non-uniform currency system have similar volatility?

Privately Issued Money

CURRENCY PROVISION AND CRYPTOCURRENCIES

- I am a policymaker, but I am also a research economist who has contributed to the literature on “private money.”
 - C. Azariadis, J. Bullard and B.D. Smith, “Private and Public Circulating Liabilities,” *Journal of Economic Theory*, July 2001, 99(1-2), 59-116.
 - J. Bullard and B.D. Smith, “The value of inside and outside money,” *Journal of Monetary Economics*, March 2003, 50(2), 389-417.
- I will discuss cryptocurrencies from the narrow viewpoint of currency provision.
- The exact results from this math-econ literature are model-dependent and so require some interpretation to be understood in a policymaking context.

CURRENCY

- Currency: an intrinsically worthless object that has value in equilibrium only because others are expected to accept it in exchange.
- In the theories I work with, there is always an equilibrium where no one chooses to hold the currency and its value falls to zero.

CURRENCY COMPETITION

- Currency competition is nothing new, nor is electronic delivery of value.
- Many currencies are government-issued and backed by the monetary policy of the issuing government.
- Locally in the U.S., citizens could choose to use different currencies for different purposes, but they do not generally do so.
- Privately issued currency can fit into this context of many competing currencies.

PRIVATELY ISSUED CURRENCY AND TRANSACTIONS

- One of the interesting results from the literature is the existence of a steady state in which both publicly and privately issued currencies circulate as exchange media.
- The key point is that, at least in an equilibrium like this, one type of money need not crowd out the other. Both are required to allow all voluntary trade to occur.
- What is happening? In the equilibrium, the private currency facilitates transactions that would not otherwise occur.
 - In the model, more transactions are clearly better.
 - In the real world, some of these now-enabled transactions may be illegal or quasi-legal.

FEW LIMITS ON ISSUANCE

- Another prediction from the theory is that many private currencies would be issued.
- If we turn to the real world today, something like this appears to be happening: According to [Investing.com's current list](#), more than 1,800 cryptocurrencies have been launched.
- Historically, the profusion of privately-issued currency created an unsatisfactory system.
 - In the 1830s, 90 percent of the U.S. money supply was privately-issued banknotes. See P. Temin, *The Jacksonian Economy*, Norton, 1999.
 - There were calls for a “uniform” currency, which was accomplished during the Civil War.

THE DRIFT TOWARD NON-UNIFORMITY

- The current situation could be described as a drift toward locally non-uniform currencies.
- One suspects that consumers and businesses will not like non-uniform currency arrangements in which many types of currency trade simultaneously at a variety of prices in a local market.
- Currencies have to be reliable and hold their value. This is probably why government backing has been important historically, combined with a stable monetary policy that promotes stability of the currency.
- Governments have not always upheld the second part of this statement, with one example being the Venezuelan bolivar during 2018.

THE VAGARIES OF MONETARY POLICY

- The problem of how to stabilize currency value is not mitigated by commodity-backed money or cryptocurrency.
 - Under a gold standard, the government had to name the exchange rate between notes and gold, and governments sometimes altered this rate.
 - With cryptocurrencies, there is a monetary policy encoded in the system, perhaps a fixed volume of “coins.” But the system can also bifurcate, creating two fixed volumes of coins—a process that can happen multiple times. In addition, there are multiple issuers.
- The core question remains: How credible are promises for limits on future issuance?

THE SINGLE-CURRENCY SOLUTION

- Societies have disliked non-uniform currency systems because the currencies trade at volatile valuations—that is, volatile exchange rates.
- This can be avoided by having a uniform currency.
- Panama is a country that does this by being dollarized.
- The country accepts the U.S. monetary policy and the exchange rates associated with the dollar.
- If this happened with a cryptocurrency, that country would be accepting the monetary policy embedded in the code, along with exchange rates associated with that particular cryptocurrency.

Conclusion

CONCLUSION

- Cryptocurrencies are creating a global drift toward non-uniform local currency trading arrangements, a system societies have disliked historically.
- Globally, we have an example of a non-uniform system of currencies, but these currencies trade at exchange rates that are often viewed as excessively volatile.
- Cryptocurrencies may unwittingly be pushing in the wrong direction in trying to solve an important social problem, which is how best to facilitate market-based exchange.