



Digital Currencies

Questions, Analysis of Legal Issues and Initial Answers

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Overview

- Physical central bank money
- Commercial bank money
- Electronic money
- Central bank reserves
- Virtual currencies
- Recent developments
 - Collateralised bank money
 - Central bank depository receipts
 - Central bank issued digital currency for individual households
 - Sovereign money initiative



Physical Central Bank Money

- Money as defined by F.A. Mann (1938): medium of exchange, unit of account and store of value
- Coins and banknotes issued by the State's monetary authority
- Denominated in its national unit of account
- Legal tender in the State of issuance: power to discharge debts expressed in monetary units

- Switzerland:
 - 8.4% of the currency in circulation
 - Legal nature: personal property (movable)

- Risk undermining its functionality (medium of exchange etc.): loss of purchasing power
- Countermeasure: money supply control & flanking measures (independence...)



Commercial bank money

- Secondary form of money
- Functionally equivalent to the legal tender money it is constructed from, since it
 - embodies a state-sanctioned unit of account
 - enables its holder to discharge debts at a nominal rate
 - due to its convertibility into legal tender
- Legal nature: intangible subjective right in the form of debt
- Risks undermining its functionality (to discharge debts at a nominal rate): illiquidity, insolvency
- Countermeasures: among others (liquidity & capital requirements etc.) → deposit insurance schemes



Electronic Money, e-Money (I)

- Issuer is not necessarily a bank
- Expressed in a national currency
- Stored on an electronic device
- Issued on receipt of funds equivalent with the nominal value
- Accepted as a means of payment by third parties other than the issuer
- At par value
 - Transferable between users
 - Redeemable to the e-money holder upon request

→ Functionally equivalent to legal tender and bank money



Electronic Money, e-Money (II)

- Legal nature: intangible asset in the form of a claim on the issuer (debt)
- Risks undermining its functionality (to discharge debts at a nominal rate): illiquidity, insolvency
- Countermeasures*:
 - Liquidity requirements
 - Capital requirements
 - Other safeguarding provisions (e.g. ring fencing requirements, deposit insurance ...)

* cf. www.bbva-research.com/wp-content/uploads/2016/10/Safeguarding-electronic-money-funds_en.pdf



Central Bank Reserves

- Swiss franc sight deposits at the Swiss National Bank
- Denominated in the national unit of account
- Legal tender (art. 2 let. c CPIA)

- Legal nature in Switzerland:
 - Historically: debt («sight receivables»)
 - Today: intangible subjective **right sui generis** (of its own kind)*

- Risk undermining its functionality (medium of exchange etc.): loss of purchasing power ... (see page 4)

* common law: (pro) *Armstrong DLW GmbH v Winnington Networks Ltd* [2012] EWHC 10 (Ch),; [2013] Ch 156;
(contra) *Your Response Ltd v Datastream Media Ltd* [2014] EWCA Civ 281,; [2015] QB 41



Virtual Currencies

- Usually provided and maintained on a decentralised ledger
- Privately issued
- Not denominated in a national currency unit

- Legal nature: intangible subjective right sui generis (of its own kind)

- Risk undermining its functionality:
 - loss of purchasing power
 - exacerbated by lack of active money supply control (uncollateralised money creation)

→ Up to date: not to be treated as money



Recent developments (I)

- Collateralised bank money (bank money for interbank payment, clearing & settlement)
 - Deutsche Börse & Eurex Clearing: CollCo
(Payments are accompanied by movements of collateral between the Eurex Clearing members)
- Central bank depository receipts (CBDC for interbank payment, clearing & settlement)
 - Bank of Canada: CAD-Coin (cf. next page)
 - USB, DB, others: USC (utility settlement coin)

The Jasper Distributed Ledger Settlement Platform



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Design Assumptions

- Network participants (FIs) each set up a digital currency account as part of a CAD-COIN asset registry
- The CAD-COIN asset registry is owned by the Central Bank; the digital funds belong to the FI
- The Central Bank issues depository receipts, not tokens
- The CAD-COIN shared ledger reflects real-time accurate account balances for each digital currency account
- All network participants are trusted and authorized to perform transactions

PAYMENTS  PANORAMA

- 1 Participants **pledge** T1 cash collateral into a special pooled account held by Central Bank
- 2 Central Bank converts cash collateral to **generate** CAD-COIN
- 3 Central Bank transfers CAD-COIN to **fund** participants' accounts
- 4 Identifiable, trusted counterparties **exchange** assets on the CAD-COIN platform
- 5 Participants **redeem** CAD-COIN for T1 cash collateral
- 6 Central Bank **destroys** redeemed CAD-COIN

Source: G. Johnson (**Bank of Canada**)/J. Pilbauer (Payments Canada)/C. Burke (Royal Bank of Canada) via Twitter, K. Klempner, 15.06.2016, <https://t.co/eVAwLJdzhw>



Recent developments (II)

- Central bank issued digital currency (CBDC) for individual households
 - Royal Canadian Mint: MintChip (now privatised)
 - Banco Central del Ecuador: dinero electrónico (up and running, small amounts)
 - Sveriges Riksbank: eKrona (project stage)
 - ...
- Sovereign money initiative («Vollgeld Initiative»)
 - Existing bank money: conversion into central bank (sponsored?) money
 - Future money creation: completely uncovered → helicopter money
 - ...



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Thank you.