

CURRENCY IN TRANSITION: AN ETHNOGRAPHIC INQUIRY OF BITCOIN  
ADHERENTS

by

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## **ABSTRACT**

The Internet and other telecommunications systems have reshaped the means by which markets are accessed, generated, and transformed. Recent innovations in computer science have led to the development of a virtually bound, decentralized, encrypted currency system known as bitcoin. Unlike conventional currency systems, the Bitcoin protocol is cryptologically defined with a virtual structure that allows it to simultaneously operate as currency, commodity, and market shaping socio-political force. Its decentralized design permits it to function as a free-market response to fiat currencies vulnerable to inflation, regulation, and manipulation. Given the cultural significance anthropologists and other social scientists have assigned to various modes and mediums of exchange over the years, the socio-economic impact of this novel currency system warrants particular consideration. This research describes the Bitcoin community that has emerged alongside the currency, including the entrepreneurs, developers, and consumers who are dedicated to bitcoin's perpetuation and acceptance as an internationally recognized medium of exchange. Ethnographic interviews and participant observation were utilized to collect information from users in the Central Florida area, detailing their experiences and interactions with the Bitcoin protocol and its associated community. This research provides new levels of anthropological insight into currency development, market interaction, and economically embodied social commentary. Moreover, its exploratory nature helps create a viable framework around which qualitative inquiry of virtual crypto-currencies may be designed in future studies.

To my parents and to the ever enigmatic Walshe Capes

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# CHAPTER ONE: INTRODUCTION

## Thesis Overview

My thesis provides a critical examination of some of the early adopters of the Bitcoin protocol and is based on ethnographic data gathered in the greater Orlando metropolitan area between October 2012 and January 2013. Over subsequent pages I detail the burgeoning knowledge and utilization of bitcoin as an emergent virtual currency and contemplate the implications of its propensity for generating market oriented social discourse. After a review of the relevant anthropological and social scientific literature related to currency and market interactions, I present a hypothesis oriented towards uncovering the reasons behind the protocol's recent adoption and its potential as a market shaping force. Information from individual case studies is utilized to highlight bitcoin's perception and utilization by the community and the new insights gained into socio-economic interactions are described.

## Research Considerations

The advent of the Internet and the proliferation of personal digital devices such as wireless phones, tablets, and laptop computers over the past two decades has radically reshaped the ways in which humans interact with each other. These technologies are so prevalent that they have become all but ubiquitous. Individuals may now converse, design, and exchange ideas, information, and products from a single device. Entire communities can be organized and mobilized without individuals ever having to physically engage or speak directly with other humans. The gains in



efficiency and accessibility that such systematic integration creates have led to a dramatic rise in the use, design, and augmentation of various products and services (Bitcoin Weekly 2012). Even longstanding modes of economic exchange are undergoing reconfiguration as they are integrated into the wireless world.

The digital transformation of market exchanges is the focus of my thesis research. My study arguably provides a rare glimpse of a currency currently undergoing a profound transformation. Currency, which broadly entails the systematic use of any object or record that is generally accepted as payment for goods and services and repayment of debts in a given country or socio-economic context, is conventionally backed, produced, and secured by state governments. However, the Internet's decentralized nature has created the conditions conducive for the development of a standalone currency regulated solely by market forces and independent of direct government oversight (C4ss 2012). The most successful digital currency of this type, though not the first, is bitcoin (Bitcoin Weekly 2012). It is so successful, that bitcoin has spawned an entire community of users dedicated to its perpetuation and acceptance as a legitimate means of exchange (Davis 2011).

In this thesis, I ethnographically analyze local bitcoin users from Orlando and across Central Florida. Specifically, I examine questions of why and how these users have adopted this novel mode of exchange. Through a series of informal and formal interviews with members of greater Orlando's bitcoin community, I explore the social and economic implications associated with the utilization of this virtual currency. Based on my research findings, I argue that many users rely on bitcoin as a response to the

economic fallout of the late 2000s global recession. Such a rationale, coupled with the potential financial gains they stand to accrue for using bitcoin, has compelled many to view the currency as a way to financially insulate themselves against problems of over-inflation, short-sighted currency manipulation, and other failings associated with a state centralized currency monopoly (Hayek 1974). Users now identify themselves as part of an explicit community that sees bitcoin as both an opportunity and a means of social dialogue and change. In effect, they view it as a way to personalize the market and their place within the global economy.

In examining the bitcoin community, I have developed several arguments about this virtual currency's relevance to its users. I maintain that involvement with bitcoin contributes to a cohesive understanding and, perhaps, a tacit willingness to perpetuate a significant socioeconomic transformation. Specifically, I view bitcoin users as a community wherein members become increasingly sympathetic to monetary deregulation and decentralization as their use of bitcoin grows. I further argue that any regulatory attempts by the government or established financial institutions can serve as a rallying point for bitcoin users. Such efforts at oversight effectively reinforce group cohesion and help to promote the use of this currency.

### Literature Review

Over the last 30 years, the ways in which individuals interface with complex market systems has changed considerably due to significant advances in communication technology. Corporations like PayPal and credit companies like VISA

and MasterCard have revolutionized the ways in which people store, manage, and transfer currency (Forbes 2012). Already somewhat difficult to conceptualize and define, currency has become increasingly virtualized over recent years (Jacob 2012, Boellstorff 2010). No longer is it necessary for individuals to possess a physical representation or symbol of account such as paper money to engage in an economic transaction. Debt and credit need no longer be backed by 'real' commodities or financial reserves (Chey 2012). Currency is now increasingly transferred and allocated impersonally via the Internet (Kharif 2009).

This recent development in currency form, however, is arguably not an entirely novel occurrence. Currencies and market systems in various cultural contexts have been subject to changes in form, function, and interpretation for centuries. Anthropologists and economists have described currencies as tokens, symbols, means of account and transaction, and illusion (Maurer 2006, Mauss 1950). Bronislaw Malinowski famously describes the symbolic and ceremonial shell economy of the Trobriand islanders in his pioneering work, *Argonauts of the Western Pacific* (1922). Among other things, he notes the ritual aspects of a socially defined means of exchange; a system of exchange defined by power and hierarchy that developed alongside other modes of market interaction. Similarly, Marcel Mauss (1950) likens its use, development, and exchange to that of a gift, whereby currency and market forces could have nearly any form so long they operated as a system of account. Karl Polanyi (1944) references what he believes to be the 'Great Transformation' in which the world has been reshaped by market forces and subsequently depersonalized. This argument

is variously supported by social theorist Georg Simmel (1907). He notes that the anonymity and abstraction associated with currency would lead to a global transformation and adoption of egalitarianism in one form or another.

Anthropologist Keith Hart, however, argues against Simmel's assertion by suggesting that money always acts both impersonally and personally (Hart 2007). Society has not lost itself within contemporary economic structures, but has altered the ways in which it interacts. People use currency and transaction as a means by which they may express themselves outwardly. Crowd-sourcing, automated market research, and the Internet's utility in regards to public interface and press relations has greatly facilitated individuals' ability to directly influence what, where, and how goods are produced and sold (Boellstorff 2010). Currency, and its usage, represents a society's ability to sustain local meaning and to perpetuate and cultivate universal connections (Hart 2001).

Only some 40 years ago, economist F. A. Hayek called for a restructuring of the global currency system. He argues that many socioeconomic problems were heavily influenced, if not directly caused, by government monopolies on fiat currency (Hayek 1974). Governments with sole control over the fiat currencies that they produce have, primarily through irresponsible and short sighted endeavors, frequently contributed to the development of inflationary economies (Enders 2009). Hayek suggests that the only way to solve this problem and diminish the likelihood of future economic disasters is to let the free market develop competing currencies that would vie for acceptance. Under this scheme, the currencies that operate without drastic value fluctuations are

most likely to be adopted by consumers desiring long term stability and buying power (Hayek 1974). Lending institutions would be encouraged to control inflation by similar competitive drives. According to Hayek, those currencies deemed inefficient would be abandoned by consumers in favor of other free market currencies (1974). Moreover, severe inflation and contingent extreme unemployment could be effectively eliminated (Hayek 1974).

It appears that Hayek's vision may now be coming true with the emergence of virtual currencies such as bitcoin. The increase in virtually bound markets and their associated systems over the last 20 years has outpaced those of many others. This growth may be indicative of the increasing acceptance and development of virtually defined means of exchange (Dong Hee 2008, Heeks 2010). Online games, particularly the massively multiplayer online role playing games (MMORPGs) such as *World of Warcraft*, *Second Life*, and *Diablo III*, have developed standalone markets that service their virtual worlds. These markets allow players to buy, sell, and trade goods found or created in-game with each other. Such developments have also given users the ability to effectively interface with 'actual' world economies (Kharif 2009). Linden dollars, the currency of the video game *Second Life*, are now bought and sold the world over with government backed currencies such as the U.S. Dollar (Stokes 2012). The economy of this 'virtual' world generates millions of dollars of revenue for participants with some users generating over \$100,000 annually (Boellstorff 2010).

Like the MMORPGs, credit card companies, eBay, Amazon, and PayPal service millions of individuals worldwide via the Internet. These firms, however, operate within

the 'actual' world and provide individual users access to the global market, albeit with certain limitations (Chahal 2012). These companies are able to choose and regulate their clientele, collecting personal information and placing restrictions on the number and type of transaction individuals may use. Additionally, they are not available everywhere with some geographical regions having more access than others. PayPal, for example, has restricted its use in Nigeria, the Congo, and other Central African states. The company has been known to acquiesce to the pressures of governments seeking to control who uses it (Kaplanov 2012). Moreover, domestic and international law mediates their scope and influence so that transnational transactions are subject to a number of penalties, leaving many credit-based dealings subject to extended confirmation delays (Fikentscher 2004). Although these delays are often implemented as security measures, they can nevertheless serve to impede consumer transactions.

In response to the inherent limitations of current credit payment systems and fiat currency, bitcoin was developed and made public in 2009 by Satoshi Nakamoto, an unknown individual or collective (C4ss 2012, Nakamoto 2009). Although there have been numerous attempts by investigative journalists to uncover the identity of Satoshi Nakamoto, no conclusive proof has yet emerged to identify this enigmatic developer (Sargent 2013). Initially, bitcoin was something of a puzzle as only programmers appeared to take notice of its emergence. As a virtual currency designed to provide nearly instantaneous transactions and verifications across a peer-to-peer network, bitcoin remains largely decentralized and outside the purview of any governing authority, (Bitcoin Weekly 2012). While credit card purchases may take days or even

weeks to finalize, bitcoin transactions can clear almost instantaneously (We Use Coins 2012).

Unlike many traditional economic transactions, a bitcoin transaction is essentially non-refundable and final. Users must assume a certain level of risk when deciding with whom to exchange using bitcoin (Open Economy 2012). Moreover, as a crypto-currency, it is very difficult to trace. A crypto-currency transaction is encrypted as it is dispatched. Like informal transactions involving real U.S. dollars or Euros, and entirely unlike credit/debit card systems or Pay Pal, there are no transaction histories directly associated with bitcoin user identities and exchanges (Grinberg 2011).

At a larger level, bitcoin's development suggests nothing if not an emerging age whereby consumer choice in currency becomes an increasingly legitimate possibility. The cryptographic, peer-to-peer design allows bitcoin users to operate outside of central issuing authorities, and, therefore beyond the scope of conventional regulation. Unlike fiat currencies which by definition are subject to the centralized authorities that govern them, bitcoin is open-source and virtually bound (Bitcoin Weekly 2012). Since it exists only as data, there are no governments to regulate, print, or define bitcoin. The governmental backlash that destroyed the Liberty dollar in 2009 (a privately produced currency backed by and redeemable for gold and silver) and the once viable Iraqi Swiss Dinar (a short-lived stand-alone denationalized currency available between 1993 and 2004) cannot affect the Bitcoin protocol (Kaplanov 2012). Moreover, bitcoin retains a hard limit on the total amount of the currency that can ever be issued, preventing over-inflation by disallowing the ability to produce more than the pre-set amount. Without the

fluctuations in trading power caused by inflation, a denationalized currency like bitcoin is expected to remain relatively stable regardless of local economic circumstances (Hayek 1974 and Kaplanov 2012).

Trust between economic actors sustains market systems reliant on bitcoin. Having neither an intrinsic value nor any representational aspect, its value is subject to market forces and user confidence. While this suggests that bitcoin's value is unguaranteed or backed by any monetary authority, it also means that its value and supply cannot be manipulated by anything more than consumer confidence. In effect, bitcoin's value is largely a representation of the market's faith in it. In this way, it is arguably more a commodity than a currency.

Government regulation currently has only limited effect on bitcoin transactions. This internationally accessible 'coin' provides a way to circumvent costly currency transitions and lengthy processing delays. Perhaps unsurprisingly, the first markets to truly embrace bitcoin were virtually situated illicit markets (Edwin 2011). Markets such as the drug and arms dealing digital hubs the Silk Road and the Armory relied on the anonymity of bitcoin transactions to protect and encourage sales. As bitcoin eventually gained enough acceptability as a medium of exchange, it became increasingly utilized in the acquisition of legal goods and services including groceries and computer accessories. Additionally, it has become a way to cheaply exchange international currencies (Wallace 2011).

Today, there are over 10,000 businesses that accept bitcoin and the number appears to be growing (We Use Coins 2012). Since novel markets nearly always attract



entrepreneurs seeking untapped economic opportunities, currency and commodity speculators have seemingly flocked to bitcoin. While it remains difficult to predict the digital currency's future, ease of access and utility are markers of both technological and economic success. Bitcoin is still developing the tools necessary to increase its user base in order to compete with other international currencies (C4ss 2012).

Bitcoin represents a challenge to government monopolies over money and such threats to the existing power structures are frequently met with strong opposition (Polanyi 1944). As such, states will likely seek to retain control over their currencies' domestic or international domination by force of law in the same way that they influenced the fall of the Liberty dollar (Hayek 1974, Westwood 2013). That said, lawmakers have so far found it difficult to define, and subsequently establish legal boundaries around bitcoin as it retains properties that may simultaneously classify it as commodity, currency, notary, and/or service (Kaplanov 2012). Most recently it has been described simply as 'another form of currency' or 'private money' by the U.S. and German governments respectively (McHugh 2013).

Unlike other contemporary currencies, bitcoin's unique cryptological design has also led to its use as a medium of expression. Like those "primitive" systems of exchange described in Marcel Mauss's *The Gift* (1950), bitcoin is operating both as a market force and as a socially informed system of cultural and philosophical interaction (Mauss 1950). Many use bitcoin as a response to increased government regulation over everyday economic transactions. Such use conveys feelings of displeasure with the long standing financial/social systems through the deliberate adoption of a counter-

community (Jensen 2012). In this way, the impersonal becomes increasingly more personal. The number of followers that bitcoin has shaped into an expanding community of dedicated users is actively developing a novel market system of exchange (Bitcoin Weekly 2012, Hart 2007).

Opportunities to witness the burgeoning development of a potentially competitive currency/ market system like bitcoin are arguably quite rare. Bitcoin's novelty, rapid expansion, and design have not yet been subject to significant anthropological consideration. While there are definite parallels in the virtual worlds of MMORPGs, where entire emergent economies and currencies were developed by the community itself, no such systems have operated as successfully in the 'actual' world (Boellstorff 2010). Bitcoin presents something of a new development in market interaction and exchange. Such exchanges are characterized by consumers and developers actively shaping and defining an emergent market situated in both an ever globalizing world and beyond the scope of direct regulation (Chey 2012).

## CHAPTER TWO: METHODOLOGY

My research focuses largely on user interactions with bitcoin and its associated systems. To best acquire an accurate gauge of their participation within the bitcoin community it is necessary to rely on both participant observation and a series of formal and informal interviews. While surveys may occasionally serve as suitable methods of inquiry, the detailed and at times sensitive material required for the successful completion of this study made interpersonal interviews not only expedient but also essential. In order to protect participants, pseudonyms were assigned to all those who volunteered information during the study and efforts were made to limit the inclusion of information that could allow for their identification via other means.

### Materials and Method

My thesis research is grounded in a variety of data collected primarily through the traditional ethnographic techniques of interviewing and participant-observation. Specifically, I conducted seven semi-structured formal interviews either in person or via video-chat interface. Each of these interviews lasted at minimum an hour and a half and up to three hours in the longest case. Additionally, I conducted 14 informal situational interviews. The majority of interviewees are members of the Orlando meet-up group known as “Burgers Beer, and Bitcoin!” My preliminary inquiries and attendance at the September 2012 meeting suggested that knowledgeable and active participants in the local Bitcoin community with an interest in assisting me could be found at the group’s monthly functions. I spent most of my time at the bar where the

group meets cultivating ties with the local community and discussing the general utility of bitcoin and recent news and developments associated with the currency and its users. Any individuals interested in participating in more formal interview sessions were invited to participate.

The interviews targeted the informant's primary interaction with the Bitcoin protocol and virtual currency, whether as a programmer, miner, consumer, or business owner. Formal interview questions focused on: (1) the individual's use of bitcoin as a currency; (2) their perception of it as a system of exchange; (3) their interest and speculation of its future; (4) whether or not they believe it to be viable and of worth; and (5) what specifically they currently use it for and why. Interviews were also used to document important demographic information about local bitcoin users such as age, sex, educational background, and manner of employment, should the participant be willing to divulge it. This line of inquiry helped me to gain a broader understanding of local bitcoin users' interactions with and conceptualization of the community and system as a whole.

The informal interviews primarily entailed general interactions with periphery members of the Bitcoin community, or those individuals who might best provide some insight into broader perceptions of bitcoin and the persons associated with it. These individuals included those who are familiar with but do not actively use the system, individuals who may interact with bitcoin users outside of the community, and those who are active users but decline to be formally interviewed.

### Analysis and Strategy

The data collected during the interview process was used to assess how and in what ways the bitcoin crypto-currency creates new market opportunities in greater Orlando. Given the inherent risk in adopting a relatively untested system of exchange, I investigated the reasons why bitcoin has become so popular so quickly for local users. To this end, I gathered and compared the perceptions of miners, programmers, consumers, and business owners. I assessed the participant's use of the currency against their use and perception of other currencies and means of exchange including the U.S. dollar, credit cards, and PayPal. This data was used to help me better understand exactly how bitcoin operates as a relatively novel mode of market interaction.

### Research Program Timeline

A preliminary literature review of currency systems, commodity structures, market development, and bitcoin began in August of 2012. Since receiving approval from UCF's Internal Review Board's in October 2012, a total of seven semi-structured formal interviews have been completed. I have attended four "Burgers, Beer, and Bitcoin!" meet-ups and completed 14 informal interviews at a variety of locations throughout the greater metropolitan area of Orlando, Florida. As of February 2013, all interviews have been transcribed and secured on a stable server.

### Limitations and Implications

Findings are somewhat limited due to various factors. First, bitcoin's novelty, rapid development, and design has not permitted academically and socially oriented consideration. Accordingly, most of the work carried out in this project has been exploratory in nature and designed to provide insights into bitcoin's position as an emerging market force. Second, the study was geographically restricted to Central Florida and the limited number of users willing to participate. Although bitcoin is decentralized and operated online, the participants used in this study all live within four hours of greater Orlando, which may have influenced their perceptions of bitcoin. Third, due to their fledgling nature and scarcity, it is also beyond the scope of this study to compare bitcoin with other virtual crypto-currency communities such as those surrounding FireCoin and Litecoin.

Although limited in some respects, my thesis findings may inform research aimed at understanding processes of globalization and social equality. As any individual with Internet access can utilize crypto-currency protocols, the limitations established by governments, credit card companies, banks, and private exchange mediators can now be circumvented, providing unparalleled access to the global market. Furthermore, this study provides a glimpse into an instance of divergent monetary policy discussion and debate. The myriad ways in which bitcoin is encountered and described may set the stage for a continuous investigation of economic social commentary and adaptive policy making.

## Overview of Chapters

Having introduced the concept of bitcoin and delineated the research parameters of this thesis project, I provide a brief overview of the chapters that follow. Subsequent sections relate bitcoin user's perceptions of and interactions with the Bitcoin protocol and its associated mechanisms of commercial exchange and market interaction. Chapter Three explains the Bitcoin protocol and provides a detailed explanation of the technical workings of the currency. Chapter Four details my specific communications with the seven formal interview participants over six case studies. Chapter Five discusses the specific ways in which the Bitcoin community member's use the novel system and perpetuate its growth and exposure, while simultaneously participating in a form of social dialogue. Chapter Six synthesizes my findings and suggests avenues by which future research in the field may be directed.

## CHAPTER THREE: THE BITCOIN PROTOCOL

Given bitcoin's novelty, both as a means of exchange and as an idea, few individuals have garnered a comprehensive grasp of its purpose and function. To best facilitate an understanding of the following research it is necessary to provide an in depth description of the Bitcoin protocol, its manner of use, and a description of relevant jargon associated with the system.

### The Bitcoin Protocol and Associated Mechanisms

Bitcoin is a virtually bound and cryptographically defined commodity-currency. As such, it functions in a manner similar to, yet ultimately divergent from both commodity exchange systems and the common fiat currency systems that are backed by state governments. Since a bitcoin exists entirely as a computer program, it has no physical representation or 'paper money' equivalent (We Use Coins 2012). Individual bitcoins themselves are a selection of code that represents a part of a grand collective that is the total supply of bitcoin currently available in the market (Nakamoto 2009). The codes that represent a specified amount of bitcoin may be likened to the serial numbers on U.S. dollar bills as they are unique representations of individual currency units. However, unlike U.S. dollars, the serial numbers or bitcoin codes are representations of individual transactions that are at least partially reorganized with each exchange and can be used to denote smaller increments of a coin, up to eight decimal places, allowing millionths of a single bitcoin to be traded (Buterin 2012).



Individuals own or control bitcoins by having or maintaining access to the private keys that represent a selection of the currency. These keys are generated by the Bitcoin clients from the numbers associated with individual transactions by which users acquire their bitcoin (Buterin 2012). In this manner, each transaction can be verified all the way back to the primary source coins from which they are originally derived. This tracing ability prevents counterfeiting and various other forms of fraud. To perform a transaction using the Bitcoin client, parties must also have access to the sender's public key, which is derived from the private key by utilizing complex mathematical formulae, and the recipient's 'address,' a smaller number derived from the public key.

Successful transactions necessitate the completion of several steps. First, senders must allocate a certain amount of bitcoin for transferal and assign it to their public key. Next, they must transfer it to the recipient's 'address.' Once this is completed, they must verify the transaction by 'signing it.' The 'signing' process involves a digital confirmation that a sender's private account actually contains spendable bitcoin (Buterin 2012).

Transactions are further verified, often within a matter of seconds, by the network as a whole by comparing transaction numbers associated with the public keys of previous transactions (Perry 2012). This process confirms that it is a novel and valid exchange. Network supporters, known as 'miners,' run the decentralized system of interlinked computers that generate the computer processing power necessary to sustain the network. They, like anyone operating the Bitcoin protocol, have access to what is known as the block-chain, a coded history of every transaction ever processed

on the network. This digital record verifies transactions by comparing them to the history of the system as a whole, although it is not mathematically necessary to do this beyond six transactions given the exponential scalability of potential error (Kaplanov 2012).

Miners are compensated for the use of their Computer Processing Unit's (CPU) efforts by being given the opportunity to generate new bitcoins (Perry 2012). The Bitcoin protocol sets the number of bitcoin that can ever be released at a value approaching but never surpassing 21 million, an amount that is unalterable without significant changes to the network's infrastructure. A new batch of 50 bitcoins is generated roughly every ten minutes. This amount goes to the first miner, or group of miners, whose computers solve a complex and ever changing set of computational problems for which the solution mathematically aligns with the previous 50 bitcoins released (Perry 2012).

Only bitcoin codes that align with the last allotment are accepted and added to the system as a whole. In order to accept a solution as valid, at least 51% of the network must check the solution and accept it as applicable. In time, the amount of bitcoin released per successful solution will be halved (currently only 25 are generated) and then halved again at regular intervals, ensuring that the total amount of bitcoin in circulation approaches but never reaches its prearranged cap (Buterin 2012). This cap is designed to prevent the deliberate generation of inflation associated with the manipulation of the monetary supply. Transactions over the Bitcoin network take seconds to validate and the entire system operates much more efficiently than does a

typical credit card service, or even an electronic banking transaction, both of which may take days to verify and clear. Accordingly, it is anticipated that miners will eventually receive compensation through transaction fees. The reward for successfully generating a new selection of bitcoin becomes negligible and the exceptional speed at which transactions are verified allows bitcoin to effectively compete with credit card companies (Buterin 2012).

Arguably, the most important factor setting bitcoin apart from other more established and mainstream currency systems is its decentralized design. Since Bitcoin is an encrypted protocol sustained by a series of independent 'miners' operating a decentralized network, no central governing authority exists beyond the core group of developers that release updates and facilitate debugging. Without the consent of active bitcoin users and miners, the currency cap of roughly 21 million cannot be exceeded (Buterin 2012). Moreover, its value is not specifically pegged to any particular global commodity or existing currency system such as the U.S. dollar. Bitcoin's value is determined almost exclusively by market forces and consumer confidence in the system. Like a stock on an exchange, bitcoin is traded and valued on its predicted value and perceived utility. These values are then recorded and disseminated via broker sites like Mt. Gox.

Security is a major concern given the encrypted manner in which bitcoins are processed, distributed, and exchanged. Bitcoins operate somewhat like bearer bonds in that they can be spent by anyone who has access to them. Bitcoin owners are those who know the private key generated from their bitcoin's transaction history. To manage

and mitigate risk, bitcoin operators frequently utilize wallet systems. Wallets are programs that allow individuals to manage, store, and transfer bitcoin electronically (We Use Coins 2012). That said, it is important to note that some consider the hard code that represents a selection of bitcoin to also be a form of wallet. Wallets run by other companies often boast security that is designed to prevent hacking attempts that plagued early adopters of the protocol. However, these systems are not impervious to dedicated and persistent thieves. The only secure way to prevent this method of bitcoin theft is storage on a portable device so as to keep them effectively 'offline' (Buterin 2012).

### Chapter Overview

In this chapter, I detailed the form and function of the Bitcoin protocol and its manner of operation by describing practices such as mining, storage, security, and the transaction process. In the next chapter, I present a thorough account of my interactions with some of the members of Central Florida's bitcoin community through several relevant case studies.

## CHAPTER FOUR: CASE STUDIES

In this chapter, I detail the experiences and perceptions of individuals who consider themselves active or peripheral members of Central Florida's growing Bitcoin community. I not only present accounts of their first encounters with bitcoin but also document their expectations about the virtual currency and concerns with the protocol's public reception. My profiles of seven community members who volunteered to participate in extended formal interviews are of particular importance. These accounts are related over six case studies and measures were taken to safeguard their identities.

After recounting how I first met each of the informants, I describe our interactions up to and including the interview itself. When necessary I detail relevant current events as they may pertain to the discussion so as to frame it appropriately. I conclude each case study with a brief description of their current place within the community provided that we have stayed in contact.

### Tommy

I spend my first few weeks on this project searching the internet for bitcoin interest groups that may operate in or around Orlando, Florida. Given its novelty, locating individuals who are both interested and informed about bitcoin is a difficult task. However, a posting on 'meetup.com' leads me to the group, 'Burgers, Beer, and Bitcoin!', a special interest group designed to bring knowledge of the fledgling virtual currency out into the open. After signing up, I am given the date and time of the next local meeting to be hosted at the bar 'Whiskey Dicks', the first bar, and possibly

business, in Orlando to accept bitcoin as a form of payment. Two weeks later, I attended my first 'Burgers, Beer, and Bitcoin!' meeting.

Whiskey Dicks is nice, it is located in an upscale part of downtown Orlando and boasts good food and a fair selection of beer. However, it is not the kind of location I would expect to meet a group of currency speculators and potential investors. After wandering over to the largest group of people in the establishment I am greeted almost immediately by Tommy. Tommy is the individual who has put quite a bit of effort into organizing this meet up and getting the word out about bitcoin. He introduces himself and then each of the other 15 people at the table, some of whom he has known for years and some of whom are first timers like myself. It seems to be an interesting group all around, the ages range from 22 to upwards of 60, and while most of the members are college-educated, their fields of expertise vary widely.

I spend much of this first meeting simply getting to know the other members. There are school teachers, other graduate students, travel agents, and private entrepreneurs. I have bitcoin's utility and design explained to me in a number of ways, but in a cohesive manner that indicates that most of the members are aware of how it operates. Many of the members are keen to explain their interest in bitcoin and are as eager to hear of my research in kind. By the end of the meeting, I have half a dozen phone numbers from individuals who are interested in helping me with my research.

As the meet up winds down I am invited out to another bar by Tommy and his friends Scott, Sam, and Jill, all of whom are profiled in the following case studies. Tommy continues to tell me about bitcoin and his involvement with it. He has started a

new company designed to facilitate how a business interfaces with bitcoin. His program, developed with the aid of a close college friend, allows businesses to more easily convert bitcoin's to other currencies and, subsequently, have these currencies deposited directly into a banking account of their choosing via mobile applications installed on smart phones. With this program, some of bitcoin's relatively steep learning curve is diminished and business owners can operate more or less as they always have while taking in an additional form of payment without the risk associated with holding onto the potentially volatile bitcoins. Whiskey Dicks was one of his first customers.

Tommy explains how one of the largest inhibiting factors to bitcoin's uptake and appeal is its user un-friendliness. He states that, "The average person just doesn't understand it yet, it's not mainstream enough and there hasn't been enough development yet." Bitcoin is still being understood and tinkered with, Tommy claims that "it has a long way to go yet before it becomes widely accepted." He is confident, however, that it will get there, or that at the least something very like it will. As the night winds down, I get pledges from Scott, Sam, and Jill for interviews and set up one with Tommy for the following week.

I meet Tommy at Whiskey Dicks the following week. Tommy is a 39 year old mechanical engineer who now spends most of his time working as a sales representative for a large engineering firm situated in Orlando. He tells me that he won't quit unless his bitcoin venture becomes more profitable and bitcoin more widely recognized. Stability, he says, is critical. He was first introduced to bitcoin in late 2010 by an old friend and IBM programmer from his undergraduate university. Tommy

essentially saw Bitcoin as an opportunity. “Here were these people, with a bunch of money they couldn’t use, we saw a need and sought to fill it,” he said, and so that was when he and his friend decided to start the company.

When asked why he sees value in bitcoin Tommy states that he sees it as an economic opportunity. “I did my research and I saw a lot of very intelligent people involved. I saw what was happening with bitcoin and thought of it almost as a parallel to what was happening at the beginning of the internet. We are still in the dial up stages.” Tommy believes that bitcoin is something deserving of investment, something that one could start with and build its value directly through access facilitation. He sees software development as the future; it has to be accessible, easier to use, and more mobile.

Tommy sees a great deal of upside to the adoption of bitcoin given its ability to provide cheap international transactions between virtually anyone, fraud protection, and simplified crowdsourcing. Moreover, he notes that its relative security and efficiency serves as a huge selling point. You don’t need all the “baggage” associated with paying by credit card such as your name, location, and international jurisdiction. “It’s easy, simple and you can’t stop it from being used in say, a different country, anyone can accept bitcoin.” He believes that in the near future people will begin to use bitcoin in greater numbers, solely to take advantage of its comparable speed and utility as measured against the dominant credit card companies.

However, no matter how many leaps are made in facilitating its use, it still has some problematic issues that need to be addressed. Tommy states that the main issues impeding bitcoin’s adoption beyond notoriety and ease of use are undoubtedly



security and uncertainty. “If you lose a password you can lose it ALL,” he says. He believes that people are unaccustomed to having to treat their finances in such a way. Without the automated password recovery systems and other safeguards commonly associated with virtual banking, all of the responsibility lies solely on the user to protect and manage their account’s safety and accessibility. I then inquire about wallets, which may be better understood as the virtual programs that operate as something akin to bank accounts. Tommy, however, needs to see vast improvement in these system’s security before they can be truly relied upon, hacking attempts have been too successful too often to inspire faith. Only a few months prior one of the largest wallet servers was hacked, causing hundreds of thousands of dollars in personal losses (Buterin 2012).

Tommy notes that for bitcoin to become truly viable, users will have to get government support even after these issues are fixed or at the very least mitigated. “Some people will rally against any form of regulation for bitcoin, they will see it as something contrary to what it is at its core. But to become a truly viable currency it has to be regulated and recognized by governments.” Tommy argues that without some kind of government recognition, bitcoin will lack legitimacy in the eyes of the general public and probably never really catch on. “We aren’t ready to be regulated yet, though, we are too new, too much regulation now could cripple bitcoin or destroy it. That’s why there is just as much danger from those who want to see it remain unregulated as those who want it regulated to fast. It’s all about timing.”

The U.S. government aside, other parties are likely to seek to influence its development. When asked who will fight against bitcoin, Tommy states that PayPal and major credit card companies are the most likely antagonists. “They have the most to lose and will probably try to shut down accounts associated with bitcoin”. He believes that intense lobbying efforts are likely as well, both domestically and internationally. Countries are likely to look to others for what should be done and what happens the world over will have a profound effect here in the U.S. Tommy suggest that while there is still plenty of time yet, bitcoin by its very nature is difficult to classify and therefore to regulate. “It can operate as currency, commodity, and system of accounting all at the same time. Banks and governments will try to define it but it will be difficult.” I ask if bitcoin is something that should exist. Tommy thinks for a moment and nods, arguing that bitcoin may be the answer in many ways to the banking crisis and a way to counter government backed inflation. He believes the recession was largely avoidable and that the financial regulators failed in their duties. Bitcoin could be an alternative to strict reliance on what is proving to be a relatively inept, if not corrupt, financial institution. For Tommy, it is a way for consumers to choose the economy they desire.

I ask Tommy what he sees of his own future in bitcoin and he smiles. “I will keep trying to get the word out. I am already scheduled to give a few radio interviews in the coming weeks and to attend the next big tech conference in London.” He notes how he is still trying to operate locally as well, seeking investors for the future of his start up. His efforts seem to be panning out so far, he tells me his business has grown 1,000% a year so far. Tommy is nearly certain that bitcoin is the next big thing, but he is moving

ahead cautiously, he believes that too much too soon would be as disastrous for him as it would be for bitcoin. As we wrap up the interview Tommy pays the check with bitcoin using his company's mobile application, linking his bitcoin account directly to the bar's via his phone and the servers. With this application he can even leave a tip in bitcoin, which will either be transferred directly to the waitress' bitcoin account or distributed by the bar in U.S. dollars at the end of her shift.

I stay in touch with Tommy over the following year and see him at each of the 'Burgers, Beer, and Bitcoin!' meet ups I attend. He acts as my gate keeper and helps to introduce me to other potential interviewees. Recently, he has relocated his business to Georgia, taking on one of the bar tenders from Whiskey Dicks that he helped train to use and promote his bitcoin application. Given recent fluctuations in bitcoin's value it seems likely that Tommy's company is doing well.

### Scott

I met Scott at my first 'Burgers, Beer, and Bitcoin!' meeting in September 2012. A self-described 'bitcoin miner,' Scott was one of Tommy's first contacts within the Bitcoin community. Our initial encounter consisted of a lengthy discussion of bitcoin's function. I was curious about the exact process of 'mining,' whereby new bitcoin is released into the system. Although we only briefly talked that first night, he agreed to an interview and volunteered to show me his 'mining equipment' at a later date.

Scott had me meet him at his privately owned warehouse at a location he requested I keep secret. In this warehouse, Scott has well over \$100,000 worth of

computer equipment. This hardware is designed specifically to operate the bitcoin mining client that solves equations for a chance at generating what then was 50 bitcoins every ten minutes. This collection of high powered equipment has taken him over a year to collect and install. “I originally ran it in-house. I couldn’t even have the television on without blowing the breakers. Had to ask the wife.” Although originally skeptical, his wife let him take off with the project after he converted his first collection of bitcoins into about \$3,000, but it became untenable to host it at home.

Scott needed a building that could house the newer and bigger machines, while simultaneously keeping them both secure and cool. It was noticeably warmer in the room with all of the rigs, almost 15 degrees warmer than the adjacent office, even with his gigantic custom made cooling system pumping the heat out of the building. “I won an award for that design”, he states when I ask him about the cooling system, “I went through a bunch of designs but this one works best so far.” Without the cooling system the mining rigs would overheat and he could be out a small fortune in minutes, “Not only would I lose the potential mining time, but these machines can cost over \$15,000 a piece.” This warehouse is one of several similar set ups he runs across the country, giving him control of almost 1% of the total computing power used by the Bitcoin client worldwide. At the time of this study in late 2012, Scott was the second largest standalone miner in the world.

After the tour, we sat down to discuss why he got into bitcoin mining. Scott says he was originally interested in it as an investment opportunity, “I started in 2011, heard of bitcoin from a tech-blog and started just thinking to buy a few and sit on ‘em. By the

time I got the cash to buy them they had doubled in price from \$8 to \$16.” As a 33 year old management information systems designer, he had a good understanding of what the Bitcoin protocol does and what would be involved in ‘mining.’ Having been predominantly interested in ‘passive’ businesses, those businesses that do not require a lot of oversight and that one can simply set up and let run, bitcoin mining was attractive to him as he could automate almost 90% of the system while generating a substantial profit. Moreover, bitcoin is a deflationary currency system, meaning that it was likely to increase in value over time rather than diminish in value as inflationary currencies do, making mining more lucrative the more he was able to invest into it.

Scott speculates that bitcoin, and by extension his business, will really only take off when it gets that “killer app,” that makes bitcoin mainstream. Since for many people bitcoin remains an alien concept, he believes that an application that instantly converts purchases in bitcoin to the local government backed and commonly understood currency will allow it to truly grow into the general market. With this kind of application people won’t have to think in terms of bitcoin, constantly converting prices back and forth between currencies. I ask if he uses the currency for anything other than speculative profit, to which he replies “I mostly just use bitcoin to buy more mining equipment and associated stuff. I’ve done some trading with people, though; it’s amazing how fast it is. It’s basically instant.” He notes, that as of yet there isn’t enough to purchase with it, hence the utility or necessity of the ‘killer app’.

Eventually, we discuss what he sees as the future for bitcoin and mining. Mining, given the half-life associated with coin generation, is unlikely to remain viable in its

current form. Scott speculates that rather than mine bitcoin for profit, miners will eventually use their computing power to boost transaction speeds on the networks that employ them. Private companies will hire miners to give their operations a competitive edge. Bitcoin itself will persist, but will need to attract a more general market if it is going to be anything beyond a niche currency. I ask whether or not he thinks it should, to which he laughs, for him he hopes so, but he isn't sure whether or not it will be allowed too.

For now, bitcoin is profitable and stable enough for Scott to continue expanding his business. Only regulation born of what bitcoin represents as a competing and denationalized currency, which he sees as likely and unavoidable, poses a potential threat to bitcoin's future. "The denationalization of money is important; you take money away from the state, governments don't want this to happen," but at the same time he stresses that any government attempt to regulate bitcoin will likely serve to validate it and, thereby, make it stronger. The only practical way to shut it down is to buy it out or cause enough instability for it to fail on its own. However, as of yet bitcoin has remained remarkably resilient, "It's a protocol that's never done anything it wasn't supposed to."

I see Scott a few more times over the coming months, and meet up to discuss recent developments with bitcoin. The last I heard of him he had placed orders for the newest mining platforms and was altering his warehouses to accommodate them.

## Mike

Mike is a fellow graduate student at the University of Central Florida. While I first met him at the 'Burgers, Beer, and Bitcoin!' meeting I have only communicated with him on campus or via email. He comes across as an intellectually formidable 26 year old computer science Ph.D. student who has been looking into the Bitcoin protocol for some time. He agreed to my interview request only after learning that I was interested in a serious inquiry into bitcoin and that I was dedicated enough to commit my Master's thesis to its study.

I meet Mike at a local restaurant where we spend almost two hours discussing many of bitcoin's more technical aspects. Mike probably knows more about the raw code used by bitcoin than anyone else in Central Florida. He has become so captivated by the idea of bitcoin that he shelved a nearly completed doctoral dissertation to start anew with the subject. Mike first heard about the virtual currency peripherally from an article by Julian Assange of WikiLeaks. He was looking into cryptography and technology security and stumbled onto a forum detailing cryptographically defined currencies, which eventually led him to bitcoin.

Mike describes how fascinated he was with the protocol, "I had never seen anything quite like it before." He notes that a few distributed systems like bitcoin have emerged, but few have met with much success. He was astonished that the protocol was being assessed by what he considers to be some of the best minds in the industry and they could not find anything wrong with it. However, he was aware that it could still

happen, “People don’t have a lot of understanding of the system, it’s very novel. The algorithm hasn’t been thoroughly vetted.”

When I ask Mike about his thoughts on its utility as a whole, he describes the advantages of the protocol’s design. He sees bitcoin as a solution beyond both the market and the denationalization of money. The protocol’s design allows for the development of much more than the economic utility that acts as, “the beacon that draws the thieves, consumers, etc.”

Mike relates how the system allows for automated receipts or proofs of transactions within the code. Since transactions can be validated immediately, there is really no realistic way to deceive receivers into thinking that they have gained funds that they have not. Additionally, since bitcoin is universal, it can be used by practically anyone, anywhere, without limitations beyond Internet access. Mike describes how, “You could rent a house in another country, if you weren’t home you could then give bitcoin to someone there and have them pay locally for you, avoiding international fees, etc.” Moreover, its validation system can be augmented to work as a form of notary service, providing an irrefutable time stamp on transactions.

For Mike, bitcoin is little more than a novelty as a functional virtual currency. He has bought groceries and gag gifts with it merely for the excitement of using it. According to him, ‘true’ utility is not yet necessary. However, he does prefer to use it as a means by which he can support the burgeoning system’s adoption.

When asked about the role of cryptography and security in bitcoin’s future, Mike has more to say, “Bitcoin is a place where thieves get together and cooperate...that’s



what demonstrates the security of the system. Bitcoin has proven itself to be a perfectly functioning market...secure in the most adversarial circumstances.” Mike is referencing the illicit markets that first embraced bitcoin as a means of safely and securely transferring funds. Even in this context, where a premium is placed on trust, this protocol remains essentially impervious. However, Mike does feel that the system can be improved. “As I look over the code I see areas where there can be improvements, where there are potential weaknesses in the coding, I would like to see these addressed by the developers.” Digital authentication measures are a particular point of contention for the programmer. In response, Mike has done some work with authentication improvements that he has submitted to bitcoin developers, a group of people who have taken over what Satoshi started, in the hopes that they will take suggestions into consideration.

As we continue to talk Mike gets distracted by his own thoughts, frequently going off on tangents not always directly related to bitcoin. We spend a considerable amount of time discussing various programs that he would like to see improved utilizing Bitcoin’s protocol, before returning to the subject of bitcoin’s design. Mike is fascinated by the fact that bitcoin could have existed as early as the 1990s. “Nothing about it requires anything we didn’t have then, it just wasn’t an idea yet.” The idea is so revolutionary and in some ways so obvious that it’s almost astonishing that it had not yet been attempted in this way. Mike now wants to see where it’s headed. He discusses threats of regulation only minimally, choosing to focus on factors within bitcoin’s programming that could dramatically alter the future of virtual currency. A hard fork, or divergence in

the acceptance of a newer version of the Bitcoin protocol, for instance, could come about during any protocol update where not everyone chooses to switch to the updated version for whatever reason. This scenario would effectively create two separate Bitcoin clients with two separate groups of adherents. “It would be very interesting to see how people handle this.”

When I ask Mike about his future with bitcoin, he remarks only that he will keep supporting it and working with the developers to strengthen it. He believes that bitcoin “NEEDS computer scientists, cryptographers, and distributed systems specialists to find the flaws in the Bitcoin protocol.” Mike is certain that bitcoin will play a part in the future, even if only as a template for computer scientists and programmers to build the next generation of decentralized distributed systems.

I last spoke with Mike almost one year ago. Although I believe he is still enrolled in the university he was neither present at the last ‘Burgers, Beers, and Bitcoins!’ meeting that I attended in March of 2013, nor has he contacted me recently.

### Jack

After my third ‘Burgers, Beer, and Bitcoin!’ meet up I was fairly familiar with the usual group of interested individuals including Jack, a regular meeting participant. Jack is a 20 year old college dropout who got into bitcoin more for ideological reasons than anything else. He and I had spent most of our time at Whiskey Dicks discussing the relative merits of bitcoin’s effect on the international financial market. As a staunch supporter of the denationalization of money, he saw bitcoin as the avenue by which this

dream might eventually become a reality. Of all of the people I interviewed, he seemed the most eager to discuss the bitcoin community with me when I brought up the possibility.

Due to scheduling conflicts, we were forced to have our formal interview over a video chat interface. This proved to be extremely advantageous as Jack was able to provide me direct links to source material throughout our discussion. Moreover, I was able to keep more meticulous logs than I am generally able to in person.

Jack first heard about bitcoin in 2011 just before the first 'bubble' inflated its price. He fell in love with the idea almost immediately. With bitcoin, Jack saw something that could serve as an alternative to fiat currency, something he believed to be truly transformative. He used it to research investment opportunities and looked into all the markets he could find where bitcoin was beginning to make a splash. "I even checked out The Silk Road and the Armory [a failed online weapons distributor], but I never bought anything, I just wanted to see how bitcoin was used."

I ask Jack to describe how bitcoin is advantageous or how exactly he sees it as 'transformative'. He thinks for a while and then starts to rattle off a detailed list of bitcoin's benefits. He notes how the decentralized system has no central failing point, no individual sector of the system that can be shut down or coerced. "It's freedom", Jack exclaims, "No one can tell you what to do with or who to send it to." Jack is speaking largely of taxes in this regard as bitcoin is not well defined it cannot be appropriately taxed. Even today, bitcoin remains a non-taxable entity; only profits gained from the sale of bitcoins can be taxed in the U.S. (McHugh 2013). So long as

bitcoins remain within the system, they effectively operate as tax exempt commodities.

This aspect of bitcoin is what made him, “care about money in the first place.” When asked if the system should exist, Jack states:

Yes, as a world bank for one, as a bank in general. I don't like currency manipulation by the government, where you can just print off money whenever it's expedient...bitcoin can be a stable A-political currency. It can't be printed at will to 'pay' off debts. It is an 'economic anarchist's' wet dream!

Jack has not just voiced his opinions on bitcoin and left it at that, he has actively had a hand in promoting and using the currency. He tells me how he just recently used crowd sourced micro-loans, something to which bitcoin seems to have great potential given that there are no cost-prohibitive minimum donation caps, to secure his first mining rig. Scott turned him onto the idea, although he recognizes that without a mining pool, a collection of miners all working together and sharing profits, he will find making a profit in the near future to be difficult. When I ask him about this he just shrugs, “I'm an investor. I invest in bitcoin and in other people who are trying to use it.” Unfortunately, crowd sourced lending doesn't always work out, but he says, “You just have to throw yourself into bitcoin and kind of learn it as you go, I don't always see a return on investment, it can be difficult to collect.”

I never really have to prompt him to speak as he goes on to tell me how excited he's been about the local bitcoin community. He has been able to buy pizzas, groceries, and even a topaz over the Internet with bitcoin. He has even considered buying silver and gold with the virtual currency. Only shipping has brought him any sense of anxiety with these transactions, “Your bitcoin itself is safe unless you do

something stupid, but you will always have to trust the seller to deliver the product.”

Bitcoin transactions are instantaneous and act without a middleman client, as such there has to be a lot of trust. Jack comments that, “Trust sustains the system, without it nothing will work.”

He goes on to tell me that if he could he would invest \$10,000 into bitcoin right now. He currently believes it to be a stable investment since bitcoin has a finite supply. Jack expects this to drive the price ever higher. Moreover, he believes, perhaps inaccurately, that it is an inflation proof system with the exception of a ‘fork’ in the protocol.

When I ask where he would like to see bitcoin go or what improvements he would like to see made to the system, Jack has a rather difficult time responding. He ascribes this to the systems novelty, “It’s so new, and there is almost no competition.” He expects that other protocols will need to come out to really make competitive factors work in bitcoins favor and draw out innovation. He does want the system to be more user friendly though, a common concern amongst interested parties with whom I have conversed.

I sign off with Jack after almost three hours of video chatting. We have reconnected periodically over the past year or two. Jack has continued to invest in bitcoins future and actively promotes it on several online forums dedicated to the currency. Jack is currently preparing to travel to a major tech conference showcasing bitcoin and other distributed systems like it.

## Sam and Jill

I met Sam and Jill at the very first bitcoin meet up I attended at Whiskey Dicks. They had driven over an hour from Tampa to meet with Tommy and the others affiliated with the local bitcoin community in the hopes of growing some business connections. That night I spent almost five hours talking to Sam and Jill about their interest in bitcoin as Tommy showed us around his favorite drinking haunts in Orlando.

As we moved from bar to bar, Sam regaled me with stories about his initial forays into bitcoin. Two years ago he was a student of informatics and had recently dropped out of college to design a program that would sync up to twitter and extend the service. He had spent a half a year working on it before he first heard of the virtual currency, “I generally thought the idea was stupid...” He paused to let me think that over and then followed it with, “then the price boom happened.” It was the fiscal opportunity that sparked his initial interest. With profits soaring, he could not ignore the potential of the system and resolved to add it into his new program as part of the pay service.

When asked if he uses bitcoin outside of his service, Sam states that he finds it most useful when hiring graphic designers and coders out as contractors. The market tied to bitcoin does not currently have that many actual products he can buy as of yet. At this point, Jill chimes in that she is designing products to sell online for bitcoin only, “I’m looking to make bitcoin paraphernalia at first, to sort of draw in customers, but I hope to expand into other product niches eventually.” She makes shirts, key chains, and other novelty items but has yet to launch the site.

Jill is excited about the new market as she has had little enough design work since graduating college. Bitcoin presents her a new opportunity and an as yet unsaturated market. Sam still remains a little skeptical, however, pointing out that bitcoin is probably too small to generate much revenue for her at this time, a point she appears to concede somewhat grudgingly.

As the night winds down, we discuss the future of bitcoin enterprise and Sam rattles off a number of potential ideas he feels are worth investing in. He has a great deal of faith in the future of virtual currencies but if pressed he exclaims some doubt over whether it will be bitcoin,

Bitcoin is amazing but the technology is still brand new. And when technology is new, it's usually replaced by something faster or better years later. For example, a currency that fixes the 51% issue and makes confirmations in 3 seconds instead of ten minutes would be a start. Obviously the fundamentals have to stay the same. Peer to Peer, open source, not backed by any real world objects, and so on...FireCoin is a much better concept in my honest opinion, it kills hoarding.

We call it a night, but continue with a more formal interview via video interface a few weeks later. Sam takes off much where he left off and explains how he can see himself using bitcoin more avidly in the future. He also expects it to last if for no other reason than that it acts as a representation of free speech. Sam believes that this system allows people the option to choose their interface with the market, and that that right should be respected.

I ask if bitcoin is likely to be fought against or challenged in any way by the government or corporations. "They already are", he states, "attacks are more subliminal but they are still there." Although they do not provide any concrete examples, Sam and

Jill both exclaim how corporations have more reason to hate bitcoin than governments. Bitcoin undermines the established system and directly competes with credit card systems and virtual payment facilitators like PayPal. They expect there to be open challenges to the virtual currency at some point, but not for many years yet. The bigger hurdle that bitcoin needs to overcome is its image, "If people keep treating it like some shady artifact, that's where it will remain."

When I ask them about potential security problems associated with bitcoin, Sam laughs. "Security is not an issue, its people who think they can code that's the issue." Sam was alluding to the recent and notable disasters linked to wallet and exchange programs where great amounts of bitcoins were stored and then subsequently lost to hackers or programming error (Buterin 2012). Neither Sam nor Jill believes bitcoin itself will ever be hacked, but consumers and the organizations they put their faith in to protect their bitcoin have to perform better when protecting their coins. Sam notes that most of the security 'issues' raised by the press were in fact not security failings at all but scams and misappropriations. Sam elaborates,

Overall, if you add up all the bitcoin accepting businesses out there, the ones who have problems are in a very small minority. Most of the targets are big dollar targets like exchangers and wallet servicers. If you are a regular merchant and you are using one of the more transparent and secure payment providers, you have nothing to worry about.

Sam notes that the only really unwise investment into bitcoin at this point may be mining. Both Jill and Sam mined for a time in 2010 when the difficulty involved was low enough, but unless you are a miner of Scott's sophistication you are unlikely to be able to compete. Sam suggests that if I want to get into bitcoin on the ground floor, I need to



do it in programming designed to make bitcoin more accessible, “That’s where the future is right now, accessibility.”

Given the distance between us, contact with Sam and Jill has been difficult to maintain. We have spoken only briefly on a few occasions since the formal interview. However, it seems Sam has become heavily invested in his startup’s launch and has fully implemented bitcoin into his pay plan.

### Bill

I was introduced to Bill at the second to last ‘Burgers, Beer, and Bitcoin!’ meet up that I was able to attend in January of 2013. In many regards Bill’s purpose for coming was not unlike my own. He had come to gain some measure of familiarity with the Bitcoin community and to gain an understanding of the direction it was likely to head. Bill, however, was a 29 year old computer scientist and potential investor.

While our initial encounter did not last much beyond a polite introduction and some small talk, I was able to convince Bill to grant me an interview as I had been searching for a perspective that was somewhat more peripheral to the mainstream Bitcoin community. We met the following week at a local restaurant and spent the better part of two hours in a meandering conversation about bitcoin, computer science, and economics.

Bill was first introduced to bitcoin through his colleagues. Although he initially thought it was a joke and likely imminent failure, he has grown to appreciate its potential. While he has never personally used bitcoin, he owns and has exchanged a

similar currency known as Litecoin for games online and understands how bitcoin works.

I ask Bill what he thinks of bitcoin, where he thinks it is weak or in need of improvement. He states that he believes the digital currency to be an extremely risky investment. Security remains his principle concern, or rather its seeming lack of safe guards. Bill considers bitcoin to be something of a double edged sword, “You’re free to do whatever you want, but you may not want all that freedom. Bitcoin won’t stop you from sending money to an empty account, and it won’t help you get you money back if you never receive the product you order with it, like PayPal.” Wallet hacks are another problem he sees with the adoption of bitcoin. The programming for a wallet is very difficult to perfect, forcing the most secure systems to operate partially offline and making them sacrifice functionality for safety (Buterin 2012).

I ask him if there are any strengths that he would attribute to the protocol. Bill sits quietly for a time but eventually responds, stating that he sees bitcoin’s anonymity as both strength and weakness, as there is very little accountability. Moreover, its decentralized form may act as both a shield to inflation and financial acceptance, as it cannot be easily controlled. Coupled with that issue, Bill notes the advantages and disadvantages of tax evasion and the ability to fund anonymously. These practices have their appeal to some, but may detract from the overall image and eventual acceptance of bitcoin as a legitimate mode of exchange in the public’s eye.

We continue with a conversation concerning economic policy the world over. I ask him whether he considers bitcoin to be something that should exist. He responds,

“It exists because there is a market for it, a void.” Bill has no direct opinion on the matter, but he finds bitcoin interesting as a cultural product of sorts. “Some people just like the anarchist or libertarian ideal that pervades it. It is an interesting idea, but I don’t think the world needs it.” Bill contends that bitcoin can be likened to the Wild West in some ways. It exists outside the system but will ultimately be bound by it. He feels that people may be too idealistic when it comes to the currency and what it represents.

Since the interview, I have had only passing interactions with Bill. He invites me out occasionally for drinks and discussion, but in general we only see each other sparingly. He has continued his passive observation of bitcoin at last I heard, although his associates have begun to invest heavily.

### Chapter Overview

The preceding profiles of those involved in Central Florida’s burgeoning Bitcoin community provide insights into local perceptions of the virtual currency as recorded over the course of my field research. As these case studies demonstrate, there is a strong belief that bitcoin is, and will continue to be, a market shaping force of significance. Additionally, the community surrounding the currency holds a generally positive, if tentative, view of bitcoin’s future as a currency, although most would like to see greater local utility. Perhaps the most consistent concern across the case studies has been that of security. Specifically, members of the ‘Burgers, Beer, and Bitcoin!’ group are concerned over the sustainability and trustworthiness of bitcoin accounts and

the programs that may safeguard them. In the next chapter, I will synthesize information from these case studies to provide a more detailed analysis of my findings.

## CHAPTER FIVE: DISCUSSION

Over previous chapters, I emphasized bitcoin's place in the contemporary market and detailed specific interactions with the novel virtual currency amongst a select number of local aficionados from Orlando and surrounding areas. In this chapter, I begin with a brief discussion about the growing use and interpretation of bitcoin before considering the relevant factors leading to its rapid expansion. I conclude this chapter with an account of the security and accessibility issues that affect its perception.

### Use and Perception

The case studies highlighted in the previous chapter, coupled with the informal interviews of individuals met through my association with the 'Burgers, Beer, and Bitcoin!' group, have provided a basis for developing a preliminary understanding of why these individuals choose to use bitcoin and to participate in the community. Bitcoin seems, first and foremost, to represent an economic opportunity. With the sole exception of Mike, every individual involved in this research expressed a strong interest in what bitcoin might actually be worth on the market. In many respects, the principal purpose of the meet up itself was to foster an interest in the virtual currency's potential as a market force and investment opportunity.

Of the group's roughly 30 members, over half first joined the community as potential investors. These were individuals who were interested in buying bitcoin as a commodity with growth potential and waiting for its value to accrue. Bitcoin's price had jumped from mere pennies to over \$15 between 2010 and 2012 and was rapidly gaining

a following not just locally, but across international investment circles. Most of those I interviewed had hoped to cash in on the volatile currency before it became prohibitively expensive or disappeared entirely.

In the beginning, bitcoin was understood as more of an interesting experiment in cryptographically bound, distributive systems. Mike explains, “Bitcoins weren’t worth anything at first, fractions of a penny, thousands were handled back and forth between the first users more as an exciting experiment in its functionality than as anything else.” Eventually, however, they began to gain traction as a viable mode of exchange. The Silk Road and other illicit markets found value in the bitcoin’s cryptographic design as a means by which currency could be securely traded, and became the first significant group of investors to implement the digital currency as it was likely intended (Wallace 2011). Bitcoin quickly became useful as a means by which money could be transferred anonymously and securely between parties often separated by international borders and thousands of geographic miles. With its new found utility, there came an increase in value, and with this increase in value, there came the interest in mining.

Miners now had a legitimate and potentially lucrative rationale for supporting the Bitcoin network. Scott notes how, “In the beginning, it wasn’t particularly difficult to mine coins. There wasn’t a lot of competition and the 50 ‘coins’ distributed by the protocol every ten or so minutes, while not worth as much, were easier to win.” People soon realized that one could make actual money from bitcoins that were mined and converted to the local legal tender. Eventually, word started to spread about bitcoin and tech-blogs, hacker forums, and other online periodicals started to take note. As bitcoin

began to go mainstream, the price started to fluctuate with investor interest rather than stay at a consistent but low value (Mt. Gox 2013).

It took almost three years after the launch of bitcoin in 2009 for the price to climb over two dollars. At the time of this research, its value was set between four and \$16 (Mt. Gox 2013). However, most of the investors currently getting into bitcoin are still cautious about investing too heavily. Marcus, a local travel agent looking to implement a payment option for his international clients based around bitcoin stated, "I have read a lot about it but I'm still not sure about it, it looks good but it's still too volatile to really use I think." Most of local group members, individuals who were likely to be the most enthusiastic, knowledgeable, and supportive followers of bitcoin in the area, had less than \$20 in bitcoin. "It's still growing, not a lot of people know about it and there isn't a lot to do with it yet, it's hard to spend", says Bill.

This was not the case for everyone as some individuals had thrown themselves into bitcoin whole heartedly. In fact, Tommy and Sam built companies based around the currency. Tommy himself was now regularly handling tens of thousands of bitcoin each day through his exchange system. When he is not promoting his business, he is actively trying to get businesses to support bitcoin and to spread the word about its advantages. Additionally, the local bitcoin community is growing steadily with the active engagement of its members. Tommy and Scott, in particular, have contributed significantly to its public perception. Tommy has now spoken at several tech conferences both nationally and internationally, appeared on local radio programs, and been interviewed or highlighted by Forbes, Business Insider, and Bitcoin Magazine to

name only a few. Scott, conversely, maintains an active dialogue with the mining community and educates many of bitcoin's insiders on its adoption and utility. Specifically, he helps new mining cooperatives to set up their user base, designs and shares mining facilities, and promotes clientele he considers trustworthy.

At the time of this study, bitcoin was beginning to be seen as something beyond a simple investment opportunity. For many, the financial instability of the late 2000's has led to a growing dissatisfaction with global economic policy. Bitcoin is now viewed by some as a solution to the problems associated with currency manipulation and inflation (Kaplanov 2012). Cameron, one of the older yet less involved members of the group, explained how some people on the web and in the local community viewed bitcoin at the time, "Bitcoin is the answer to the banks and the governments fiddling around with the economy. You don't have to support the U.S. dollar or whatever if you don't want to; eventually you will be able to buy anything online with a denationalized currency!"

When speaking to group members there is an apparent sense of dissatisfaction with how state governments are currently reacting to economic pressures. Most see the U.S. debt ceiling debates of late 2011 as a fiasco and express little faith in the direction economic policy seems to be steering their country since. With the recession's impact still noticeable in the market, discourse related to bitcoin's denationalization and decentralization is common. In fact, most of the community admits to having looking into bitcoin after experiencing the slow economic recovery from the recession. Most of the group claims that the world needs bitcoin or a currency like it. While some remain



skeptical as to whether it will be a success in the face of resistance, bitcoin is increasingly viewed by community members as a viable response to economic mismanagement. Sam, in particular, embodies the community's growing enthusiasm in supporting bitcoin as an ideal rather than a commodity, "It's the freedom to choose."

In many regards, bitcoin can be viewed as a platform for social dialogue. I argue that the community members, by adopting and encouraging its use, are actively engaged in promoting a currency that operates outside of conventional state control. They understand that their investments in bitcoin play an active hand in the market and use the currency as a socially informed system of cultural and philosophical interaction (Mauss 1950). By buying into bitcoin and encouraging companies to accept it, they help to develop a novel market force that runs counter to conventional monetary order. Participation in the bitcoin community minimally implies a willingness to promote the acceptance and validity of a denationalized currency system; a system engineered specifically to combat the state monopoly on currency (Bitcoin Weekly 2012 and Hayek 1974).

In this regard, the study of bitcoin adherents contributes to the study of political economy, and perhaps more so to that of globalization and the decentralization of the state. The utilization and proliferation of bitcoin locally and internationally can be conceptualized as a neoliberal process, promoting a globalized market economy whereby anyone with Internet access can participate. This largely unfettered access also allows individuals who would normally be restricted access to international economies an opportunity to act as 'global citizens' by participating in a denationalized

market system and the socio-political dialogue often associated with it (Ong 2007). Bitcoin can give a form of socially informed power to its users, providing them with the capability to access, promote, and develop an international economy of exchange with limited state level barriers to interaction that might inhibit specific socio-political classes from participation in various societies the world over (Collier and Ong 2005).

### The Collapse 2012-2013

At the time of this study, bitcoin was still being utilized primarily as a commodity. It was only just beginning to be employed as a means of exchange similar to common fiat currency such as the U.S. dollar. It was also increasingly under pressure of failure due in large part to speculative investing. As its notoriety increased price bubbles and wild fluctuations in investor faith became common. This led to bitcoin's designation as an unstable currency (Buterin 2012 and C4ss 2012).

Most of those I interviewed expected bitcoin to grow gradually into the market. The community expected strong government resistance over time and even stronger resistance from private financial institutions. However, in 2012, one of the most important and unexpected events in bitcoin's relatively short history occurred. After years of experiencing a steadily diminishing GDP and the impact of the global recession, the economy of Cyprus collapsed. With the collapse came poorly managed and disjointed bailout attempts via the European Union. Austerity measures were implemented and the national government announced a plan to confiscate large amounts of money from Cypriot bank accounts to stem the collapse and help repair the

deficit (Steadman 2013). Perhaps unsurprisingly, account holders from around the world began to pull their money from this once prominent tax haven. What was surprising, however, was that they were converting their holdings into bitcoin. Since bitcoin was not yet well defined, it was essentially tax proof. Transfers were made for fractions of a penny and no government could tax transitions to bitcoin as such exchanges could not yet be considered a 'profit' or a form of capital.

The value of bitcoin skyrocketed with the massive influx of new investors. Previously valued near \$16, the price rose to \$32 in February of 2013, then steadily to \$68, and on to \$160, finally reaching a high of \$266 in April of 2013 before plummeting back to near \$105 (Dominic 2013). In just a few short days, bitcoin was an international sensation in the financial world. Although it eventually dropped down to \$60, bitcoin was now internationally noted by the media. Where my informants had expected steady sustained growth, it seemed that bitcoin had done the complete opposite. Many in the community were astonished and those members with whom I still maintained contact were ecstatic. Tommy even took the opportunity to go full time with his business, as increasing numbers of investors were now flocking to bitcoin he could afford to quit his job and focus entirely on his start up.

Although it did not happen the way many of my informants had anticipated, bitcoin effectively seized the public's imagination and was being used largely as its designers had arguably intended (Bitcoin Weekly, 2012). The adoption of bitcoin appears to be a response to diminished faith by the Cypriot account holders in the government's choice of economic policy. Reacting to stark austerity measures and

what many economists considered to be a predatory and aggressive overstepping of government authority, individuals seeking a way to protect their assets found in bitcoin something of a safe haven (Ford 2013 and Steadman 2013). Their selection echoes free market principles of competitive innovation. Competition has driven the development and utilization of a novel market force and its rapid acceptance can be considered a validation of its demand. As Jack stated, “People will want to have a say in what happens with the economy and I don’t think they’re getting what they want right now.”

### Regulation

Since Cyprus’ 2013 economic collapse, governments and financial institutions have been seeking ways to both define and regulate bitcoin in an effort to bring it under control. Recently, German regulators have agreed upon a working definition of bitcoin as a form of ‘private money’ (McHugh 2013). Under this definition bitcoin is unlikely to be taxed unless it is transferred into a form of legal tender recognized by the German governing body. The U.S. has followed suit by classifying bitcoin as ‘a currency or a form of money;’ one that can be used to purchase goods and services wherever accepted (McHugh 2013).

Tommy would not be all that surprised that bitcoin is moving towards a state of regulation. In fact, he and several of the other members of Central Florida’s bitcoin community believe regulation to be one of the necessary hurdles that bitcoin proponents have to navigate if it is to be considered truly relevant on the global market. Many saw

even the very first attempts by senate committees to define bitcoin back in early 2013 to be of value. Terry, a college professor and programmer I met at the third 'Burgers, Beer, and Bitcoin!' meeting said that regulation, "Will become the rallying cry of the community, they will actively seek it as actively as some now seek a state of 'non-interference'. You need it for credibility."

Regulation has neither impeded nor really slowed bitcoin's acceptance amongst users internationally (Mt. Gox 2013). If anything, most of the local community overestimated the impact that government regulators would have on this virtual currency. It seems they expected that financial institutions would lobby heavily in order to restrict bitcoin's market access, but little evidence has emerged to date that would support such claims. There has been even less backlash from governments who momentarily appear to be subverting Polanyi's (1944) predictions. They seem to be waiting patiently to see whether bitcoin, or currency systems like it, remain stable enough to support long term and sustained growth.

It is likely that the real battle over bitcoin's place in global economic policy has yet to take place. Presently, the currency is probably too novel to draw intense scrutiny and it likely retains too small a market share and utility as of yet to merit heavy opposition from credit card companies like VISA and MasterCard, or the virtual payment facilitator PayPal. However, the call for regulation has sparked a broader interest in bitcoin. The currency now seems to have increased credibility, and retains enhanced legitimacy in the eyes of some governments. The simple fact that bitcoin has been defined as a currency has allayed some of the fears of early speculators like Maurice,

and marks it, at least in his eyes, as an idea that can be, “believed in, not cast aside as a novelty.”

### Security and the Future of Bitcoin

For many community members, one of the primary concerns regarding bitcoin is its security and accessibility. These two issues were brought up in every interview that I conducted. At the time of this investigation, bitcoin was seen by some members as either too difficult or marginal to be adopted by mainstream Americans and others. Bill stated that, “Not enough people really know what bitcoin is, or what it’s for. There’s no real use for it yet.” Moreover, bitcoin appears to have been used predominantly by well educated people. Although the members of this group vary broadly in terms of age and occupation, they are almost all college educated to some extent, many of which having attained some level of graduate education. The use and endorsement of bitcoin is not, as some have indicated, the sole provenance of anarchists and liberals. In fact, most of the community consists of gainfully employed, technologically savvy private business owners and tech industry entrepreneurs.

Bitcoin, while no longer marginal, severely lacks programs and applications that make it simple to use. Tommy’s company greatly facilitates account access and transfers, but it is one of only a few that makes using bitcoin easier. If bitcoin is to continue to grow and tap into new markets, it needs to attract developers keen on the idea of user interface. Although you are now seeing automated teller machines (ATMs) for bitcoin, currency manipulating applications for smart phones, and physical coins that

act as digital storage for your bitcoin, it seems that it is still far from being widely accepted. Without more widespread utility, some of my informants consider it unlikely that bitcoin will act as the transformative force they initially anticipated.

There is hope, however, that it will yet become a persistent market force. Its relatively unique utility as the optimal crowd funding mechanism may ensure its success in at least one form. Crowd funding, which is frequently operated via sites like Kickstarter, allows interested parties to donate various amounts of money to projects they consider worthwhile in the hopes of generating enough capital as a whole to launch an idea or a company. With bitcoin, donations of extremely small amounts of money are now possible, where previously they would have been prohibitively expensive due to transaction fees. Furthermore, bitcoin currently stands as one of the few faces of economic discourse that is actively being used to shape economic policy. Where the Occupy Wall Street movement of 2011-2013 and others like it largely failed to generate the sweeping socio-economic reforms they attempted to inspire, bitcoin has managed at the very least to impact global economic policy and set the stage for other, and perhaps more optimized, virtual currencies to enter the market.

Bitcoin's promising, if speculative, future may yet be hindered by issues surrounding security. The second most prolific complaint associated with the currency is its susceptibility to user error and malicious cyber-attacks, like those that temporarily disabled the currency exchange Mt. Gox (Mt. Gox 2013). While the protocol itself has resisted all attempts to destabilize or otherwise crack its coding, bitcoin continues to suffer from security concerns tied to how it is managed and safe guarded. As described

in the case studies, individuals must ultimately secure their own devices against intrusion and theft. Frequently, attempts to do so prove inadequate and the reputation of the currency itself is harmed.

The community's concerns about the backlash from large profile hacking attempts have been realized over the past year. While individuals flock to invest and adopt bitcoin, most investment experts remain hesitant due to the number of high profile cyber thefts (Jacobs 2011). Bitcoin's very design renders it difficult, if not impossible, in some cases to determine whether a 'coin' has been stolen or not. Credit cards and PayPal can track or freeze compromised accounts, but bitcoin allows no such recourse. Without reform or more secure wallet systems, bitcoin may never be widely accepted.

Whatever the future may hold in this regard, Central Florida's bitcoin community appears largely optimistic as they are committed to the currency's proliferation. While security issues are discussed and debated, few members see these as insurmountable obstacles. Presumably, most if not all, of the local bitcoin community is cohesive and driven enough to maintain bitcoin's growing ideology and social dialogue, even in the face of these two primary concerns.



## CHAPTER SIX: CONCLUSION

The dream of a viable decentralized currency, once little more than the hypothetical discourse of F. A. Hayek (1974), has been realized in the early 21<sup>st</sup> century. Bitcoin has become the first sustainable digital, decentralized, and denationalized currency to resonate among consumers. The past three years have seen bitcoin rise from obscurity to become a highly sought after commodity. Moreover, the Cypriot collapse of 2013 has given bitcoin much needed credibility and has made it an important consideration for global economic policy (Steadman 2013).

While initial investment into bitcoin was and still is largely speculative in nature, my research findings suggest that participation in the bitcoin community elicits within its members a desire to both profess and to propagate social discourse related to bitcoin's underlying purpose: the denationalization of currency. As Hart (2007) suggests, money acts both personally and impersonally, shaping the very world around us. The more members contribute to and become involved with bitcoin, the more they see it as a response and counter to currency manipulation and the failures of both domestic and international economic resolutions to the recession. I have argued that bitcoin is used as a means by which individuals can actively and directly shape the global market structure by participating in a currency that is largely beyond the control of state policy makers.

By utilizing bitcoin, many of those I interviewed believe that they are contributing to the development of a new market force. They are, in effect, constructing a social dialogue that may reflect their desire to see a change in today's social and economic

organization. Much as Mauss (1950) described, these individuals use the market to interact both socially and philosophically with the world around them. Furthermore, I argue that regulation attempts by the world's governing authorities and financial institutions only serve to solidify the Bitcoin community by providing them a rallying point from which to mobilize. As bitcoin has been defined internationally, it has also been legitimized. With recognition has come a modicum of faith in the burgeoning currency and bitcoin adoption has increased, both locally and internationally.

### Broader Considerations

My analysis of Central Florida's local Bitcoin community may hold some value regarding a consideration of the sociological mechanisms governing group cohesion and affirmation. Bitcoin's apparent propensity to elicit the adoption of what might once have been considered radical economic views highlights the communities' ability to convince outsiders of its validity in a relatively rapid manner. Moreover, the Bitcoin community's conviction in the face of wild swings in valuation is a testament to this type of group dynamic; few members of the local community considered it more than mildly concerning that bitcoin's value could and would fluctuate exponentially, an oddity when ascertaining measures of consumer confidence.

This study also contributes to a broader understanding of economic interactions. Bitcoin is a novel technological advancement that provides an opportunity to observe market interactions as they develop. Products that exist in other mediums and on other platforms are being retooled and reinvented to function with virtual currencies. In

addition, this is the first time that a denationalized currency system has been subjected to the market in the modern era and this study may provide some insight into how interactions between decentralized currencies and the contemporary market may develop.

### Future Directions

Crypto-currencies like bitcoin are likely to continue to emerge in the near future (Enders 2009). Studies that focus on these growing systems of exchange will provide an ongoing examination of transnational human interaction. Specifically, those aimed at the interplay between different virtual currencies as they transition from niche currencies to fully regulated global market factors may inform future conceptualizations of fiat currency and the designation of commodity.

Additionally, as bitcoin has become more viable it has become an object of regulation by governments and market entities the world over. The ways in which these organizations continue to adapt to and interact with bitcoin will set the stage for other emergent virtual currencies and may help guide future inquiry into collaborative policy development on an international scale. Moreover, bitcoin's cryptographic aspects make it a viable subject for those investigating and analyzing issues of privacy, security, and illicit market interactions. The recent revelations of mid-2013 regarding the U.S. National Security Agency's (NSA) apparent privacy violations and its associated backlash make a study into the cryptographic security of the bitcoin protocol particularly poignant.

## **APPENDIX A: INTERVIEW GUIDELINE**

## General

1. When did you first hear about bitcoin or virtual currencies? How?
2. What helped you to acquire your operational knowledge of the system itself?
3. What were some limitations or difficulties you had in learning about the system?
4. When and for what reasons did you first purchase the currency?
5. What advantages, if any, do you feel the currency provides you?
6. How do you use the currency now and how do you foresee its use in the future?

## Business

7. Do you have a business that utilizes bitcoin?
8. How has the adoption of bitcoin aided you or your business?
9. Do you now have better access to more diverse markets?
10. Have your customers appreciated the utility of bitcoin?
11. Did you adopt bitcoin to become more competitive? Has it worked?
12. Do you see an advantage to your use of bitcoin?
13. Have there been any unforeseen consequences of your use of bitcoin?
14. Do your competitors use bitcoin?
15. Do you use bitcoin selectively within your business model?

## Security and Associated Currency

16. Do you use associated currency systems similar to bitcoin (Firecoin, Litecoin, etc.)?
17. What are some security issues, if any, that you have with bitcoin?
18. Do you have any security issues related to the transfer of goods and/ or monetary sums?
19. What improvements to the system would you like to see and why?
20. Is the exchange system viable (USD to BTC or vice versa)?
21. Is bitcoin easy to use and in what ways?
22. Have you used the currency for international transactions?

## Technical

23. What do you know of mining?
24. What do you know of the Bitcoin protocol itself?
25. What do you know of bitcoin's origin or that of Satoshi Nakamoto?

## Abstract

26. Do you think bitcoin, or currencies like it, should exist?
27. What role do you think these currencies play?
28. What do you anticipate will be the result of a regulated bitcoin?
29. Do you think bitcoin will be fought against or challenged by financial institutions or corporations like PayPal?

## **APPENDIX B: IRB APPROVAL LETTER**



University of Central Florida Institutional Review Board  
Office of Research & Commercialization  
12201 Research Parkway, Suite 501  
Orlando, Florida 32826-3246  
Telephone: 407-823-2901 or 407-882-2276  
[www.research.ucf.edu/compliance/irb.html](http://www.research.ucf.edu/compliance/irb.html)

### Approval of Exempt Human Research

From: **UCF Institutional Review Board #1**  
**FWA00000351, IRB00001138**

To: **Justin H. Fletcher**

Date: **October 11, 2012**

Dear Researcher:

On 10/11/2012, the IRB approved the following activity as human participant research that is exempt from regulation:

Type of Review: Exempt Determination  
Project Title: Bitcoin and the Transformation of Contemporary Market Systems  
Investigator: Justin H. Fletcher  
IRB Number: SBE-12-08766  
Funding Agency:  
Grant Title:  
Research ID: N/A

This determination applies only to the activities described in the IRB submission and does not apply should any changes be made. If changes are made and there are questions about whether these changes affect the exempt status of the human research, please contact the IRB. When you have completed your research, please submit a Study Closure request in iRIS so that IRB records will be accurate.

In the conduct of this research, you are responsible to follow the requirements of the Investigator Manual.

On behalf of Sophia Dziegielewski, Ph.D., L.C.S.W., UCF IRB Chair, this letter is signed by:

Signature applied by Joanne Muratori on 10/11/2012 02:19:43 PM EDT

IRB Coordinator

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