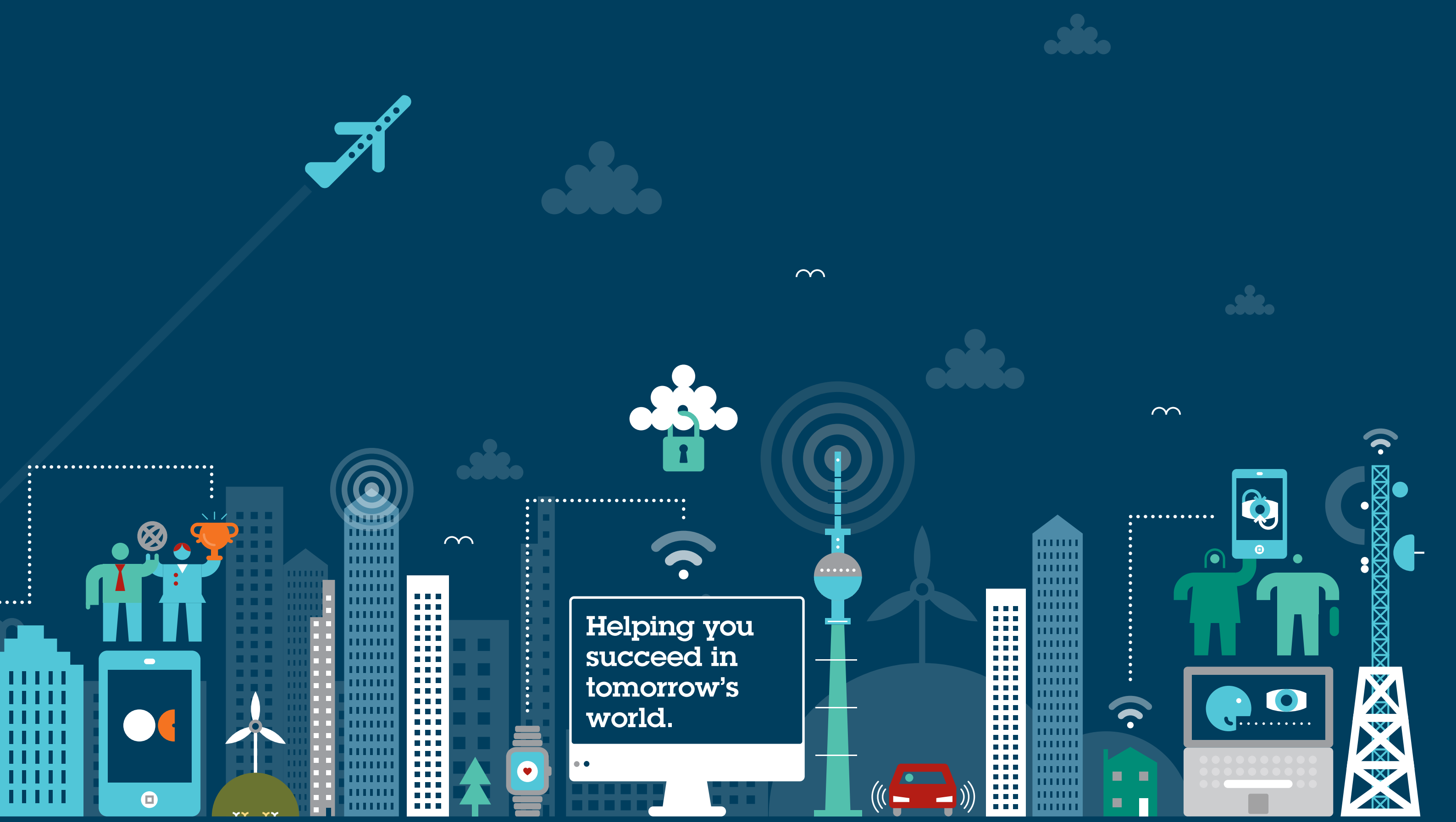
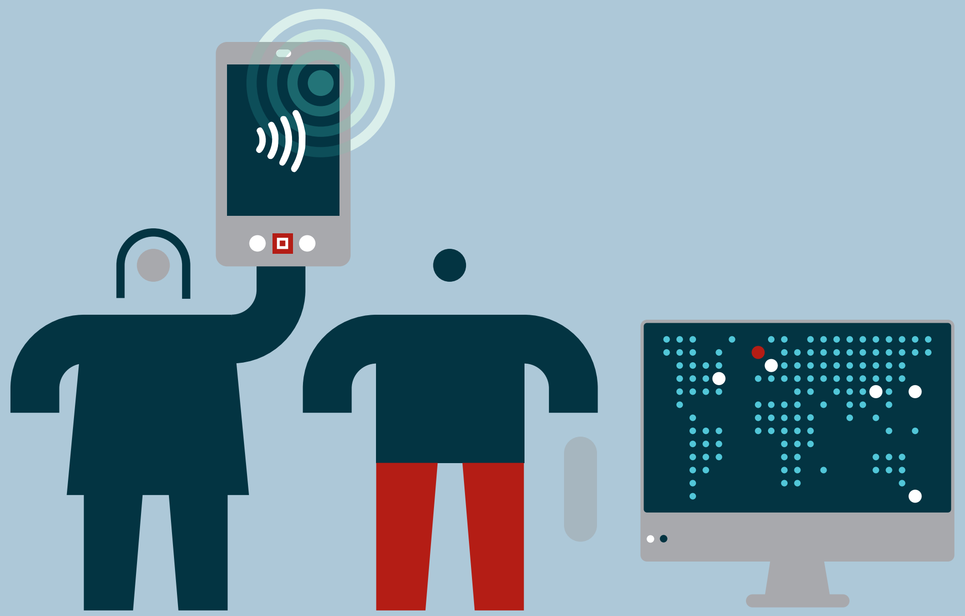
# The Rise of e-Money and Virtual Currencies

## Re-discovering the meaning of money from a legal perspective

June 2018





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# Introduction

Cryptocurrencies, digital coins, tokens, blockchain – whether you are a student trying to figure out how to save the salary from your first job, a café accepting payments in Bitcoin, or a seasoned venture capitalist looking out for an exciting deal,you are likely to be affected by virtual currencies. Worldwide, regulators are in the process of defining these terms; economists are trying to understand their place in society; and bankers are figuring out their implications to the conventional monetary system.

Virtual currencies are simultaneously exciting and inscrutable, because they challenge our existing concepts regarding money, and payments, and the State's role in the monetary system. The suffix of 'currency' attached to 'crypto', 'virtual' or 'digital', is in itself descriptive of its function as money. But, what precisely is the true nature of money? What makes money, "money"? It is not an easy concept to define or understand, and the advent of virtual currencies gives us yet another lens through which to look at the meaning of money.

Money has different definitions depending on whom you speak to. An economist may look at the functions that money performs. For the lawyer, money becomes relevant in the context of relationships:

– Between the State and its people; and

– Between persons who owe obligations to one another.

The former deals with the role that the State plays in creating and identifying money; the latter looks at money as a means of payment. In this paper, we look at money using the lens of e-Money and virtual currencies, and the regulatory experience of managing e-Money and virtual currencies thus far. When one draws from a breadth of experience which differs from jurisdiction to jurisdiction, this analysis is fraught with complexity.

The paper is divided into three sections. In the first section, we elicit the attributes of money by focusing on fiat money. Does money have to be physical? Do bank deposits count as money? What is legal tender, and what is its role? We also briefly look at the origin story of money. Of course, the origin story is highly complex – do we begin our analysis with proto currencies of the Bronze Age? Which civilization should be the focus? Do we restrict ourselves to central bank managed money? Each society has its own history of money and any attempt to provide an overall singular history of money is both pointless, and dangerous. However, the origin story is necessary to recognize the State's role in the identification and acceptance of a token as money.

In the next section on e-Money, we concentrate on money's role in discharging obligations. In other words, money as debt. While cash and bank deposits each embody a claim in debt (against the central bank and a commercial bank, respectively), we argue that e-Money represents a claim in damages. Here, we scrutinise the law of obligations – what, if any, is the difference between a claim in debt and a claim in damages? If e-Money is a claim in damages, not debt, can it still qualify for the label of money? The regulatory treatment of e-Money also differs wildly – some authorities treat e-Money on par with cash, others find that e-Money is akin to bank deposits. In some cases, e-Money is also confused with electronic payment systems. This highlights yet another conundrum – whether e-Money ought to be treated as a type of money, or a service on money.

In the final section, we come to virtual currencies. If e-Money ought not to be confused with their payment systems, virtual currencies embody a payment system as well as a means of payment. Virtual currencies appear to have more in common with commodity money of ancient history than the monies from our recent past. In place of cattle and seeds, we have Bitcoin and Ether. Central banks too, are experimenting with developing their own central bank digital currencies, i.e., a digital fiat money.

In the course of carrying out this legal analysis of money, we conclude that defining money is often tangential to addressing some other question or regulatory predicament. To put it differently, the norm is to take the meaning of money for granted. For example, the Courts have defined money in a case where it had to decide whether a coin with numismatic value was stolen or used to make payment. Similarly, through our analysis of e-Money, it becomes evident that the regulatory treatment of e-Money is driven by the needs of each nation, be it bringing branch-less banking to the unbanked, or protecting the banks' role managing deposits. It is not driven by a desire to define money. Will virtual currencies be the answer?

We have endeavoured to state the law as at 30 March 2018.

The Osborne Clarke Payments team.

Project Coordinator[1]


**Chia Ling Koh**
**Director, OC Queen Street LLC[2]**
**FinTech Who's Who Legal**


1 The project coordinator would like to thank Ms Dharini Ravi for her efforts in helping to prepare this paper, together with the accompanying comparative table on the treatment of e-Money and virtual currencies across jurisdictions.

2 OC Queen Street is a Singapore Law Practice with limited liability (Company Registration: 201618305M) ("LLC"). The LLC is an independently owned and managed Singapore Law Practice and is also a member of Osborne Clarke's international legal practice.



# Defining money

## A brief history

One of the most common (economic) definitions of money is based on the functions it performs:

– As a unit of account – to measure, value or price goods/services;

– As a medium of exchange – i.e., to buy and sell; and

– As a store of value – an asset that can be retained for later use.

Going by this definition, many things can be money – not just banknotes and coins. For example, historians have noted that cigarettes functioned like money in prisoner of war camps during the Second World War. Before banks issued currencies, other objects functioned like money – including feathers, cowrie shells, gold, silver etc.[3]

Historically, money let people move beyond the constraints of barter trade. While there is debate on how this money came to be created, it is accepted that money used to be something that had intrinsic value as a commodity. In its paper on virtual currencies, the European Central Bank ("ECB") notes that cattle, seeds, and later precious metals such as gold and silver coins functioned as money. Even the first "paper money"[4] could be exchanged for underlying commodities. In the convertible currency system, the banknote was merely a claim on the issuing bank's gold and silver reserves and portfolio of bills.[5]

However, present day fiat money is not backed by commodities or convertible for anything, other than itself. Instead, fiat money depends on trust that it will continue to be valuable and hence exchanged for goods and services. More simply put, fiat money is a special type of IOU that is accepted by everyone[6] in a society. If the issuer of fiat money fails in its monetary policy, we end up with cases of hyperinflation (Germany after the First World War, and more recently, Venezuela) where people no longer trust the fiat money and go back to systems of barter or seek out alternative currencies such as Bitcoin. Therefore, trust is a crucial element of a fiat money system.[7]

## Money as more than currency

Money does not necessarily mean only physical currency alone, i.e., banknotes and coins. The Bank of England notes that there are three "types" of money – currency, bank deposits and central bank reserves. All three together are money, as "each represents an IOU from one sector of the economy to the other"[8]. Therefore, from an economist's perspective, physical currency is only one type of money and it makes up the smallest percentage of the money in the economy.

But, some early legal definitions held that money could only exist in the form of chattel, i.e., physical form. It then followed that the "money" held in bank deposits was merely a personal obligation between the debtor bank and creditor customer[9]. ***The House of Lords in Foley v Hill*** considered the nature of the relationship between a customer and banker:[10]

> "The money placed in the custody of a banker is to all intents and purposes the money of the banker, to do with it as he pleases. He is guilty of no breach of trust in employing it; he is not answerable to the customer if he puts it into jeopardy, if he engages in a hazardous speculation; he is not bound to keep it or deal with it as the property of the customer, but he is, of course, answerable for the amount, because he has contracted, having received that money, to repay to the customer, is when demanded, a sum equivalent to that paid into his hands. [...] That being established to be the relative situations of banker and customer, the banker is not an agent or factor, but he is a debtor." [emphasis added]

However, arguments have been advanced that in the context of modern financial markets, the legal definition of money cannot be dependent on the creation of a physical token issued by or under the authority of the State. Moreover, physical money, e.g., a banknote, is more than just mere chattel – it also embodies claim against the central bank. Proctor proposes that the concept of payment may be more important than the definition of money[11]. In any case, a legal definition of money also has to take into account its function as a means of payment.

3 Bank of England, "What is Money" <http://edu.bankofengland.co.uk/knowledgebank/what-is-money/> (accessed 25 March 2018). See also, Central Bank of Kenya, "Currency History"<https://www.centralbank.go.ke/currency-history/> (accessed 25 March 2018).

4 European Central Bank, "Virtual Currency Schemes" (October 2012) <https://www.ecb.europa.eu/pub/pdf/other/virtualcurrencyschemes201210en.pdf> (accessed 26 March 2018), at p.9.

5 Serge Lanskoy, "The Legal Nature of Economic Money" Banque de France Bulletin Digest No. 73 (January 2000) <http://www.cemla.org/legales/docs/al-v-Grenouiolloux.pdf> (accessed 20 March 2018).

6 Michael McLeay, Amar Radia and Ryland Thomas, "Money in the Modern Economy: an introduction", Bank of England, Quarterly Bulletin (Q1, 2014) <https://www.bankofengland.co.uk/-/media/boe/files/quarterly-bulletin/2014/money-in-the-modern-economy-an-introduction.pdf> (accessed 20 March 2018), at p.7.

7 See note 4 at p. 10.

8 See note 6 at p. 4.

9 Charles Proctor, Mann on the Legal Aspect of Money (OUP, 6th ed, 2005), para. 1.45-1.48.

10 Foley v Hill (1848) 2 HL Cas 28.

11 See note 9 at para 7.04, fn. 2.

***Moss v Hancock***[12] dealt with the distinction between a coin that is money or "currency" and one that is traded for its numismatic value. The court had to ascertain what set apart a coin as money and relied on the following definition:

> "that which passes freely from hand to hand throughout the community in final discharge of debts and full payment for commodities, being accepted equally without reference to the character or credit of the person who offers it and without the intention of the person who receives it to consume it or apply it to any other use than in turn to tender it to others in discharge of debts or payment for commodities." [emphasis added]

The above definition gives us a few additional attributes of money – its negotiability and function as a means of payment[13]. If money is seen as that which can enable one to discharge their debts and make payments, then bank deposits will also qualify as money. In strictly contractual terms, a bank transfer is merely an assignment of debt from one customer's account to another. Yet, such an assignment does have the effect of extinguishing debt and functioning as a means of payment. But not all monies deposited with banks will meet the means of payment test and be money. In The Chikuma, the House of Lords held that "payment in cash" has to have the effect of making the funds unconditionally available to the payee for its use at the time of payment[14]. Therefore, securities and term deposits will not constitute money under this test[15].

It would be simplistic to assume that a legal definition of bank deposits as a contractual debt precludes it from being defined as money as well. If the legal definition of money is to include it as a "means of payment", then bank deposits or bank transfers (which are assignments of the bank's debt obligations from one customer to another) are "money". In that vein, even fiat currency represents a claim on the issuing central bank (as it is a promise to pay to the holder) while also functioning as money. The unique feature of fiat currency is that it is a debt that can only be paid in more fiat currency. For example, "Bank of England banknotes can only be exchanged for other Bank of England banknotes of the same face value"[16] Taking this further, Proctor suggests that:[17]

> "money is merely a form of contractual claim, whether against the central bank, in the form of banknotes issued or deposits accepted by such an institution, or against a credit institution, in the form of deposits accepted by it. As a corollary, it is argued that 'payment' merely refers to the transfer of such a claim."

## Does money have to be "legal tender"?

A common understanding of fiat currency, (i.e., physical bank notes and coins), is that it functions as legal tender in the jurisdiction where it was issued. Though this archaic term is used in various statutes that declare a nation's currency as its legal tender, the term itself is not defined. It is therefore necessary to understand the meaning of "legal tender", and the implications of such a declaration on fiat currency.

The concept of legal tender is especially relevant as it is often used to define/distinguish virtual currencies such as Bitcoin from fiat currencies. For instance, the Financial Action Task Force ("FATF") defines virtual currency, fiat currency and e-Money in the following way:[18]

> "Virtual currency is a digital representation of value that can be digitally traded and functions as (1) a medium of exchange; and/or (2) a unit of account; and/or (3) a store of value, but does not have legal tender status (i.e., when tendered to a creditor, is a valid and legal offer of payment) in any jurisdiction.[...]
>
> Virtual currency is distinguished from fiat currency (a.k.a. "real currency," "real money," or "national currency"), which is the coin and paper money of a country that is designated as its legal tender; circulates; and is customarily used and accepted as a medium of exchange in the issuing country.
>
> It is distinct from e-Money, which is a digital representation of fiat currency used to electronically transfer value denominated in fiat currency. E-Money is a digital transfer mechanism for fiat currency—i.e., it electronically transfers value that has legal tender status."

12 [1899] 2 QB 111.
13 See note 9. See also, note 5.
14 [1981] 1 WLR 314
15 See note 9, at para 1.70.
16 Bank of England, "Frequently Asked Questions" <https://www.bankofengland.co.uk/faq> (accessed 26 March 2018).
17 See note 9, at para 1.40.
18 "Financial Action Task Force, "Virtual Currencies: Key Definitions and Potential AML/CFT Risks" (June 2014) <http://www.fatf-gafi.org/publications/methodsandtrends/documents/virtual-currency-definitions-aml-cft-risk.html> (accessed 25 March 2018).





All three definitions above rely on some basic understanding of "legal tender". However, it is necessary to distinguish between "legal tender" and a legal framework for issuing currency. Many central banks argue that the concept of legal tender has little or no practical relevance in the present day.[19]

According to the Bank of England, legal tender has "a very narrow and technical meaning" only relating to settlement of debts. It simply means that a seller is barred from recovering a debt, if a buyer offers payment in legal tender[20]. It does not preclude parties from agreeing to other means of payment than legal tender. Historically, the principle of legal tender might have been relevant to distinguish state-backed fiat currencies from notes issued by other banks, or to help a currency gain acceptance as a means of payment[21]. The FATF itself notes that legal tender status does not necessarily require an entity or individual to accept payment in a particular type of legal tender. In fact, economists from Sweden's Riksbank suggest abolition of legal tender status for cash, arguing that it would "better reflect the reality" that parties have the freedom to contract on the mode of payment.[22]

On the other hand, a key feature distinguishing fiat currencies from other forms of money (such as commodities used as a means of payment), is the existence of a legal framework for issuing the currency. Scottish currency is a good example to distinguish between legal tender and legal currency. In Scotland, there are three commercial banks[23] that have the right to issue banknotes. They are "legal currency" as they are approved by the UK Parliament under the Banking Act 2009 and have been enjoying such a status since 1845[24]. However, they do not have legal tender status anywhere in Scotland or in the rest of the United Kingdom, and the economy in Scotland (as well as Northern Ireland) manages to function without this "protection"[25]. In so far as acceptability of the banknotes (with or without legal tender status) is concerned, it is a matter of agreement between the parties.

In light of the case of Scotland, it may well be pertinent to define fiat money without any reference to the technical concept of legal tender. Further, if the legal definition of fiat money were to move beyond the notion of fiat currency, i.e., cash, the concept of legal tender need not necessarily form a part of the definition.[26]

Perhaps more important in defining and identifying money (whether in the form of fiat currency or otherwise) is the "formal and mandatory backing of a domestic legal system"[27]. In public international law, monetary sovereignty is one of the attributes of the modern State and the issuance of money is in itself an exercise of sovereignty by the State.

**Ultimately, it is the State that has a monopoly over the issuance of fiat money (including the physical fiat currency). It is the exercise of sovereignty in issuing fiat currency that distinguishes fiat currency from other means of payment such as e-Money and virtual currencies.**

## Money, sovereignty and a legal framework

Therefore, the lawyer's definition of money would have to deal with the legal framework underpinning the monetary system in the modern State. Does fiat money, by definition, have to be issued by a government?

The Lockean view of money is that it came about as man's solution to move beyond the wastefulness of the barter system, where excess produce would "perish uselessly" in one's hands. Money therefore came about as a "lasting thing that men might keep without spoiling, and that by mutual consent men would take in exchange for the truly useful, but perishable supports of life"[28]. In this theory, money was created by societies organically as a response to the limitations of barter.

While it is true that money does allow one to move beyond barter, legal historians take issue with Locke's theory (and Adam Smith's) of how money was created. Christine Desan argues that money in the Western world has always been a "legal institution"[29]. For any commodity to have acted as a unit of value, store of value and medium of exchange, it has to be recognised as such by a "stakeholder"[30] such as chiefs or clan leaders in the early Anglo Saxon realm. The analysis begins by asking why the subsistence farmer would see value in a shell or piece of metal, independent of the same being recognised as "money".

19 For instance, the Bank of England, the Reserve Bank of New Zealand and Sweden's Riksbank.
a. Bank of England, "What is legal tender" <http://edu.bankofengland.co.uk/knowledgebank/what-is-legal-tender/> (accessed 20 March 2018).
b. Nick McBride, "Payments and the concept of legal tender", Reserve Bank of New Zealand Bulletin, Vol. 70, No. 3 (September 2007) <https://www.rbnz.govt.nz/research-and-publications/reserve-bank-bulletin/2007/rbb2007-70-03-03> (accessed 20 March 2018), at p 32.
c. Björn Segendorf and Anna Wilbe, "Does
20 For example, while purchasing goods at the supermarket, the goods displayed are only an invitation to treat. The offer is made by the customer by tendering cash / or payment by other means, and the shop has a choice whether to accept the payment in such terms and conclude the contract. The issue of legal tender only arises when payment follows performance. In such cases, commercial considerations (in the absence of agreement) will dictate the mode of payment.
21 See note 19
22 Ibid.
23 The three banks are Bank of Scotland, Clydesdale Bank and Royal Bank of Scotland.
24 The Association of Commercial Banknote Issuers, "Legal Position" <http://www.acbi.org.uk/legal_position.php> (accessed 20 March 2018).
25 Committee of Scottish Bankers, "Legal Position" <https://www.scotbanks.org.uk/banknotes/legal-position.html> (accessed 20 March 2018).
26 See note 9 at para. 2.24-2.28.
27 See note 9 at para. 1.15.
28 Christine A. Desan, "Money as a Legal Institution" in David Fox and Wolfgang Ernst ed., Money in the Western Legal Tradition (OUP, 2015).
29 Ibid.
30 Desan avoids use of the word "state" and uses the term "stakeholder" to cover leaders of a variety of groups including kings, chiefs, warlords or other governing bodies

# Defining money

It is the stakeholder who, as the leader of a group of people, has the "unique capacity to create" currency. The stakeholder here is a "common creditor" to the entire group of people, as he would be owed taxes, dues, rent etc. The stakeholder can denote a token as proof of having received goods early and later, accept it in payment of taxes owed to him. This token, usually coins, could be exchanged from person to person in this collective and it would help the final holder meet a tax obligation to the stakeholder. For the stakeholder, it allowed him to "spend now and tax later". Therefore, it is the stakeholder who had the power to denote a unit of account.[31]

Hence, under this "stakeholder theory of money", money owes its creation to a legal framework of sorts, where a leader /governing body has the power to denote a unit of account and enforce its usage by accepting it as taxes subsequently. This remains the position today, where each State accepts its national currency in satisfaction of tax liabilities.

An early example of the State's power to denote a unit of account is explored in ***The Case of Mixt Monies***. This dispute in this case arose as a result of Elizabeth I's debasement of commodity money (silver coins) that circulated in Ireland in 1601. Silver coins in circulation were demonetized and new coins with lesser silver content were circulated, with the original silver coins to be exchanged for the debased coins, i.e., the "mixt monies". A question arose whether a payment under a contract could be made with the new debased coins, though the contract was entered into prior to the Queen's proclamation. The Privy Council concluded that tender of the debased money was good and it was "the sovereign's prerogative to fix the intrinsic fineness of the coinage, and to assign it a legal valuation in terms of money of account." This case "helped to distinguish the value of money in payment transactions from its intrinsic metallic value", and marked an important step towards the present day fiat money.[32]

### But what about when the government fails?

We had made brief reference earlier to cases of monetary systems collapsing or where commodities such as cigarettes functioned as currency during war. In this context, it is necessary to refer to what is known as the 'Societary theory of money':

> "It is the usage of commercial life or the confidence of the people which has the power to create or recognize 'money'. In other words, it is the attitude of society—rather than the State itself – which is relevant in identifying money."[33]

This once again goes back to the functionality of money, which is divorced from the legal framework underpinning it. The Societary theory is perhaps of greater relevance today when lawmakers around the world are faced with the question of whether "virtual currencies" are money.

31 See note 28
32 David Fox, "The Case of Mixt Monies (1604)" in David Fox and Wolfgang Ernst ed., Money in the Western Legal Tradition (OUP, 2015). See note 9 at para 1.29.
33 See note 9 at para 1.29.



# e-Money

### Claims on the issuer: e-Money, bank deposits and fiat currency

At the most basic level, fiat currency is in itself a claim on the issuer, namely the central bank of a State. It is a debt that can only be satisfied with itself. On the other hand, bank deposits and e-Money are contractual claims against the bank and the issuer respectively, though the nature of these claims are quite different. Each is a right to be exercised against private (regulated) bodies.[34]

The European Commission's Directive on e-Money primarily defines it as a means of payment: [35]

> "Electronic money' means electronically, including magnetically, stored monetary value as represented by a claim on the issuer which is issued on receipt of funds for the purpose of making payment transactions [...] and which is accepted by a natural or legal person other than the electronic money issuer".

As the definition notes, it is also necessary that e-Money is accepted by persons other than the issuer, for it to function as a means of payment and be "money". Therefore, several regulators distinguish e-Money from single use cards such as cards used for transport, loyalty cards issued by vendors etc. In addition to EU jurisdictions, Indonesia, Philippines and Malaysia also define e-Money as value that is accepted by someone other than the issuer.[36]

However, the nature of the claim against the bank (in respect of bank deposits) and the e-Money issuer is very different. A bank deposit involves the creation of a debtor-creditor relationship, akin to the "IOU" that the central bank owes to the holder of fiat currency. As the ***Court in Folex v Hill***[37] explained, the bank contracts with the customer to repay a sum equivalent to that paid by the customer, when demanded, and hence a debtor-creditor relationship is formed.

An e-Money issuer, on the other hand, is selling "e-Money" in exchange for fiat money. While redeemability might be a requirement under some regulations, the e-Money issuer is not a debtor. For instance, the EC's Directive on e-Money requires that e-Money be redeemable, but clarifies that "redeemability does not imply that the funds received in exchange for electronic money should be regarded as deposits or other repayable funds"[38].

The relationship between the customer and the e-Money issuer is governed by a sale and purchase agreement where fiat money is exchanged for a product/service, namely, "e-Money"[39]. Hence, the e-Money holder's claim against the issuer is in the nature of damages for breach under the terms of the sale agreement, rather than a debt.

This difference is reflected in the regulatory treatment of bank deposits and e-Money. Many jurisdictions require that e-Money issuers ring fence 100% of the outstanding value to ensure that the "customer's money" is fully protected and always available for redemption. Conversely, banks are allowed to maintain fractional reserves and customers are protected by deposit insurance schemes.[40]

### Can e-Money be "Money"?

In defining and regulating e-Money, lawmakers often compare its attributes to cash or bank deposits. It is an "electronic alternative to cash"[41] as it functions as a cash substitute to the unbanked. Instead of hoarding cash, one can convert cash to e-Money and transact in e-Money[42]. Like cash, e-Money does not earn interest and it is not a deposit.

E-Money also shares similarities to bank deposits. It is a claim on a private organisation and involves a transfer of "ownership" over the fiat money. The customer relinquishes the right to the fiat currency and can only claim an equivalent amount of the fiat currency. Another similarity between bank deposits and e-Money is that they are each claims pegged to a fiat currency. Several jurisdictions require that e-Money is issued only in exchange for the fiat currency of the State[43]. Further, in some jurisdictions, e-Money is allowed to earn interest and supported by deposit insurance. In the section above, we saw that bank deposits are treated as money by the economist and that there is a case for the lawyer to do so as well. In part, this was based on the definition in ***Moss v Hancock***[44] which defines money as a means of payment. By transferring the bank's debt from one customer to another, bank deposits can function as a means of payment, and is therefore "money". In the same vein, some argue that there is a strong argument to treat e-Money as "money" as well.[45]

34 See note 9 at para 1.81
35 Directive 2009/110/EC of the European Parliament and Council (16 September 2009), Article 2(2)
36 As does Singapore's proposed definition on e-Money. Details of these definitions can be found in the accompanying table comparing the treatment of money across jurisdictions.
37 See not 10.
38 See note 35, para 18 of the preamble.
39 United Kingdom Financial Conduct Authority, "How does electronic money differ from deposits?" (February 2018) <https://www.handbook.fca.org.uk/handbook/PERG/3A.pdf> (accessed 26 March 2018), at p. 4.
40 Examples are available in the accompanying table comparing the treatment of money across jurisdictions.
41 The World Bank Blog, "E-Money – Mobile Money – Mobile Banking – What's the Difference?" (21 January 2009) <http://blogs.worldbank.org/psd/e-Money-mobile-Money-mobile-banking-what-s-the-difference> (accessed 28 March 2018).
42 Kenya is an oft-cited example. See William Cook and Claudia McKay, "Banking in the M-PESA Age: Lessons from Kenya" CGAP Working Paper (September 2017) <http://www.cgap.org/publications/banking-m-pesa-age> (accessed 12 March 2018).
43 E.g. Indonesia.
44 See note 12.
45 See note 9 at para 1.81.

But a solely functional definition of money as a means of payment does not (fully) address the way in which the law treats "Money".

### Understanding money as a debt

In the previous section, we saw how money was created by "stakeholders" and later, the sovereign and the State. A corollary of this is the law's recognition of the unit of account created by the sovereign as "money".

For some economists, money has always been inextricably linked with debt[46]. Under this "credit theory of money", money is always a token of debt:

> "The coin, the paper certificates, the bank-notes and the credit on the books of the bank, are all identical in their nature, whatever the difference of form or of intrinsic value. A priceless gem or a worthless bit of paper may equally be a token of debt, so long as the receiver knows what it stands for and the giver acknowledges his obligation to take it back in payment of a debt due." [47]

Here, "money is credit" and physical currency is merely a token by which credit can be transferred or, a debt obligation satisfied. Hence, any "thing" (whether physical or a record in a bank's ledger) that has the effect of transferring credit will be money. Under this theory, "credit is far older than cash", and ancient systems of credit and transferring existed before coins. Alfred-Mitchell Innes cites the example of "tallies" made from wooden sticks that recorded credit.[48]

It is important to note that the law has not tried very hard to define money, and has perhaps never needed to do so. For the jurist, money is often a secondary concept to other primary questions of law. The definition and nature of money are often dealt with tangentially to issues of a "technical legal nature", such as resolving disputes between parties, or determining the difference between sale and barter[49]. Therefore, one of the first instances of the law's acknowledgement of the nature of money emerges from the common law remedy of writ of debt.

The writ of debt (debet et detinent) was commonly used to enforce liquidated claims and were denominated in money terms. This was developed with the law's understanding of money as being something that is distinct from other fungible chattels. In contrast, the writ of detinue (detinet) was used to enforce claims for fungible chattels such as grain, animals etc. Therefore, money, even in the form of coins made of precious metals, was treated differently from fungible chattels that did not denote money[50]. As Christine Desan notes, "the very definition of what could be sold is determined by working out the legal operation of money"[51]. The writ of debt in the Middle Ages shows the law's recognition of money as an instrument that can satisfy a debt, and conversely debt as an obligation that can only be expressed in terms of money.

46 Most notably, Alfred Mitchell-Innes and his two essays, "What is Money?" and "The Credit Theory of Money". Both essays may be found in L. Randall Wray, Credit and State Theories of Money: The Contributions of A. Mitchell Innes (Edward Elgar Publishing Limited, 2004). See also: L. Randall Wray, "Outside Money: The Advantages of Owning the Magic Porridge Pot" Levy Economics Institute of Bard College (Working Paper No. 821) (December 2014) <http://www.levyinstitute.org/pubs/wp_821.pdf> (accessed 20 March 2018).
47 Ibid, Alfred Mitchell-Innes, "What is Money".
48 Ibid.
49 David Fox, Francois R. Velde and Wolfgang Ernst, "Introduction" in David Fox and Wolfgang Ernst ed., Money in the Western Legal Tradition (OUP, 2015), at pp.7-9.
50 See note 32 at pp. 17-18. See generally, Alfred William Brian Simpson, A History of the Common Law of Contract: The Rise of the Action for Assumpsit (Clarendon Press, 1996), at ch. 2.
51 See note 28





### Debt, damages and breach of duty

An outcome of the separation of actions for debt and detinue is also an understanding that money retains its nominal value in an action for debt. Even if a coin has been debased and the intrinsic value of the coin reduced by the State, in an action for debt, the plaintiff can only recover the monetary value pleaded, and cannot ask for older, undebased coins that has higher intrinsic value. On the other hand, when pleading detinue, the plaintiff's action is based on the defendant's failure to deliver the chattels promised. The defendant had the option of paying damages instead of delivering the chattels, and the court will then attempt to quantify these damages in monetary terms.

It also follows that in an action for debt, there is no underlying breach that needs to be demonstrated. As David Fox puts it, "the gist of the action [for debt] was not to make good the losses that resulted from a breach of duty"[52]. As long as the defendant offered to pay the amount pleaded, the plaintiff had no further recourse (even if the intrinsic value of the coins had been debased in the meantime).

### E-Money in context

This condensed explanation of common law's development of the law of obligations shows the law's preoccupation with regulating relationships rather than an abstract concept of "money". Nonetheless, how do we apply this historical understanding of money and debts to e-Money?

As noted earlier, e-Money does not represent a claim in debt against the issuer. We had proposed that e-Money represents a claim in damages against the issuer, arising out of a sale and purchase agreement for "e-Money" in exchange for "money". The modern distinction between debt and damages is set out in Chitty on Contracts:

> "A debt is a definite sum of money fixed by the agreement of the parties as payable by one party in return for the performance of a specified obligation by the other party or upon the occurrence of some specified event or condition; damages may be claimed from a party who has broken his contractual obligation in some way other than failure to pay such a debt."[53]

We are yet to come across cases that have had to deal with any breach or default by an e-Money issuer, which would also give jurists an opportunity to grapple with a legal definition of money. This may well be the result of the fact that e-Money is often used for small transactions as a substitute for cash payments. E-Money is also distinct from bank deposits because e-Money is not purchased with the intention to redeem at a later stage while bank deposits act as a store of value with the intention that the debt will be satisfied at some stage, i.e., the money "withdrawn". But, there are some who see no difference between the functioning of bank deposits and e-Money, and argue that issuers of e-Money on stored-value products should be treated on par with bank deposits by regulators.[54] It has also been described as a "debt instrument … embodied in an electronic instrument, whose circulation effects full and final payment", and which can be compared to travelers' cheques.[55] A point of further investigation are the legal differences in transferring a debt claim (bank deposit) and a damages claim (e-Money). For instance, can e-Money be garnished by the Courts in an execution proceeding?

There is also a case to be made that e-Money has more in common with cash than bank deposits, as it functions as a token of credit. Instead of physically handing over notes and coins, e-Money holders pass on "e-Money" units in satisfaction of debt. This is also reflected in the practical day-to-day usage of e-Money as a payment instrument rather than a deposit instrument. The EU's Directive on e-Money does not regulate e-Money as a "deposit-taking activity" for precisely this reason:

> "The issuance of electronic money does not constitute a deposit-taking activity […], in view of its specific character as an electronic surrogate for coins and banknotes, which is to be used for making payments, usually of limited amount and not as means of saving."[56]

This is not the case everywhere, though. In Kenya, e-Money can be used to open a mobile banking account by which customers can earn interest and have access to credit[57]. Physical cash cannot be deposited into the mobile bank account, and the only way to withdraw money from this account is in the form of e-Money.

52 David Fox, "The Enforcement of Nominal Values to Money in the Medieval and Early Modern Common Law" in Money in the Western Legal Tradition: Middle Ages to Bretton Woods, edited by David Fox and Wolfgang Ernst, Oxford University Press (2016), at p. 213
53 Hugh Beale, Chitty on Contracts (Sweet & Maxwell, 31st ed, 2012), at para. 26-008 .
54 See, for example, Benjamin Geva and Muharem Kianieff, "Reimagining E-Money: Its Conceptual Unity with other Retail Payment Systems" in International Monetary Fund, Current Developments on Monetary and Financial Law (vol 3) (International Monetary Fund, 2005), at pp. 669 – 707.
55 See note 5.
56 See note 35, para 13 of the preamble.
57 Tamara Cook and Claudia McKay, "How M-Shwari Works: The Story So Far." Access to Finance Forum (April 2015) <http://www.cgap.org/publications/how-m-shwari-works-story-so-far> (accessed 15 March 2018).

## Regulatory treatment of e-Money

Regulators around the world continue to grapple with the nature of e-Money and its role in the monetary system. This is reflected in the wide spectrum of approaches to regulation of e-Money.

Most regulators do distinguish e-Money from single use prepaid instruments, such as transport cards and loyalty programmes. The EU Member States do so by definition, following the EU's Directive on electronic money which requires that e-Money be accepted by others than other its issuer.[58] The same approach is reflected in the e-Money definitions in Indonesia, Malaysia, Philippines and South Korea. Singapore's proposed definition of e-Money also follows this method of excluding "limited purpose" e-Money. Some countries make a distinction in the licensing or oversight requirements. In India, single-use cards or loyalty cards are defined as "Closed Prepaid Payment Instrument (PPIs)" and do not require licensing, as opposed to Open PPIs which allow for cash withdrawal (and can only be issued by banks) and Semi-closed PPIs, which is e-Money accepted by various merchants. Taiwan regulates "stored value electronic card" that have "multiple payment purposes". Therefore, though "e-Money" may not be defined in some jurisdictions, the regulatory treatment differs between "e-Money" as we understand it and, other forms of payment.[59]

Where e-Money regulations largely differ is the extent to which e-Money is treated on par with bank deposits. As mentioned earlier, for some regulators, e-Money is akin to cash, and it follows that e-Money cannot earn interest and is not protected by deposit insurance.[60] In addition to the EU Member States, India and several Southeast Asian nations do not allow granting of interest on e-Money value and also prohibit granting credit against e-Money value. Several such countries also require that e-Money issuers ring fence 100% of the outstanding value held and bar them from conducting financial intermediary services.

In contrast, some Latin American nations have experimented with allowing interest to be granted on e-Money "deposits" and include them under the protection of deposit insurance schemes.[61] In fact, in Mexico, e-Money can only be issued by banks or specialised-banks with lighter regulation. In these countries, e-Money issuance is conceptually framed as an extension of existing banking services.

There are regulatory and policy arguments for treating e-Money on par with bank deposits, for instance to extend savings services to the unbanked.[62] African nations such as Ghana[63] and Tanzania[64] are implementing a policy to "distribute" the interest earned by the e-Money issuer to its customers.

Interestingly, Australia, which regulates e-Money as a "purchased payment facility", treats it as a deposit taking activity. The media release introducing regulations for "purchased payment facilities" describes it in the following manner:[65]

> "The stored value backing a purchased payment facility represents a promise by the holder to repay in full. Where the customer is entitled, under the terms of the facility, to demand repayment in Australian currency of part or all of the balance of the stored value, the facility is akin to a deposit [...].
>
> To give effect to these arrangements, a Regulation has been enacted under the Banking Act 1959 which defines the holder of the stored value in relation to a purchased payment facility to be "carrying on banking business."

Despite treating e-Money on par with bank deposits, as well as regulating it under a banking license, conditions of the license may nevertheless require that the e-Money issuer not pay any interest to the customer.[66] Having said all this, e-Money usage in Australia (as well as other advanced economies) does not appear very prevalent.[67]

Ultimately, it appears that regulatory treatment of e-Money is driven by the needs of each nation, whether it is the extension of "branchless banking" through e-Money services or protecting the existing monetary and banking system by regulating e-Money very strictly. We again encounter the fact that whether it is lawyers or lawmakers, defining money (and e-Money) is peripheral to some other problem.

## Confusing e-Money and payment systems

There are also a few regulators who end up regulating e-Money under the umbrella of "online payment systems" or "non-cash payments" alongside debit cards and online banking. This arises out of a confusion on the nature of e-Money – whether it is to be treated as a form of money that can replace cash and bank deposits, or whether it is merely a service on existing money.[68] It is also reflected in the FATF's definition of e-Money that we set out earlier.[69] On the one hand, e-Money is a "digital representation of fiat currency", but it is also a "digital transfer mechanism for fiat currency". For instance, Malaysia regulates it as a retail payment system under its Payment Systems (Designated Payment Instruments) Order 2003 and defines e-Money as a "payment instrument". Taiwan appears to regulate e-Money alongside intermediaries who transfer payments electronically. China too, regulates e-Money as a category of online payments or "third party electronic payments".[70]

The regulatory overlap between payment systems and e-Money seems to arise due to reasons unique to each jurisdiction:

- In countries where existing banking and payments systems are very robust (e.g., Australia), e-Money is not very prevalent and does not attract regulatory attention separately. Such countries focus on developing more robust payment systems. For instance, Australia is in the process of rolling out its "New Payments Platform" to improve real time settlements and faster clearing between financial institutions.[71]
- e-Money is often looked at from the perspective of the medium or technology used to access e-Money – e.g. "mobile money" in Kenya, "online payments" in China. e-Money is often synonymous with "Fintech".
- There is an overlap where e-Money issuers also provide financial intermediary services by which an application allows access to bank deposits.

## Comment

It is our opinion that e-Money is not a payment system, and should not be defined or regulated as such. Electronic payment systems (such as mobile banking, internet banking, as well as e-Money payments) do require regulation to ensure integrity of the payments and the robustness of the technology. For example, Singapore recently released a consultation paper on proposed user protection guidelines for e-payments[72]. However, the regulation of e-Money has very different legal and regulatory objective that should not be confused with the manner in which payments are made or the systems used.

58 See note 35, para 5 of the preamble.
59 See note 36.
60 Directive 2009/110/EC of the European Parliament and Council (16 September 2009):
"Electronic money institutions should not be allowed to grant credit from the funds received or held for the purpose of issuing electronic money. Electronic money issuers should not, moreover, be allowed to grant interest or any other benefit unless those benefits are not related to the length of time during which the electronic money holder holds electronic money."
61 Xavier Faz, "A New Wave of E-Money in Latin America", CGAP Blog (11 June 2013) <http://www.cgap.org/blog/new-wave-e-Money-latin-america> (accessed 12 March 2018).
62 Michael Tarazi and Tilman Ehrbeck, "Putting the Banking in Branchless Banking: Regulation and the Case for Interest-Bearing and Insured E-Money Savings Accounts", in Mobile Financial Services Development Report 2011 (World Economic Forum, 2011).
63 Buddy Buruku and Stefan Staschen, "How Ghana Set Its Rules on Interest Payment on e-Money Accounts", CGAP Blog (29 June 2016) <http://www.cgap.org/blog/how-ghana-set-its-rules-interest-payment-e-Money-accounts> (accessed 15 March 2018).
64 Claudia McKay, "Interest Payments on Mobile Wallets: Bank of Tanzania's Approach", CGAP Blog (28 June 2016) <http://www.cgap.org/blog/interest-payments-mobile-wallets-bank-tanzania%E2%80%99s-approach> (accessed 16 March 2018).
65 Reserve Bank of Australia and Australian Prudential Regulation Authority, "Regulation of Purchased Payment Facilities" (15 June 2008) <https://www.rba.gov.au/media-releases/2000/jmr-rba-apra.html> (accessed 16 March 2018).
66 See, for example, Australian Prudential Regulatory Authority, "Authority to carry on banking business" granted in favour of Pay Pal Australia Pty Limited (26 October 2006) <http://www.apra.gov.au/adi/Documents/cfdocs/PayPal-auth-and-conditions-2006.pdf> (accessed 16 March 2018).
67 Darren Flood, Tim West and Daniel Wheadon, "Trends in Mobile Payments in Developing and Advanced Economies", Reserve Bank of Australia Bulletin (March Quarter 2013) <https://www.rba.gov.au/publications/bulletin/2013/mar/bu-0313-8a.html> (accessed 15 March 2018).
68 Biagio Bossone, "Electronic money versus money: An assessment of regulation", Vox: Centre for Economic Policy Research Policy Portal (25 January 2017) <https://voxeu.org/article/electronic-money-enhancement-or-replacement> (accessed 15 March 2018).
69 See section 1.3 above.
70 See note 36.
71 See note 74. The New Payments Platform website is here: https://www.nppa.com.au/
72 Monetary Authority of Singapore, Consultation Paper on the Proposed E-payments User Protection Guidelines (February 2018).

## New and old challenges to the meaning of money

If e-Money helps to answer the question "What is it that makes money, 'Money'?", virtual currencies challenge our existing legal definition(s) of money. Virtual currencies are often described as what they are not. Lawmakers have variously said that virtual currencies are not:

- Fiat currency
- A claim on any issuer (in fact, there is no issuer) or the liability of anyone
- Backed by any authority – whether the State or a "stakeholder"
- Legal tender
- Denominated in fiat currency

For the economist, virtual currencies open up the debate about the State's role as a coordinator in the monetary system. We are back to where we began in this paper – what makes a token – digital or physical, tangible or intangible – "Money"?

## What are virtual currencies

The term "virtual currency" is often used interchangeably with "digital currencies", "cryptocurrencies" and even, "electronic currency". Regardless of the term used, they are distinguished from e-Money.

For the lawyer and regulator, perhaps the biggest challenge in understanding virtual currencies begins with realising that virtual currencies cannot be distinguished from their payment systems (unlike our earlier argument for e-Money). To take the example of Bitcoin, it can be described as "a system for securely and verifiably transferring bitcoins."[73] It is a "decentralized digital payments system" based on the use of a distributed ledger, without the need for a central intermediary such as a commercial bank, e-Money issuer or the central bank to keep track of payments. It has its own unit of account. The "currency" Bitcoin is a digital token that functions on the Bitcoin platform or payments system.

A token is a "digital asset that can be transferred (not simply copied) between two parties over the internet without requiring the consent of any other party."[74] In this paper, where we are exploring the law of money, we are concerned with only one type of digital token – what is described as "payment tokens" and distinguished from "utility tokens" and "asset tokens". The Swiss financial regulator recently issued guidelines on Initial Coin Offerings, and described payment tokens as cryptocurrencies that have no further functions or links to other development projects.

In contrast, utility tokens are intended to provide digital access to an application or service, while asset tokens represent an underlying asset or equity.[75] That said, nothing prevents from treating utility coins like payment coins. For example, the Ether token is meant to pay for computation and access to the Ethereum platform, on which smart contracts can be built. It is not intended to be a currency.[76] Nonetheless, Ether is used as a means of payment. It can be used to buy other virtual currencies, including Bitcoin. It is also commonly used to purchase "utility coins" or "asset coins" that may be sold in Initial Coin Offerings.

## Currency or commodity?

Virtual currencies may well require a paradigm shift in our understanding of money for us to be able to define it. However, for now, we are limited by existing concepts of "money", "currency", "asset", "payment" and it is therefore but inevitable to compare the unknown to the known.

We have already come across one similarity between virtual currencies and one type of money – cash. Both can be transferred between parties without the need for a central authority/ledger. The difference is, of course, that cash as we know it today is issued by a central bank while virtual currencies do not have any central issuer. Further, it lacks the authority and protection of the State and operates outside the State's monetary framework. As a result, despite use of the word "currency" affixed to its name, virtual currencies are compared with commodities such as gold and described as a "digital asset" or "digital commodity" whose value is determined by the supply and demand for it.[77]

This currency/commodity distinction is also evident in the differing regulatory approaches to virtual currencies, especially in the imposition of indirect taxes such as VAT/GST which tax the purchase or the provision of goods and services. Regulators grapple with whether virtual currencies are a good/service whose purchase should be taxed, as well as whether purchase of other goods and services with virtual currencies is an exchange of commodities or payment in money. We know that "money buys goods and goods buy money, but goods do not buy goods", but are virtual currencies "goods" or "money"?[78]

73 François R. Velde, "Bitcoin: A primer" Chiaco Fed Letter (No. 317) (December 2013) <https://www.chicagofed.org/publications/chicago-fed-letter/2013/december-317> (accessed 15 March 2018).
74 Ibid.
75 Swiss Financial Market Supervisory Authority, "FINMA publishes ICO guidelines" (Feb 16, 2018) <https://www.finma.ch/en/news/2018/02/20180216-mm-ico-wegleitung/> (accessed 26 March 2018).
76 Ethereum Foundation, "Ether: the crypto-fuel for the Ethereum network" <https://www.ethereum.org/ether> (accessed 10 March 2018).
77 Bank of International Settlements, Committee on Payments and Market Infrastructures, "Digital currencies" (Nov 2015), at p.4. See also, the IMF Staff Note's table comparing various types of currencies and the similarities between Bitcoin and gold bullion. International Monetary Fund, "Virtual Currencies and Beyond: Initial Considerations" IMF Staff Discussion Note (January 2016) <https://www.imf.org/en/Publications/Staff-Discussion-Notes/Issues/2016/12/31/Virtual-Currencies-and-Beyond-Initial-Considerations-43618> (accessed 18 March 2018).
78 L. Randall Wray, "Money" Levy Economics Institute of Bard College (Working Paper No. 647) (December 2014) <http://www.levyinstitute.org/publications/money> (accessed 20 March 2018).





Perhaps in acknowledgement of the fact that virtual currencies are used as a means of payment, some regulators such as the ATO in Australia and HMRC in the UK, do not impose tax on the acquisition of virtual currencies. The ATO, while ensuring that purchases made with "digital currencies"[79] are taxed for GST purposes, does not go further and treat virtual currencies on par with money. In fact, the definition of "digital currencies" under the GST Act "does not include money". In contrast, Singapore treats bitcoins as a "service" and it is not exempt from GST. Hence, if bitcoin is used to make payment for other goods or services, it is considered a barter trade.[80]

## Private money

If we take virtual currencies to be "money", they also challenge two related, though not the same, attributes of money – (1) money as debt; (2) the State's role in coordinating the use of money. As we saw above, virtual currencies do not operate as a claim on any issuer. For several virtual currencies, there is "no identifiable scheme operator" akin to financial intermediaries for fiat currency[81]. Virtual currencies are in line with the Societary theory of money[82], where society denotes what is money without the need for a central stakeholder.

However, some virtual currencies do exhibit some similarities to the "stakeholder" theory to the extent that the digital token (in addition to being a means of payment) also functions as a token to access and participate in the ecosystem. An example, mentioned above, is the Ether token that is used to access the Ethereum platform for developing smart contracts and other blockchain based software.[83] While Ether may not denote a debt of the issuer, or be paid as taxes to such an "issuer", the token is necessary for use of the Ethereum platform.

Another analogy here might be cigarettes as currency at prisoner-of-war camps during the Second World War. While used as a means of payment, cigarettes also had intrinsic value to those who smoked cigarettes. For some, it was more than money or a means of payment. But the Ethereum example in a way leads us back to the notion of commodity money, i.e., money that has intrinsic value. Ethereum then, is not "fiduciary money" in the way that Bitcoin is – that is, money that has no intrinsic value and derives its value by government fiat or its acceptance by others.[84]

It must be noted that there are and have been "private currencies" that function outside the authority of the state. One such example is the prevalent use of "local currencies" in various parts of the United Kingdom. These are notes exchanged for fiat money that can be used only within a designated area with the aim of supporting local businesses and encouraging people to spend their money locally.[85] But, though described as "currencies" designated in "notes", and sometimes even accepted for payment of local government taxes, they are dependent on the existence of a sovereign fiat currency in the first place. Local currencies have more in common with e-Money – they are a physical representation of e-Money.

Another example of a private currency is the WIR currency that is used between businesses in Switzerland. However, this too has much more in common with our understanding of money as a claim in debt rather than virtual currencies. The WIR currency is, in effect, a system of credits that are transferred between businesses. The system removes the need for a central "stakeholder" to manage the transfer of credits, though the credits are centrally cleared through the WIR Bank.[86]

Neither of these private currencies help us understand whether a token, which does not signify a claim in debt, or any kind of claim whatsoever, becomes "money". They do, however, show that the meaning of 'Money' or currency is to a certain extent, intuitive. Societies come up with different types of monies in response to situations that demand a new type of money. For instance, virtual currencies may well become Money where the central bank's debt is unstable or has failed as money.[87] Among the Southeast Asian nations, US dollars are still prevalently used in Cambodia and Laos, which could be replaced by virtual currencies. Bitcoins are being adopted in Venezuela, which is yet to recover from hyperinflation.[88]

79 This is the term used and defined under the Australian GST Act 1999.
80 See note 36.
81 See note 84.
82 See section 1.5
83 See note 83.
84 See note 80
85 Mona Naqvi and James Southgate, "Banknotes, local currencies and central bank objectives", Bank of England Quarterly Bulletin, 2013 Q4 (20 December 2013) <https://ssrn.com/abstract=2379352> (accessed 10 March 2018).
86 Jacqui Dunne, "Rethinking Money" Huffington Post (12 September 2012) <https://www.huffingtonpost.com/jacqui-dunne/rethinking-money_b_2268797.html> (accessed 18 March 2018).
87 Christine Lagarde, "Central Banking and Fintech—A Brave New World?" (29 September 2017) <http://www.imf.org/en/News/Articles/2017/09/28/sp092917-central-banking-and-fintech-a-brave-new-world> (accessed 20 March 2018).
88 Rene Chun, "Big in Venezuela: Bitcoin Mining" The Atlantic (September 2017) <https://www.theatlantic.com/magazine/archive/2017/09/big-in-venezuela/534177/> (accessed 20 March 2018).

# Virtual currencies

## Central bank digital currencies – coming back full circle

The Bitcoin boom has made central banks ask whether they should also be providing a "central bank digital currency".[89] In its report on the subject, the BIS considers four aspects that would need to be addressed:

– The issuer (central bank or other);

– The form (electronic or physical);

– The accessibility (universal or limited); and

– The transfer mechanism (centralised or decentralised).

By its very name, we understand that a central bank digital currency would have the central bank as its issuer, and that it would be electronic digital as opposed to physical notes and coins. One kind of central bank digital currency already exists in the form of commercial banks' deposits with the central bank, which is not paper money, but intangible deposits.[90] This is available to commercial banks and financial institutions. For others however, the only way to hold a claim against the central bank is by way of banknotes and coins.

A central bank digital currency that aims to imitate cash (and virtual currencies) will have to allow for decentralized peer to peer transfer of currency. Unlike cash, a central bank digital currency would not have to be physically handed over to effect payment. But, unlike virtual currencies, it would amount to a claim against the central bank and should be accepted in satisfaction of tax liabilities. The Deputy Governor of Sweden's Riksbank considered the possibility of an "e-krona"[91] to act as a complement to cash. Central banks would also have to consider whether the central bank digital currency will earn interest like a bank deposit or retain its similarity to cash in that respect as well. Finally, would it have the anonymity of cash payments?

Ultimately, it appears that central banks are excited by the technology of virtual currencies as a payments system that can be adapted for fiat money[92]. Whether it is the decentralized nature of distributed ledgers or the use of blockchain to maintain historical records, it is not just the central banks that are interested in deploying these technologies. Virtual currencies have also given rise to a new and innovative method of raising funds by way of Initial Coin Offerings. Whether virtual currencies are going to break down our definitions of money is yet to be seen.

[OC UK to insert latest country profiles]

89 This is the term of choice for the European Central Bank. The Bank of International Settlements terms it "central bank cryptocurrencies."
90 Yves Mersch, "Digital Base Money: an assessment from the ECB's perspective" <https://www.ecb.europa.eu/press/key/date/2017/html/sp170116.en.html> (accessed 18 March 2018).
91 Cecilia Skingsley, "Should the Riksbank issue e-krona?" Speech at FinTech Stockholm 2016, Berns (16 November 2016, revised 30 November 2016) <https://www.bis.org/review/r161128a.pdf> (accessed 18 March 2018).
92 See also, Ravi Menon, "Crypto Tokens: The Good, The Bad, and The Ugly" Speech at Money20/20, (15 March 2018) <http://www.mas.gov.sg/News-and-Publications/Speeches-and-Monetary-Policy-Statements/Speeches/2018/Crypto-Tokens-The-Good-The-Bad-and-The-Ugly.aspx> (accessed 28 March 2018).



# Key contacts

**Chia Ling Koh**
Director, Singapore

T: +65 6350 4282
E: chialing.koh@osborneclarke.com

**Paul Anning**
Partner, UK

T: +44 207 105 7446
E: paul.anning@osborneclarke.com

**Chin Kiat Ong**
Associate, Singapore

T: +65 6350 4392
E: chinkiat.ong@osborneclarke.com

**Kate Johnson**
Partner, UK

T: +44 207 105 7230
E: kate.johnson@osborneclarke.com

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