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Virtual currency schemes

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Disclaimer: The views expressed in this presentation are those of the speaker and do not necessarily reflect those of the European Central Bank.

ARE VIRTUAL CURRENCY SCHEMES—SUCH AS BITCOIN—REAL CURRENCIES?

- Money has three attributes
 - Medium of exchange
 - Unit of account
 - Store of value
- Bitcoin somewhat meets the first criteria but performs poorly as a unit of account and store of value (Yermack 2013)
 - High time series volatility and trades for different prices
 - Hacking attacks, thefts and other security-related problems
- Bitcoin cannot be successful as a store of value and means of payment at the same time
 - Given the finite supply of bitcoins, if its value increases over time people will postpone spending it, in expectation of further increases
- “Bitcoin appears to behave more like a speculative investment than a currency.” (Yermack 2014)
 - Bitcoin's daily exchange rates exhibit virtually zero correlation with widely used currencies

DEMAND FOR VIRTUAL CURRENCY

- Technology enthusiasts
- Investors (gamblers)
- Online commerce
- Tax evasion and illegal activity
 - Virtual currency, just like paper currency, facilitates making transactions anonymous
 - Large fraction of currency outstanding in US and Europe is for use in underground economy (Rogoff 2014)
 - Money stock is growing even though domestic demand for currency in the legal economy in US and Europe are declining (Rogoff 2014)
 - Likely that large fraction of use of virtual currencies such as Bitcoin are for use in underground economy
 - Challenge for law enforcement is how to reduce illegal transactions

THE ECB'S WORK ON VIRTUAL CURRENCIES

- ECB regularly examines developments with regard to (retail) payment systems and payment instruments, given its task of **promoting the smooth operation of payment systems**
- ECB published a comprehensive report “Virtual Currency Schemes” in October 2012 – first of its kind by a public authority
- ECB published a second report “Virtual Currency Schemes—A Further Analysis” in February 2015 – with special focus on relevance for retail payments

ECB POSITION ON VIRTUAL CURRENCY SCHEMES

In the current situation, given their small size, virtual currency schemes...

- Do not currently pose a risk to price or financial stability
- Are not (yet) regulated and not closely supervised or overseen by any public authority – risk for users
- Are a challenge for public authorities, as they can be used by criminals, fraudsters and money launderers to perform their illegal activities
- Fall within central banks' responsibility as a result of characteristics shared with payment systems

RECENT DEVELOPMENTS IN VIRTUAL CURRENCY

ECB Report (2012) contained recommendation to periodically re-examine developments in order to re-assess the risks

- Renewed hike in media coverage for Bitcoin in March-April 2013 – simultaneous with Cyprus crisis
- Bitcoin closing price high (US\$ 1.240) (4 Dec 13)
- Mt.Gox exchange filed for bankruptcy - cyber-attacks (Feb 14)
- Hong Kong bitcoin exchange Mycoin “lost” US\$ 387 million of customers’ money (Feb 15)
- Bitcoin is used for 69.000 transactions per day worldwide (2014)
- Over 500 ‘altcoins’ in existence; which are, as far as we know, hardly or not at all used for payments

BITCOIN'S PRICE DEVELOPMENT 2012 - NOW



TYPES OF VIRTUAL CURRENCY SCHEMES

1. **Closed virtual currency schemes**

Almost no link to the real economy (“in-game only”); sometimes a subscription fee. For virtual goods/services and cannot be traded outside the virtual community. *Example: World of Warcraft Gold*

2. **Virtual currency schemes with unidirectional flow**

Purchased using ‘real’ currency at specific exchange rate, but not allowed to exchange back or trade. For virtual goods/services, but some also allow for real goods/services. *Examples: (ex) Facebook Credits, Amazon Coins, Nintendo Points, also frequent-flyer points*

3. **Virtual currency schemes with bidirectional flow**

Buy and sell virtual money according to the exchange rates. For both virtual and real goods and services. *Examples: Second Life Linden Dollars (L\$), Bitcoin, Litecoin, Ripple, Nxt, etc.*

THE USER'S PERSPECTIVE

ADVANTAGES

Payer

- Short verification and settlement time
- Global reach
- No contract, no starting fee
- Anonymity
- Low cost
- No personal or sensitive payment data transmitted

Payee

- Low cost for acceptance
- Global reach
- No starting fee
- Reduced verification and settlement time
- No possibility of chargeback or refund

RISKS

- Lack of transparency - Investment fraud risk
- Absence or unclarity of legal status
- Lack of continuity and potential illiquidity
- High IT- and network dependency
- Anonymity ('pseudonymity') of the payee - Counterparty risk
- High volatility – Exchange rate risk
- Risks due to participation in a 'payment system' – unlike users of regulated payment services

THE ECB'S DEFINITION OF VIRTUAL CURRENCY

The ECB does not consider virtual currencies as:

- full forms of money at the moment (economic perspective)
- money, currency, or a currency (legal perspective).

Largely unregulated in 2012, but in some jurisdictions, legislation and regulation has caught up with this innovation.

For the purpose of the report, virtual currency is defined as a **digital representation of value, not issued by a central bank, credit institution or e-money institution**, which, in some circumstances, **can be used as an alternative to money**.

The term "virtual currency scheme" is used by the ECB to describe both the aspect of **value** and that of **the inherent or in-built mechanisms ensuring that value can be transferred**.

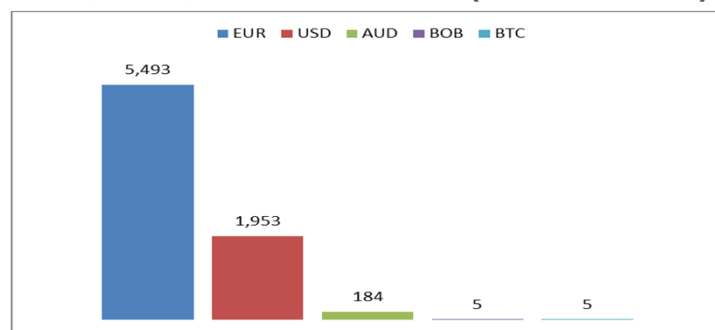
THE DEFINITION OF VIRTUAL CURRENCY

E.g. no legal tender status, not (yet) supervised or overseen

Legal status	Unregulated	➤ Certain types of local currencies	➤ Virtual currency
	<i>Regulated</i>	➤ Banknotes and coins	➤ E-money ➤ Commercial bank money (deposits)
		<i>Physical</i>	Nonphysical/Digital
Money format			

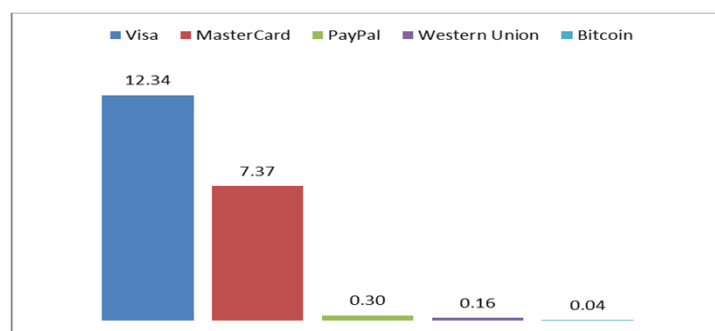
DATA / FIGURES: (STILL) A SMALL PHENOMENON

Market capitalisation of Bitcoin and M1 of EUR, USD, AUD and BOB (EUR billions)

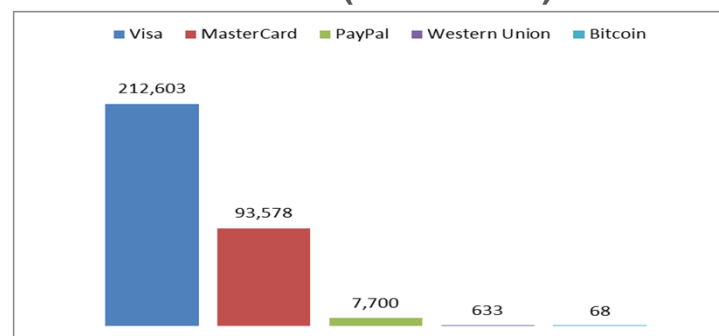


Bitcoin is used for **69,000 transactions** per day **worldwide** (average for 2014), compared with **274 million non-cash retail payment transactions** per day for the **EU only**.

Daily transactions with Bitcoin and with well-established payment solutions; 10 August 2014
- Volume (EUR billions)



- Number (thousands)



IMPACT ON ECB/EUROSYSTEM TASKS

- Price stability
 - Financial stability
 - Payment system stability
 - Prudential supervision of credit institutions
 - Preserving the integrity of the financial system (e.g. AML/CFT)
- No material risk → **Continue monitoring**
- ECB/SSM can monitor the involvement of supervised institutions
- Not in the remit of the Eurosystem

Eurosystem will continue to monitor payments-related developments in virtual currency schemes, as they are comparable to payment systems, are being used for payments, and have the potential to develop wider user acceptance in the future

RISKS TO PRICE STABILITY

- Risks to **price stability** (of the central bank's currency)
 - Effect on quantity of money
 - Effects on velocity of money, use of cash, and/or measurement of monetary statistics
 - Interaction with real economy
 - Preservation of the unit of account function
- However, risks are entirely dependent on the quantity of virtual money and the usage of the virtual currency
- Question about cyclicity of illegal activity, demand for (virtual) currency, and implications for money stock

RISKS TO FINANCIAL STABILITY

- Risks to **financial stability**
 - Directly from within the banking system
 - Indirectly when connected to real economy via a bilateral exchange rate: price and price volatility
- However, risks are entirely dependent on the volumes traded and the connection with the real economy
- Moreover virtual currencies are outside of banking system (not accepted as payment by banks) and therefore there is only the indirect risk via the exchange rate

RISKS TO PAYMENT SYSTEM STABILITY

- Risks to **payment system stability**
 - Typical risks as with any other retail payment system (not overseen)
 - Creditworthiness of the issuer of the settlement asset (not supervised)
 - Finality and irrevocability in absence of a central bank / lender of last resort
- However, the ‘systems’ are not of a critical nature
- Fall within central banks’ responsibility as a result of characteristics shared with payment systems

REPUTATIONAL RISKS

- Could negatively impact central bank **reputation**, if an incident attracts press coverage, since the public may perceive the incident as being caused, in part, by a central bank not doing its job properly
- Expectation is that virtual currency schemes will continue to grow
- Central banks to continue monitoring and periodically reassess the risks

LEGISLATIVE/REGULATORY RESPONSES TO VIRTUAL CURRENCY SCHEMES

- A number of central banks, supervisory authorities and other government agencies have responded to the presence of virtual currency schemes:
 - warned users of the risks related to holding and transacting virtual currencies
 - provided clarifications on the legal status
 - started licensing and supervising certain aspects of virtual currency schemes
 - issued an outright ban

CONCLUSIONS

- Virtual currencies are not full forms of money, but alternatives to money that can substitute banknotes and coins, scriptural money, and e-money in certain payment situations
- Risks that virtual currency schemes might create in relation to the ECB tasks in price stability, financial stability and the smooth operation of payment systems have remained insignificant: ECB does not see a need to amend/expand EU legal framework related to these ECB tasks
- Participation in virtual currency schemes exposes users to a range of risks, including risks inherent to the concept, such as exchange rate risk related to high volatility, counterparty risk related to the anonymity of the payee, and investment fraud risk related to the lack of transparency
- In the EU, these risks mostly remain unmitigated by legislation, regulation or supervision