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THE REALITY OF DIGITAL CURRENCY AS A FINANCIAL MEDIUM OF EXCHANGE

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ABSTRACT

This paper presents a discussion of the requirements for the long term acceptance of digital currency as a financial medium of exchange through the examination of fundamental criteria associated with common tender and the examination of selected digital currencies. According to the U.S. Treasury, digital currencies are subject to regulation if that digital currency has a substitutive purpose for facilitating exchanging goods and services (Financial Crimes Enforcement Network, 2013). Although governments can place stipulations on currencies, users of common tender, such as digital currencies, expect at least three basic privileges for a digital currency to evolve from conception to realization. First, a digital currency must be considered intangible personal property similar to trademarks, copyrights, and patents. Second, ownership disputes must be subject to a system such as a Judicial Proceeding or Binding Arbitration to resolve property conflicts. Finally, a digital currency must be subject to similar regulation as other financial instruments (e.g., legal tender, scrip, and credit cards) used in facilitating exchanges.

Keywords: Digital currency, common tender, currency regulation, virtual currency, medium of exchange.

1. INTRODUCTION

Currency is a long established financial instrument used to facilitate exchanges of goods and services (Williamson, 2002). In addition to being a medium of exchange, currencies must hold value and be expressed in common units. Furthermore, a currency can be legal tender as defined by a regulating authority or common tender by means of acceptance. Therefore, common tender would include many forms of digital currency. Additionally, the United States Treasury (Financial Crimes Enforcement Network, 2013) notes digital currencies are subject to regulation if that digital currency has a substitutive purpose for facilitating exchanging goods and services. As technology has fostered an environment where many financial transactions can occur in cyberspace, technology has also promoted new types of financial instruments such as digital currencies. In April 2013, the Royal Canadian Mint began a competition to create digital apps using an experimental anonymous electronic payment technology called MintChip. The purpose of the competition is to aid in the evolution of physical money to include a digital form of payment. In this paper, the authors present the concept and the practical realization of digital currency with examples of current attempts at developing and using some recently released forms of digital currency.

2. COINAGE, PRINTING AND GENERATION OF FINANCIAL INSTRUMENTS USED AS CURRENCY

Benjamin Franklin referred to concept of money as an idea, not something tangible. When the U. S. was still in its infancy, British coins made of gold and silver was the legal tender. The British Government purposely kept coinage short in supply and used coinage as a way to control and extract money from the colonies. Franklin new the U. S. needed more money in circulation and postulated that a "promise" could make up for the shortage in readily available cash Massachusetts began issuing paper notes in 1690, but too much money was eventually printed and the notes began to lose value against coins. In 1723 a crisis in Pennsylvania required a reliable supply of cash and the legislature decided to print up £15000 of paper notes. These notes were backed by land and houses to ensure their value. In January 1776, the British used counterfeiting to flood the U.S. with fake currency that resulted in the replacement of \$40 million worth of currency (Levenson, 2010). Paper money and coinage has remained a popular medium of exchange.

Financial Instruments do not have to be made from metal or paper (Preston, 1933). In 1931, a failed bank in The City of Tenino caused a critical shortage of U.S. Dollars, the legal tender used to facilitate trade,

which subsequently caused a major disruption in financial transactions to the point where an innovative solution was developed. This solution was the establishment and creation of wooden scrip to be used as common currency. The wooden currency represented a portion (approximately 25%) of the validated financial deposits on record at the failed bank. As the bank slowly liquidated its assets and declared liquidating dividends, some Tenino currency was redeemed based upon the previous assigned claims to the Tenino Chamber of Commerce.

As innovative as the wooden currency in Tenino, digital currency has emerged as a financial instrument that may be used as currency. First Virtual Bank offered digital currency accounts in 1994 (USA Today, 1999). More recently, transactions using digital currency transfer a representative unit, or fraction of a unit, from peer-to-peer simply by modifying the owner of record (Williamson, 2002). Digital currency should not be confused with transactions using a *Brokered Monetary Value* (e.g., PayPal) to facilitate trade by safeguarding details as these are not true concepts of digital currency (Champ, 2007). Similar to coins and paper currencies, the creation of digital currency is contingent upon available technology, digital currency can be subject to unauthorized replication, and the supply of currency should be able to meet demand (Williamson, 2002).

The following section presents a brief history of currency used in the U. S. Figure 1 below traces the evolutionary path that currency media has travelled.

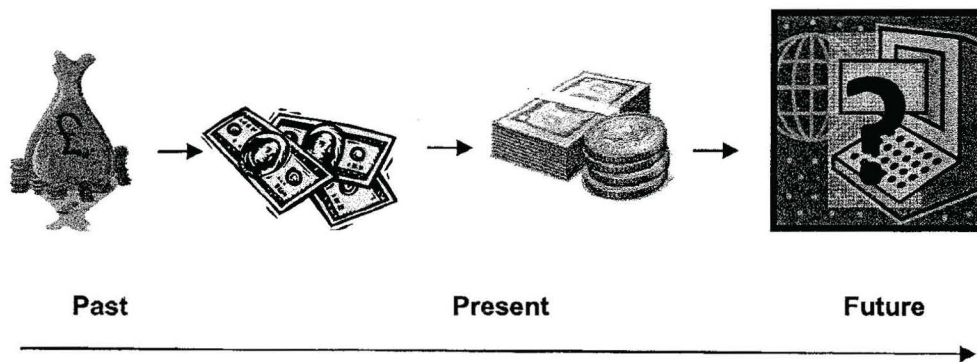


FIGURE 1 – HISTORY OF US CURRENCY

As previously mentioned, financial tools such as charge cards act as temporary loans for purchases, but are not considered legal tender. Digital cash will eventually dominate as the major form of legal tender. To become legal tender, certain requirements must be met. This paper discusses basic requirements for digital cash to become an accepted, and legal, form of currency.

3. REQUIREMENTS FOR THE WIDESPREAD ACCEPTANCE OF DIGITAL CURRENCY

As digital currency is a common tender without the same government regulation and oversight as legal tender, the ability to conduct transactions using virtual currency can be limited. Furthermore, individuals must have faith in the stability of a common tender and that common tender must have a utility that serves the needs in facilitating trades for an individual. Thus, the primary question is how can the concept of digital currency be realized?

We postulate the following: (1) A digital currency must be considered intangible personal property similar to trademarks, copyrights, and patents; (2) Ownership disputes must be subject to a system such as a Judicial Proceeding or Binding Arbitration to resolve property conflicts; and (3) A digital currency must be subject to similar regulation as other financial instruments (e.g., legal tender, scrip, and credit cards) used in facilitating exchanges. Figure 2 presents the three requirements necessary for the use of digital currency as a viable and common currency.

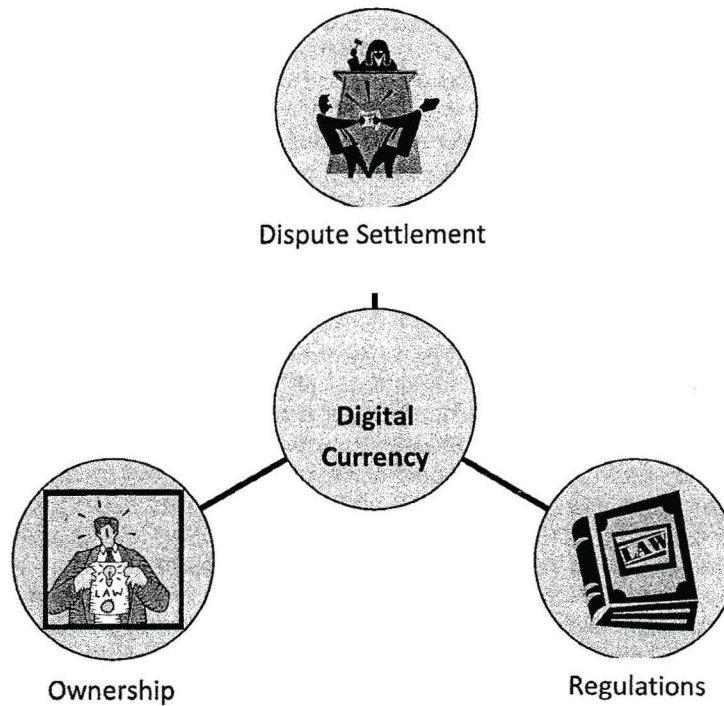


FIGURE 2 – REQUIREMENTS FOR ACCEPTANCE OF DIGITAL CURRENCY

This paper presents discussions relating to electronic, digital or virtual currency as common tender. Using a qualitative methodology, researchers use a combination of academic articles as well as news clippings and on-line discussions. These non-academic sources provide critical insight into virtual common currency as transactions without a central regulated banking system and government oversight is relatively new and subject to rapid market changes. The intention of the researchers is to obtain the best available information at the source, from individuals associated with virtual currency. This knowledge will allow an intelligent discussion on when and if digital currency will be viable and accepted by the federal government, state governments, public corporations, private corporations, and individuals in the U. S.

5. DIGITAL CURRENCY AS A FINANCIAL MEDIUM OF EXCHANGE

How currency is represented is not the primary issue, but its ability to be an instrument of purchasing power, economic mobility, and social mobility is (Shao, McKinney & Shao, 2012). Currency, as a financial medium of exchange, must be versatile in facilitating transactions or users may seek alternative financial tools that serve their purpose. Some digital currencies, such as Bitcoins, have emerged as leading alternative financial tools to traditional transactions.

Bitcoins were established in 2009 (Economist, 2013A) as a decentralized digital currency that has no dominant regulating body (Economist, 2013B). Unlike many financial transactions, Bitcoin transactions cannot be reversed and may be conducted potentially with anonymity (Bitcoin, 2013). The maximum supply of Bitcoins is limited to 21M based upon a unique signature generated for each Bitcoin (Economist, 2013A). While limited, Bitcoins may be divided into units as small as eight decimal points (Bitcoin, 2013). Users can obtain Bitcoins either through the creation (called mining) of a Bitcoin when complex algorithms are solved by computers or from private holders and exchanges of Bitcoins (Economist, 2013B).

The largest currency conversion exchange is Mt. Gox where approximately 80% of Bitcoin are exchanged (BBC, 2013). According to Peck (2012), a limited number of intermediary exchanges can present trading

dilemmas for any currency. For Mt. Gox, a major Bitcoin trading problem caused Bitcoin values to drastically fall in price by approximately 50% (BBC, 2013; Mt. Gox, 2013). Unlike most exchanges, Bitcoin transactions can take between ten and sixty minutes to verify (Bitcoin, 2013). In turn, trading losses could be realized during panic sales (BBC, 2013; Mt. Gox, 2013) when the supply of currency exceeds the demand for currency. Ultimately, Mt. Gox temporarily halted "banking" services which are reminiscent of the U.S. President FDR's declaration of four-day banking holiday in 1933. Even if Bitcoin can stabilize its value, the speed of transactions needs to increase dramatically for it to be a viable form of digital payment. A digital currency must have a broad trading base to operate to be an effective medium of exchange. In addition to limited intermediary exchanges, Peck (2012) and BBC (2012A) note that limited vendor acceptance and the increased number of digital thefts of Bitcoins have caused conceptual changes to Bitcoin.

Because digital currencies can support anonymity, illicit transactions can more easily be conducted using digital currency (Bitcoin, 2013; Peck, 2012). The U.S. Department of Justice (2007) indicted E-Gold as an alternative payment system that aids in facilitating money laundering activities. Furthermore, the Department of Justice notes that "...new electronic currency systems increases the risk that criminal, and possibly terrorists, will exploit these systems to launder money and transfer funds globally to avoid law enforcement scrutiny and circumvent banking regulations and reporting." Thus, any digital currency must consider the jurisdictional limitations imposed by government regulators.

Although the popularity of digital currency including Bitcoin has increased (Bitcoin, 2013) primarily through social media (Economist, 2013B), some advocate against using a digital currency. Angel (2013) suggests that as digital currencies are created without a legitimate basis, a digital currency most likely would be a fraud associated with a Ponzi scheme. However, a virtual bank established in France provides the same protection of digital assets as traditional financial institutions offer for currently common and accepted currency (BBC, 2012B). In essence, the digital currency movement is making progress towards a common currency becoming legitimate.

6. CONCLUSION

As financial transactions have shifted from hard currency to electronic transactions, discussions concerning easier more effective ways to complete financial transactions have taken shape. Consumer confidence in government backed legal tender has dropped and may have contributed to discussions concerning digital currency (Angel, 2013). For digital currency to be successful, we postulated three critical barriers that a currency must have to be successful:

- First a digital currency must be considered intangible personal property similar to trademarks, copyrights, and patents. Without being considered personal property, legal protections are not ensured and consumer confidence can be diminished. Legal protection could decrease market volatility by reducing the risk of loss on an asset.
- Second ownership disputes must be subject to a system such as a Judicial Proceeding or Binding Arbitration to resolve property conflicts. While point one is an important barrier, without means of a resolving ownership rights, the risk of loss is not reduced.
- Finally, a digital currency must be subject to similar regulation as other financial instruments (e.g., legal tender, scrip, and credit cards) used in facilitating exchanges.

This paper has described the present state of digital currency development. In addition, it has presented three basic requirements that are necessary for digital currency to be universally accepted as a form of financial medium of exchange, both nationally and globally. Further developments in the medium must occur relating to these three requirements before digital currency will be accepted by its population of potential users.

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