

Gordon Institute of Business Science

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Determining the risks posed to South African banks by cryptocurrencies

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Abstract

Since inception, cryptocurrencies have exposed consumers to a unique, secure peer to peer mechanism of settling transacting that does not require a third party such as a bank. The Blockchain technology, upon which cryptocurrencies are developed, has been hailed as one of the greatest inventions in the history of record keeping. The Blockchain is also known as a distributed ledger technology and the concept of value, in this case monetary, exists on a distributed ledger, this concept been proven to poses some capabilities that are currently performed by traditional banks. These capabilities include the means for business to business, customer to business financial transactions and vice versa. Amongst the capabilities of this technology, users of this platform can conduct cross border transfers of funds; develop investment products that are based on cryptocurrencies which compete directly with products that are offered by banks.

This research will apply institutional theory on the role played by South African institutions with regard to the regulation of cryptocurrencies. Institutional theory has been successfully applied in various studies that explore the impact disruptive technologies on institutions, operators and societies, these studies will be presented in this research. There are threats posed by the disruptive nature of technologies such as cryptocurrencies on the banking sector if these currencies are left unregulated for a significant amount of time. The South African banking sector plays a pivotal role within the country's economy as it contributes towards employment and Gross Domestic Production; therefore it would be prudent for this sector to keep abreast of the technologies that could significantly disrupt its operations.

Banks are perceived as the prime targets of the cryptocurrencies disruption and this is brought on by the bank's complex administrative tasks, along with ever growing regulatory burdens. After having extensively reviewed the literature on cryptocurrencies, it was determined that there are definite threats to the South African banking sector posed by the cryptocurrencies, hence the need to thoroughly explore these threats through qualitative and exploratory methods. Therefore; a total of 12 semi-structured, in depth interviews were conducted with senior individuals who are experts that work within the banking sector.

The researcher's decision to conduct research on this study was motivated by the inadequacy of the academic literature on the regulation of cryptocurrencies and the effects of cryptocurrencies on traditional banking models. The researcher's supposition is to aid the South African banking sector and financial regulatory institutions to be better equipped when grappling with innovative disruptive technologies. The key findings of the study were not totally aligned to the literature as the researcher uncovered unique aspects of South Africa's antecedents that influence behaviour of institutions and societies.

Keywords

Cryptocurrency, Bitcoin, Blockchain, Digital currency, Fiat currency, Cryptocurrency Exchange, Cryptocurrency Mining

Declaration

I declare that this research project is my own work. It is submitted in partial fulfilment of the requirements for the degree of Masters of Business Administration at the Gordon Institute of Business Science, University of Pretoria. It has not been submitted before for any degree or examination in any other University. I further declare that I have obtained the necessary authorisation and consent to carry out this research.

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12 March 2018

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Problem Definition and Purpose

1.1. Introduction and Description of the Problem

Cryptocurrencies have not only posed risks to the American banking sector but the global financial system as a whole (Plassaras, 2013). Banks are perceived as the prime targets of the cryptocurrencies disruptions and this is brought on by the complex administrative tasks, along with ever growing regulatory burdens that banks have to contend with (Leith & Jordaan, 2016). Meiklejohn, Pomarole, Jordan, Levchenko, McCoy, Voelker, & Savage (2016) have described a cryptocurrency as an independent online monetary system that has the capabilities of an online payment platform and at the same time possesses features of physical money. Plassaras (2013) also argues that these currencies pose a serious threat to the economic stability of the foreign currency exchange market as they continue to grow in usage and value. The International Monetary Fund (IMF), an international institute responsible for setting standards of what nations can do with their currencies, is unable to regulate cryptocurrencies as they fall beyond its legal framework (Plassaras, 2013). Individual governments around the world are also struggling with the regulation of cryptocurrencies (Centralny, 2015).

“The purpose of this research is to gain a deeper understanding of the risks posed to South African banks by cryptocurrencies”

Meiklejohn et al. (2016) have define a cryptocurrency as more than just a currency because these currencies poses various attractive attributes over the traditional fiat currencies. Cryptocurrencies’ mechanical design is driven by a distributed ledger which allows them to operate out the realm of a traditional banking systems (Ali, Barrdear, Clews, & Southgate, 2014a; Lewis, McPartland, & Ranjan, 2017). The list below enumerates other various attractive qualities and capabilities of cryptocurrencies.

- Users on a cryptocurrency platform do not require a third party such as a bank to settle financial transaction, however they can easily transfer cryptocurrencies amongst each other for exchange of traditional goods and services (Ali et al., 2014b).
- Cryptocurrencies provide anonymity to individuals who would not prefer to disclose their identity on their dealings (Hardy & Norgaard, 2016). Although cash can offer some sort of inconspicuousness, it can always be traced back to bank account or a central bank therefore that is not exactly anonymity because one or multiple transacting parties can always be discovered.
- Cryptocurrencies also offer low transaction fees as compared to the costs of transacting via a traditional bank (Böhme et al., 2015; Christin, Edelman, & Moore,

2015; Ali et al., 2014a). Böhme et al. (2015) go further to explain the insignificance of the transaction costs and how these transactional fees are determined.

- Much like the South African government, many governments around the world have imposed extensive regulation on financial institutions and banks so that they can detect and report money transfers. Implementing regulation is a very costly exercise (Rudansky-Kloppers, 2014), a bank would require specialised skills so as to be able to adopt and implement adequate regulatory prescripts. Some of this regulation was implemented for good measure, such as the prevention of money laundering activities (Leith & Jordaan, 2016). Cryptocurrencies are not bound by this type of heavy regulation as they operate outside the realm of the governing institutions.

This matter has got world leaders talking about cryptocurrencies as they seek to understand what the future holds for their national currencies. The Prime Minister of Israel Benjamin Netanyahu has asked the question whether cryptocurrencies will destroy the banks (Huynh, 2017), to which he opine the answer is “yes”. According to Bloomberg, Prime Ministers of Britain and India, Theresa May and Narendra Modi respectively, have also added their voices on the cryptocurrencies discussion as they suppose that the rising demand for these currencies poses risks to their financial institutions and banking systems (Urban, 2018). However there has not been much news coming out of the South African leaders.

Currently in some Asian and most Western countries, cryptocurrencies such as Bitcoin are widely accepted by various merchants, their recognition has grown to an extent that one can purchase pizza in America (Blundell-Wignall, 2014). With South Africa being amongst the most unequal countries in terms of income distribution, where most people are poor (World Bank, 2017) and the attractive qualities of cryptocurrencies already presented in the paper, it is only a matter of time before a significant population of South Africa banks' clients and prospective clients start using cryptocurrencies. The usage of these currencies will be to pay for goods and services as opposed to using cash, credit cards and cheque accounts (Rudansky-Kloppers, 2014).

South Africa had a forecasted GDP growth rate of less than 1% for the financial year 2016, 2017. The financial sector; which largely comprises of banking, contributed 22.1% during the financial year 2015, 2016 towards the South African real GDP growth (IDC, 2017). If this sector were to be disrupted to an extent that it could only contribute far less than the 22.1% towards the country's GDP, there could be detrimental effects on the economy and the standard of living for the a significant portion of the population will drop (IDC, 2017).

Investment accounts that banks are popular for, are viewed as liabilities for the banks and an asset for the account holders (McLeay, Radia, & Thomas, 2014). Loans ranging from personal, vehicle to housing loans are viewed as attractive attributes of the banks. This is a service that is currently not offered by most cryptocurrencies, these cryptocurrencies are also viewed as commodities that can be used for barter exchange (Ali et al., 2014a). This is a very important distinction as it could be the only services banks render in the near future. However this is not to say that this situation will prevail forever, the introduction of M-Shwari in Kenya (Mbiti & Weil, 2013) may give cryptocurrency developers some ideas on how to incorporate loans on their platform. M-Shwari is a basic service that essentially facilitates the ability of customers to earn interest on balances which are linked to M-Pesa (Mbiti & Weil, 2013).

The SARB and various other central banks have made their position clear on the use of cryptocurrencies; that all activities related to acquisition and trading of cryptocurrencies are performed at users' independent risk (SARB, 2014; Böhme et al., 2015). This fact however does not seem to have deterred the adoption of cryptocurrencies by various societies, as evidence shows that Bitcoin's transactions had reached 62.5 million by the year 2015 (Böhme et al., 2015).

As can be appreciated, cryptocurrencies have a long list of attractive attributes and there are plenty that are mentioned in the literature review. Some of these attributes actually perform some services that are currently supplied by the banks in South Africa, therefore the existence of these currencies definitely poses some risks to the banks. With every disruptive technology, the target industry needs to be in a position to defend its market share, otherwise it could face extinction. For the reasons mentioned above, Leith & Jordaan (2016) argues that the banks are perceived as the prime targets of the cryptocurrencies disruptions and this is brought on by the bank's complex administrative tasks, along with ever growing regulatory burdens. Also having extensively reviewed the literature on cryptocurrencies, it was determined that there are definite threats to the South African banking sector posed by the cryptocurrencies.

Key Definitions

Blockchain, also known as decentralised and distributed ledger technology, has been defined as an open global infrastructure that allows companies and individuals making digital transactions to cut out the middleman (Underwood, 2016). (Lewis et al., 2017) concur with this definition as they elaborate by stating that the Blockchain technology is based on a distributed ledger structure that allows a digital ledger of transactions to be created and shared between dispersed computers on a network. Therefore, individuals and companies can create transactions independent of the middleman (the Reserve Bank) they can trade

goods and services without going through a financial institution (Böhme et al., 2015).

A digital currency has been defined as an alternative currency which is exclusively electronic and thus has no physical form (Kristoufek, 2013). A cryptocurrency such as Bitcoin has been defined as a “*type of digital currency which relies on cryptography and works through a decentralised network*” (Baur, Bühler, Bick & Bonorden, 2015; Lewis et al., 2017). The South African Reserve Bank (SARB) defines these currencies as Decentralised Convertible Virtual Currencies (DCVCs) (SARB, 2014). In the SARB’s 2014 position paper, the bank uses the term DCVCs with reference specifically to decentralised, cryptocurrencies that interact with “real economy” (SARB, 2014). Governments issue fiat currencies, which are a version of inconvertible money that has been made legal by government decree (Oxford Dictionaries, 2017).

(Nakamoto, 2008) describes the Bitcoin as a purely peer-to-peer version of electronic cash based on the Blockchain technology and the Bitcoin allows for direct payments to be sent from one party to another without going through a financial institution. Böhme et al. (2015) refers to the Bitcoin as an online communication protocol that facilitates electronic payments. Bitcoin is the first decentralised digital currency that was established in 2008 by an anonymous group of software developers (Böhme et al., 2015; Nakamoto, 2008).

Bitcoin mining has been defined as the process by which transactions are verified and assimilated to the Blockchain, this is the means by which new Bitcoins are released (Kelleher, 2014). The process of Bitcoin mining requires specialised set of hardware and access to the internet. This process also includes the disentangling of a complex and difficult puzzle, after which the first participant to solve the puzzle is rewarded with new Bitcoins, these rewards are often referred to as transactional fees, these fees incentivises miners to facilitate transaction verification on the Blockchain (Lewis et al., 2017).

1.2. Purpose of Research

Therefore this study seeks to gain a deeper understanding of the threats posed to the South African banks by cryptocurrencies. As already mentioned, cryptocurrencies are not regulated in South Africa (SARB, 2014) and the South African banking sector is heavily regulated (Banks Act, 2007). Some of the aspects of this research will explore whether the banking sector can interact with cryptocurrencies in their unregulated state so as to limit the threats. This study also seeks to explore the effects of the threats of these currencies during a period when they are not yet regulated, South African institutions have a reputation of lagging behind many countries on regulation of complex technologies (Botha & Makina, 2011). This brought up the motivation to conduct this study through the application of institutional theory.

Theory Utilised – Lens

Institutional theory will be applied as a lens for this study because it offers the researcher abstract tools and techniques required to understand the extent of the impact of disruptive technologies such as cryptocurrencies (Currie, 2009). This theory has been successfully employed by various studies that explore the impact of regulation or lack thereof on new technologies, these studies will be discussed in full in the literature review section in chapter 2 (Jensen, Kjærgaard, & Svejvig, 2009).

Contributions

The researcher hopes to accomplish some key goals with this research; the first one of these goals is to contribute to the body of knowledge in the cryptocurrencies field within South Africa. The South African treasury department and financial institutions such as the SARB and the Financial Intelligence Centre (FIC) could be better equipped on the regulatory aspects for consideration when dealing with disruptive technologies such as cryptocurrencies. The South African banking sector will also be alerted of the threats posed by cryptocurrencies. Lastly, the banking sector may have some options on how to prevent being deeply impacted by cryptocurrencies and these options will be explored in chapter 5 and 6.

This study was conducted on four propositions; firstly the study seeks to establish the prevalence of cryptocurrencies in South Africa. The prevalence of cryptocurrencies was measured from the respondent's point of view, awareness and perception of their surrounding environment, media reports and various activities performed by South African communities such as the purchase and trade of cryptocurrencies. Constructs of prevalence such as "awareness" will form a foundation for the discussion of proposition 2. Secondly, the study seeks to establish the adoption of cryptocurrencies by the South African population and this is measured by the increase in enquiries, acquisition and usage. The establishment of the level of adoption will form a foundation for the argument regarding the extent to which cryptocurrencies will disrupt the banking sector in South Africa.

Thirdly, the study seeks to explore the regulation of cryptocurrencies in South Africa and supposes that the prevalence of cryptocurrencies will escalate. This proposition states that cryptocurrencies are not regulated in South Africa and this will persist for a long time.

Lastly, the study seeks to evaluate the risks posed to the South African banks if the cryptocurrencies were prevalent. It has already been established that the capabilities possessed by cryptocurrencies could have detrimental effects on the banking sector; hence it would be prudent to conduct this study. Further details regarding these propositions will be discussed in chapter 3.

1.3. Context of the Study

The South African government has started having engagements and public parliamentary discussions regarding the developing market for cryptocurrencies (BusinessTech, 2017). During a parliamentary question and answer session in July 2017, the South African finance minister was asked to explain the position of National Treasury with regard to the developing market for cryptocurrencies and whether National Treasury had any intentions to regulate the market (BusinessTech, 2017). In response to this question, the finance minister admitted that cryptocurrencies already operate in South Africa and that there were a number of institutions tasked with addressing the situation, he went further to explain that cryptocurrencies are not regulated in South Africa, hence they operate outside the purview of the SARB (BusinessTech, 2017).

Therefore, by virtue of their existence and use, cryptocurrencies undermine the sovereignty of South Africa and the ability of the SARB to adequately deliver on their mandate, which is to govern the management of currency (SARB, 2014). In analysis of the finance minister's response, one member of parliament alluded to the fact that cryptocurrencies will coexist with fiat currencies (BusinessTech, 2017). This research will present evidence that public conversations, engagements and debates regarding the prevalence of cryptocurrencies are already taking place in South Africa.

This paper will also present evidence of the attractive qualities possessed by cryptocurrencies and how these qualities could disrupt the banking sector. Although, there is insurmountable evidence that cryptocurrencies bring about many attractive qualities and benefits to the end user, we cannot neglect the criminal elements that accompany these currencies. Money laundering is one of the biggest risks highlighted by the SARB as it states that, due the high degree of anonymity, the transactions conducted using cryptocurrencies cannot be detected by the traditional anti-money laundering mechanisms (SARB, 2014).

1.3.1. Prevalence of cryptocurrencies: historical data and statistics

As of 2008 till July 2017, decentralised digital currencies have gained much recognition in around the world, hence the market capitalisation of the top 7 traded cryptocurrencies shown in Figure 2 is approximately 73 Billion dollars, with an approximate 1,7 Billion US dollars traded every 24 hours (Coin Market Cap, 2017). For a given period between August 2016 and July 2017 the daily average number of transactions generated by Bitcoin trades was 275 000 (Blockchain, 2017).

Figure 1: Market capitalisation of the top 7 Cryptocurrencies (Coin Market Cap, 2017).

| # | Name | Market Cap | Price | Circulating Supply | Volume (24h) | Price Graph (7d) |
|---|------------------|------------------|------------|----------------------|---------------|------------------|
| 1 | Bitcoin | \$44,192,457,281 | \$2681.87 | 16,478,225 BTC | \$688,657,000 | |
| 2 | Ethereum | \$19,035,643,331 | \$203.23 | 93,663,675 ETH | \$829,287,000 | |
| 3 | Ripple | \$6,446,399,192 | \$0.168168 | 38,333,090,674 XRP * | \$64,495,700 | |
| 4 | Litecoin | \$2,132,256,887 | \$40.82 | 52,236,232 LTC | \$88,951,100 | |
| 5 | NEM | \$1,489,671,000 | \$0.165519 | 8,999,999,999 XEM * | \$2,372,470 | |
| 6 | Dash | \$1,344,678,101 | \$180.32 | 7,457,135 DASH | \$28,561,700 | |
| 7 | Ethereum Classic | \$1,322,286,610 | \$14.06 | 94,048,665 ETC | \$40,531,500 | |

To put market capitalisation of the top seven cryptocurrencies into perspective, World bank data shows that as at January 2017, the African continent was home to 57 countries, but only seven countries on the African continent had a yearly Gross Domestic Product (GDP) greater than 73 Billion US dollars at the end of 2016 (World Bank, 2017). The cryptocurrency industry is growing strong, as at February 2018, the market capitalisation of the top 7 currencies was approximately 350 Billion dollars (CoinMarketCap, 2018).

Figure 2: Bitcoin Exchange Rate with Major Currencies (XE.com, 2017).

| Top XBT Exchange Rates | | | | | | | | | | |
|------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|--|
| | USD | EUR | GBP | INR | AUD | CAD | ZAR | NZD | JPY | |
| 1 XBT | 2720.81 | 2315.29 | 2071.66 | 1.750E5 | 3405.63 | 3383.24 | 35419.9 | 3620.43 | 3.010E5 | |
| Inverse: | 0.00037 | 0.00043 | 0.00048 | 0.00001 | 0.00029 | 0.00030 | 0.00003 | 0.00028 | 3.30E-6 | |

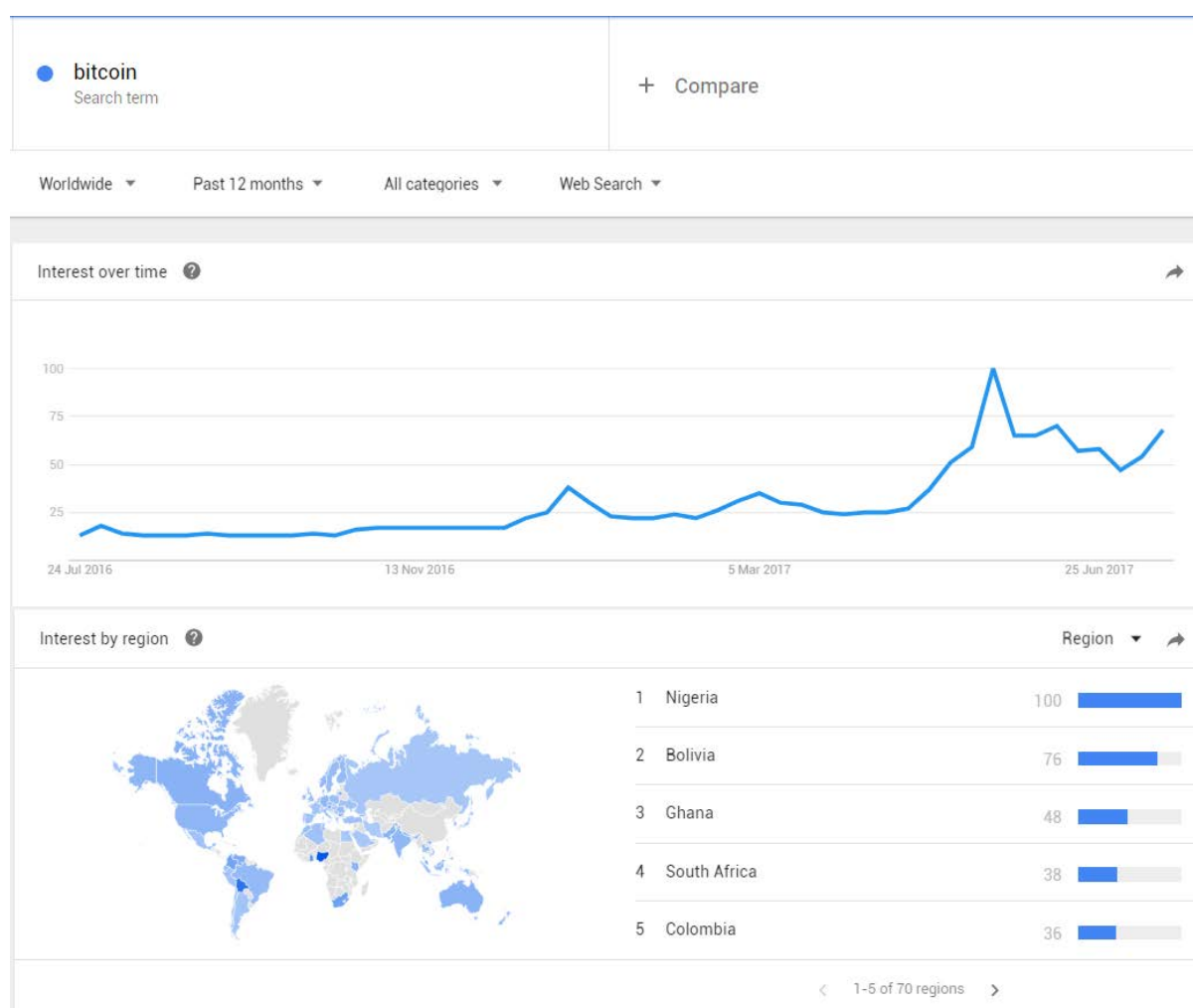
2017-07-30 16:19 UTC
 All figures are based on live mid-market rates. These rates are not available to consumer clients.

Bitcoin (trading code XBT) is officially traded on the New York Stock Exchange (NYSE); the NYSE is the largest stock exchange in the world (NYSE, 2017). Bitcoin also has an official trading exchange rate against some major currencies around the world such as the US dollar, the British Pound and the Japanese Yen (XE.com, 2017). XE.com (2017) shows that the South African official trading currency (the Rand) also has an exchange rate of 1 XBT: ZAR 35 419 with the Bitcoin as shown in figure 3.

1.3.2. Digital currencies in the African context

The concept of money existing in non-physical form which is not cash is common amongst the African countries, case in point; Kenya has a mobile phone based service that allows money transfers, financing and micro financing that is called M-Pesa (Mbiti & Weil, 2013; Morawczynski & Pickens, 2009). M-Pesa however is not decentralised digital currency, but works as a virtual wallet for customers and this service is operated by Safaricom (a mobile network operating company in Kenya) (Mbiti & Weil, 2013). In 2011, Kenya had a GDP of Ksh 2.99 Trillion and the volume of transfers conducted on M-Pesa was Ksh 314 Billion an equivalent of 10% of Kenya's GDP (Mbiti & Weil, 2013).

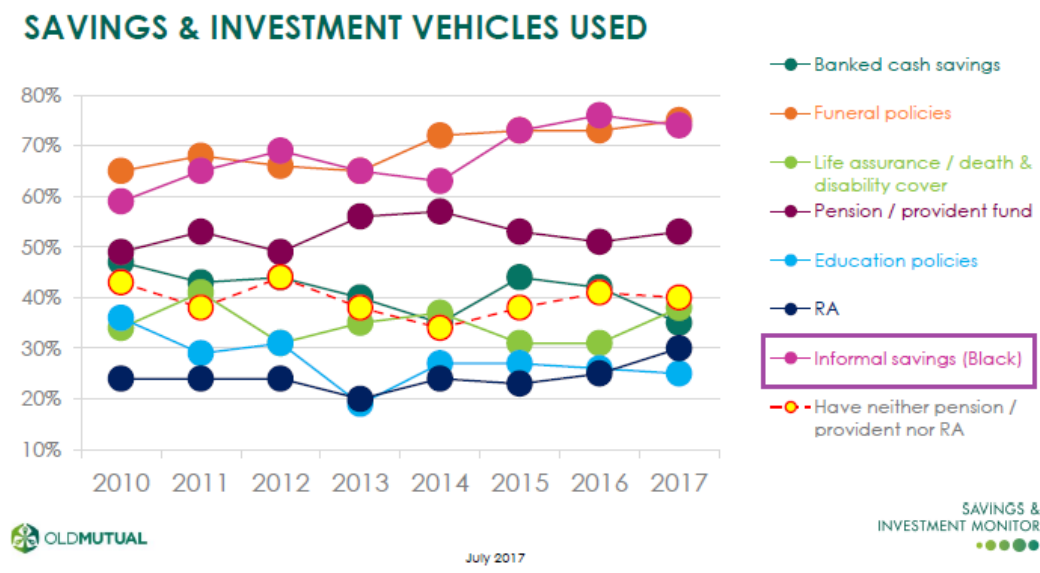
Figure 3: Google Trends for the “Bitcoin” Search Term (Google Inc, 2017).



Google trends, a public facility offered by Google Inc, the largest search engine in the world, show how often particular phrases have been searched by a particular region relative to total searches around the world (Google Inc, 2017a). Google Trends data has been used successfully in a study that seeks to explore the clientele driving interest in Bitcoin (Yelowitz & Wilson, 2015). Figure 4 shows the trend for the search term “Bitcoin” over a period of one year, there are 3 African countries on the top five list (Google Inc, 2017a).

With the statistics and data already supplied, one could be inclined to believe that digital currencies and cryptocurrencies are prevalent or that their awareness is growing at a fast pace.

Figure 4: The Culture of Saving in South Africa (“Old Mutual Saving & Investment Monitor”, 2017)



According to the data presented in figure 1, at least for the last 7 years a majority of South Africans generally have an estranged relationship with the banking or in this case the formal sector. Old mutual have found that approximately 75% of the black population that makes up 79% of the country’s population invest their savings in the informal sector products such as Stokvels (“Old Mutual Saving and Investment Monitor”, 2017). It is therefore safe for the researcher to conclude that, if this segment of the population were to be exposed to a low cost informal peer to peer platform such as cryptocurrencies, most of the individuals in this group will acquire cryptocurrencies.

1.4. Research Scope

This study was conducted on a sample of 12 financial experts from the South African banking sector and financial advisory. The relevant population for this study from where a sample was drawn comprised of 3 groups of individuals, firstly the senior executives, senior managers and senior consultants that work within the South African banking sector, at the reserve bank, retail and commercial sectors. The second group consists of senior law experts that work for law firms on retainer by banks and the third group consists of senior consultants from firms that deal with risk and advisory to retail and commercial banks. Research data was gathered by means of semi-structured in-depth interviews of the above mentioned individuals. Having mentioned that this study will mainly focus on the banking sector, there are other industries that will also be disrupted by the cryptocurrencies, but they were out of scope for this study.

There are various other concepts that were introduced in this study; literature on institutions was presented so as to lay a foundation for institutional theory, the lens through which the study was conducted. Institutional theory guided the researcher in exploring the role of institution in the regulatory aspects of disruptive technologies that could significantly impact industries. Because the banking sector is directly impacted by cryptocurrencies, the history of and roles played by banks were presented. This was done so as to highlight the capabilities of the banking sector that could be replaced by cryptocurrencies.

There are technologies and concepts that are closely linked to the understanding of cryptocurrencies that had to be introduced by the study so as to make the argument more cogent. These include the concept of cryptocurrencies mining, initial coin offering and an exploration of the Blockchain technology.

2. Literature Review

2.1. Introduction

This literature review will present a semi descriptive definition of an institution and its role in society. Thereafter, institutional theory will be introduced and the reasons why this theory was chosen as a lens for this research. There are quite a number of successful studies that have successfully examined the use of institutional theory on disruptive technologies while exposing institutional voids in the process.

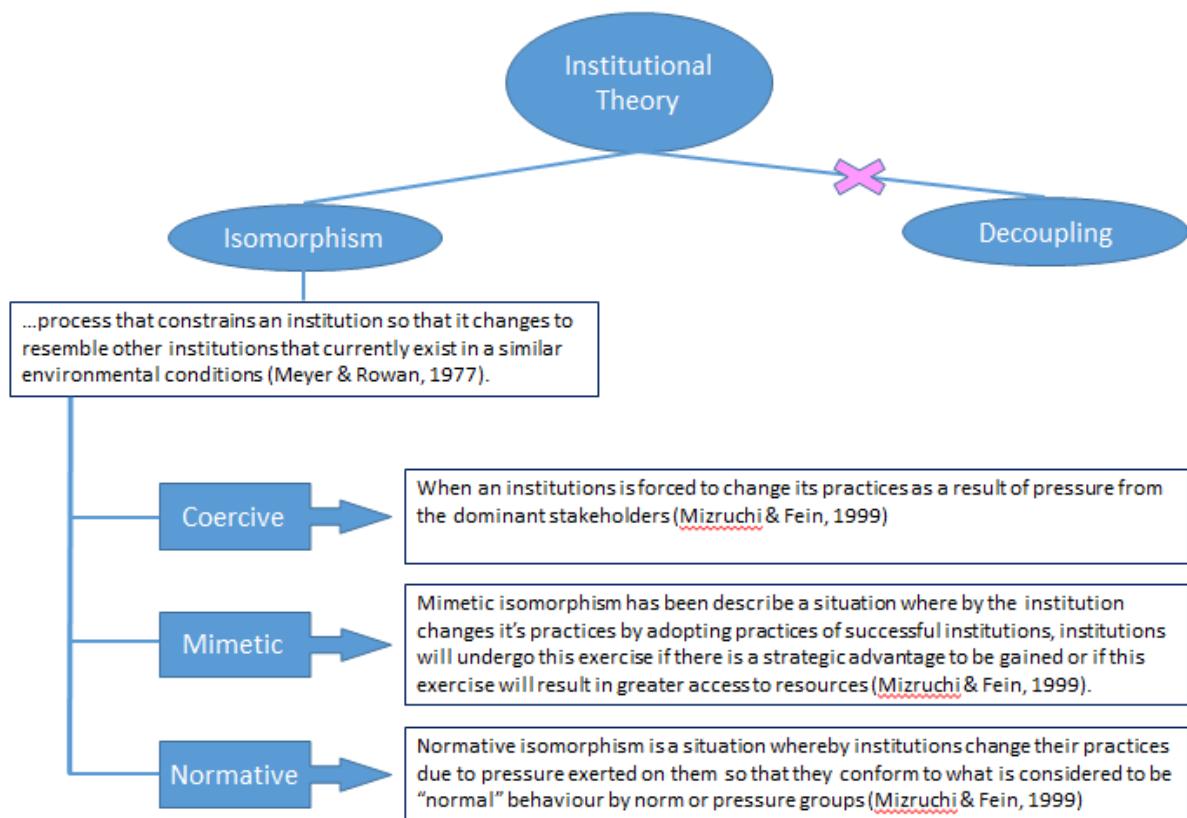
This research will examine the application of institutional theory on the risks posed by the cryptocurrencies to the South African banking, due to the adoption of the currencies by various stakeholders in South Africa. Cryptocurrencies poses some capabilities that are currently performed by banks. Therefore, this literature review will also introduce the concept of a bank, a brief history of banking and the role played by banks in societies. It is essential to understand the key roles played by banks so as to properly evaluate whether cryptocurrencies could assume most of the bank's responsibilities.

Therefore a descriptive background of the banking sector was also presented so as to lay a solid foundation for the argument on how cryptocurrencies could significantly disintermediate or impact the banking sector. Banking has evolved over many years as banks seek to service more customers through digital channels, therefore this literature review will also discuss and draw parallels between traditional and modern banking.

Regulation is a thorny issue when discussing the prevalence and adoption of cryptocurrencies; this is evident in the debates that have been conducted by various authors presented in this chapter. Therefore; the literature presents the current regulation and what future regulation could be.

Ultimately, the literature review presents cogent arguments on the sustainability of cryptocurrencies as a mechanism of payment. Upon presenting challenges that could impact the adoption cryptocurrencies, the materiality of the challenges will be evaluated.

Figure 5: Diagrammatic Representation of the Lens Utilised for this Research



2.2. Institutions and Regulation

Institutions are at the core of institutional theory and they have been defined as constraints which consist of formal and informal rules, these constraints have been designed to structure social, political and economic interactions (North, 1991). Kraft & Furlong (2004) concur with this definition as they state that institutions are both organisations and the rules that are used to structure patterns of interaction within organisations; they expand the scope of the definition to include ways in which people in those organisations relate. North (1991) goes further to give examples of the formal and informal rules, examples of informal rules would be traditions, customs, and code of conduct, whereas examples of formal rules would include laws, property rights and constitutions. North (1991) posits that institutions evolve incrementally over time, as this happens they connect the past, the present and are connected to the future and therefore the historical recording becomes the story of institutional evolution.

Bebbington, Unerman, & O'Dwyer (2014) stated that institutions consist of regulative, normative and cultural cognitive elements that, when combined with resources and associated activities bring forth stability and meaning to social life. This study examines these three pillars quite closely especially in relation to South African institutions such as the SARB and the Financial Intelligence Centre (FIC) that are responsible for the regulation of the banking sector.

The FIC is South Africa's national centre of financial intelligence that receives financial data, analyses and propagates financial intelligence to relevant institutions such as SARS and the SARS (FIC, 2017a). This intelligence is used to combat crimes such as money laundering and terrorism. The FIC Act of 2001 on the other hand introduces regulatory framework, hence the FIC recommends and produces regulation. With cryptocurrencies operating from a distributed ledger, the FIC has no means of gathering any financial data regarding illicit or ordinary transactions hence cannot put forward adequate regulation in this space (FIC, 2017b).

2.2.1. The Regulatory Institutional Pillar

The regulative pillar of institutions is based on the rules, laws, the monitoring and enforcement of the rules, the recompense and finally the associated sanctions or consequences (Meyer & Rowan, 1977; Bebbington et al., 2014). There is an expectation from societies that institutions will abide by these, otherwise there are consequences.

2.2.2. The Normative Institutional Pillar

The normative pillar is concerned with the norms and values that could be applicable to all or particular members of the institution (Meyer & Rowan, 1977; Bebbington et al., 2014). The norms and values also give the institution its individuality and ethics. The code of conduct is maintained through constant development of knowledge. Not so long ago South Africa was a British colony, hence the South African banking sector is not very different to the European banking sector, therefore the SARB would follow most of the prescripts from European institutions. However it is worth mentioning that some norms and values would be tailored for the South African communities because the country has its other unique mechanisms of corporate governance such as the King IV reporting (Ntim, Lindop, & Thomas, 2013).

2.2.3. The Cultural-Cognitive Institutional Pillar

The cultural-cognitive pillar is concerned with the ways of getting things done, these ways are considered to be taken for granted (Meyer & Rowan, 1977; Bebbington et al., 2014). An example within this pillar is of an institution that learns to exist within a society and meet various expectations. Institutions also have a duty to adapt to social and cultural expectations of the communities; otherwise the regulation they put forward may be rejected or not have intended effect.

2.3. Role of Institutions

This section examines the role of institutions with clear focus on the financial institutions such as the SARB. The role of the SARB has been clearly stated, it is to govern the production and management of currency (SARB, 2014). In chapter one, this paper introduced the position of the SARB in regard to definition and governance of currencies, traditionally the SARB only governed fiat currencies, the Rand. The theory reviewed in this paper suggests multiple roles of institutions, North (1991) posits that institutions reduce the cost of transactions thereby ensuring that maximum gains are realised. Cost of transacting are usually high because of uncertainty when multiple parties are transacting, therefore institutions eliminate the uncertainty, lower risk and thereby ensuring that low transactional costs are achieved North (1991).

Botha & Makina (2011) postulate that there are four scenarios that explain the role of institutions, firstly they state that governments would produce regulation so as to minimise information asymmetries and also make sure that its interest are aligned to that of the regulated entities. Secondly, they state that institutions exist to protect consumers from disingenuous operators (Botha & Makina, 2011; Böhme et al., 2015). Thirdly, institutions

exist to protect operators from rivals who would perhaps have unfair advantages. Lastly, they posit that operators need to be protected from the government structures that may seek to take advantage them (Botha & Makina, 2011).

Based on the roles described here, it is still to be seen which stance the SARB will take on cryptocurrencies interacting with operators (banks) and consumers (the South African public). Questions that come to mind are, do consumers require protection from cryptocurrencies, and do the banks require protection from the disruptive nature of cryptocurrencies? Other countries such as China have instituted a ban on cryptocurrencies so as to protect their financial sovereignty (Dandapani, 2017).

2.3.1. Institutional Voids

In their earlier publication Mair & Marti (2009) define institutional voids as circumstance whereby institutions that are responsible for supporting markets are either absent, weak or fail to deliver on their mandate. Three years later Mair, Martí, & Ventresca (2012) argue that the nature of the institutional fabric for organisations such as the SARB could significantly influence market formation, growth of the economy and the competitiveness of the South African fiat currency.

Shimpalee & Breuer (2006) concurs with the assertions made by Mair et al. (2012) and states that institutions tend to have an impact on the health of the nation's economy, therefore good institutions could produce strong and credible economic fundamentals that averts currency crisis. However in many developing countries, there are weak institutions and in some cases institutions are absent; the result here is that individuals living in poverty tend to be shut outside of the economy (Mair & Marti, 2009). South Africa is classified under the category of developing countries, poverty and inequality are very high (World Bank, 2017), and approximately a third of the population is on social welfare, therefore one could argue that perhaps there exists institutional voids in the country.

2.4. Institutional Theory

Institutional theory has been defined as the development of policy that emphasises the legal and formal aspects of government structures (Kraft & Furlong, 2004). Aspects of institutional theory explain how rules, norms and routines are created, adopted and adapted by institutions over a specified period of time. These aspects are based on ways in which governments are constructed, their legal powers and the processes they follow to develop rules (Kraft & Furlong, 2004). Meyer & Rowan (1977) present two dimensions of institutional theory, one of which is of great interest to this study and these are namely Isomorphism and Decoupling.

2.4.1. Decoupling

Decoupling is the first dimension that was presented by (Meyer & Rowan, 1977) as a dimension whereby there is decreased institutional coordination and control within the institution in order to maintain legitimacy. Within decoupled institutions, the formal institutional practices differ considerably to the actual practices of the institutions. This literature review will not be delving deep in the exploration of decoupling as the researcher will not have enough time to collect enough evidence from the current financial regulatory institutions in South Africa.

2.4.2. Isomorphism

The second dimension is Isomorphism and has been defined as a process that constrains an institution so that it changes to resemble other institutions that currently exist in a similar environmental conditions (Meyer & Rowan, 1977). While defining isomorphism, Kung, Cegielski, & Kung (2015) introduce the concept “environment maturity” as they argue that it is inevitable for institutions within a certain environment to become more similar to one another. In the context of this study, South African financial institutions that are currently in existence within an environment that has disruptive technology such as cryptocurrencies will be explored, compared and contrasted with institutions in first world countries that have managed to successfully regulate cryptocurrencies. An institution whose structures are isomorphic has a number of ways in which it can change to meet social expectations and these ways are coercive, mimetic and normative isomorphism (Meyer & Rowan, 1977).

2.4.3. Coercive Isomorphism

When an institution is forced to change its practices as a result of pressure from the dominant stakeholders (Mizruchi & Fein, 1999). Powell, DiMaggio, & Mallory (1993) postulate that coercive isomorphism is driven by two forces, pressures from other institutions upon the focal institutions depends on and pressure exerted by the larger society for the institution to conform to cultural expectations. A good example of this scenario would be an institution changing its practices so as to comply with new government policies. Mair & Marti (2009) mention other examples where by business groups often take charge of the situation by coercing the government into action.

2.4.4. Mimetic Isomorphism

Mimetic isomorphism has been described a situation where by the institution changes its practices by adopting practices of successful institutions, institutions will undergo this exercise if there is a strategic advantage to be gained or if this exercise will result in greater

access to resources (Mizruchi & Fein, 1999). Powell et al. (1993) opine that an institution mimics another institution they perceive to be successful. A good example of this scenario would be one whereby the SARB mimics another institution and therefore produces regulation that has been implemented by first world countries that may have been successful at regulating cryptocurrencies.

Botha & Makina (2011) concur with this view as they further state that the South African financial regulatory system metamorphosed towards the UK's Financial Services Authority (FSA) and the US regulation practices. Botha & Makina (2011) also posit that South Africa has reformed its regulatory structures so as to accommodate the "twin peak" model, a trend that was established by first world countries. Therefore it is safe to conclude that the SARB will probably not produce any concrete regulation aimed at cryptocurrencies, but will wait to mimic countries such as the UK and the US.

2.4.5. Normative Isomorphism

Normative isomorphism is a situation whereby institutions change their practices due to pressure exerted on them so that they conform to what is considered to be "normal" behaviour by norm or pressure groups (Mizruchi & Fein, 1999). Kung et al. (2015) posit that there are normative forces that influence professional communities to conform to standards of professionalism and techniques that have been deemed legitimate by significant professional groups. A good example of this scenario would be transformation of South African institutions due to pressure exerted on them by activist, media and civil society (Mizruchi & Fein, 1999).

2.5. Successful Applications of Institutional Theory in Research

Institutional theory has been widely used in various research problems that involved disruptive technologies and implementation of healthcare systems (Jensen et al., 2009). Jensen et al. (2009) also posit that institutional theory has been proven to be an exceptional central diagnostic perspective for exploring the role of community, social and historic structure when it comes to the adoption of new or disruptive technologies. Technology systems such as CT scanners that are used for medical purposes are highly regulated as they have potential to negatively impact people's lives, hence this theory was successfully applied in the study of the introduction of CT scanners by (Barley, 1986). Currie (2009) successfully applied this theory seeking to demonstrate that information systems researchers such as the SARB's department of technology research should engage more with institutional theory while seeking to understand complex social impact of disruptive technologies.

Figure 6: Diagrammatic Representation of the Lens Utilised for this Research (Unerman et al., 2007).

| <i>DiMaggio and Powell (1991)</i> | <i>Scott (1995)</i> | <i>Examples</i> |
|--|--|--|
| Coercive mechanisms, such as the law or professional requirements, lead organizations to comply and to align with the requirements in such a way that behaviour becomes very similar in all of them. | Regulative structures, such as the law or the market, involve the capacity to establish rules, inspect conformity and manage sanctions in order to influence future behaviour. | Environmental regulation makes companies adopt new technologies. |
| Normative mechanisms, propelled through professionalization, formal education and professional networks, lead individuals to act according to values and norms. | Normative structures are based on social values and norms, leading individuals to act according to societal expectations. | Philanthropy among business in the USA; perceived 'appropriateness' of the UN Global Compact |
| Mimetic mechanisms. Organizations imitate those peer organizations that seem to be more successful and legitimate. | Cognitive structures are taken for granted symbols, meanings and roles that support the legitimacy of organizations. | It is argued that waves in the use of some concepts and techniques by organizations are associated with vogues (imitation) rather than with rationality. |

Figure 6 depicts a model that was prepared by Unerman et al. (2007) p. 277 when they combined work from Powell et al. (1993) and (Scott, 1995) so as to explain how institutional theory would impact companies that adopted new technologies in the US. As already been stated in a couple of examples in section 2.3, the South African institutions tend to adopt the normative and mimetic isomorphism in regard to releasing regulation for foreign concepts and technologies (Botha & Makina, 2011).

2.6. Banking

2.6.1. The Central Bank

The central bank of South Africa is the South African Reserve Bank (SARB). According to the South African Reserve Bank Act, 1989 (Act No.90 of 1989), the sole mandate of the central bank is to govern the management of currency (SARB, 2014). Other responsibilities of the central bank as per section 14 of the SARB Act include the issuance or cause to issue banknotes and coins in the Republic of South Africa (SARB, 2014). The currency referred to by the SARB Act is the fiat currency, the Rand. The SARB is the custodian of commercial banks in South Africa, has been referred to as the "lender of last resort", its responsible for the administration of the country's exchange rate and the regulation of banks (Singleton & Verhoef, 2010).

Amongst other various roles played by the SARB, Moore & Stephen (2016) postulate that there are assets such as foreign exchange and gold which are held by the central bank so as to offer credibility to the value of the fiat currency. They also explain that these assets should be of significant value and recognition by the international community because countries should be able to transact using these assets.

2.6.2. Cryptocurrencies in Reserve Bank Portfolio

As already stated in chapter 1, cryptocurrencies have not been embraced by the central bank, Moore & Stephen (2016) conducted research to examine whether cryptocurrencies could play the same role played by gold which is an internationally recognised commodity. Moore & Stephen (2016) concluded that the central bank could indeed hold cryptocurrencies because the currencies are internationally recognised and have a store of value.

However, the issuance of money is based upon the bank's monetary policy, Berentsen (1998) states that this policy is based on a stable velocity of money production. Therefore if cryptocurrencies were to be fully adopted by the South African population as a mechanism of transacting, the central bank will not be in a position to regulate the velocity of money production, this will impact the country's financial stability.

2.6.3. Banking and Regulation

2.6.3.1. Brief History of Banking

Commercial banking has evolved significantly since its early days, Wright (2001) briefly introduces the fact that the first successful commercial bank in the US was established in the 1730s and various other attempts at establishing banks failed because of trust issues, a few centuries later, the banking sector still battles trust issues (Blundell-Wignall, 2014). While conducting a review of Wright's book, Sullivan (2002) presents the initial role played by banks as deposit collectors who later on added more services such as lending on their platforms. Wright (2001) also discusses how some regulation was invented to curb challenges of banks liquidity and this was resolved by the regulation such as the section 70 in the South African Banks Act.

Section 70 states that: *"the sum of the bank's primary and secondary capital, its primary and secondary unimpaired reserve funds and its tertiary capital does not at any time amount to less than an amount which represents a prescribed percentage of the sum of amounts relating to the different categories of assets and other risk exposures and calculated in such a manner as may be prescribed"* (The Banks Act, 2007)

As per the Banks Act No. 94 of 1990, the bank has been defined as a public company that has been granted the right to receive client deposits, monies, loan applications or advances and to makes payments to clients, this right has to be granted by the registrar of the central bank (The Banks Act, 2007). Polillo (2011) has defined a bank as a specialised actor who removes resources from production and repurposes them.

The South African banking sector is not as old as the systems in Europe and America, the first official bank in the country was established in the 18th century and this was as a result of the British Empire expanding its roots to colonies (Singleton & Verhoef, 2010; Webb & Ally, 1995). Regulation of the banking sector is extremely tight in South Africa and this was also influenced by conservative British banking system (Singleton & Verhoef, 2010). The statutes that govern institutions such as the SARB were modelled on the central bank of Netherlands although the administration of the banking sector is conducted in South Africa (Singleton & Verhoef, 2010).

With this revelation, it becomes apparent as to why Botha & Makina (2011) opine that South African financial regulatory system still metamorphoses towards the UK's Financial Services Authority (FSA) and the US regulation practices. In the 1980s, the South Africa banking sector was engaged in a lengthy process of consultation that would be inclusive of all societies and communities and the product was Banks Act of 1990. However when contrasting this with the statistics presented in chapter 1 regarding the percentage of South African who utilise the formal sector for saving, it's safe to conclude that the country's banking sector is not very inclusive.

2.6.4. Modern Banking

For banks to remain relevant in future, they require “forward thinking” strategies that will ensure that their enterprises have operational efficiency and does not neglect customer experience (Weill & Woerner, 2018). The current banking landscape has significantly transformed from the days of “bill of payment” to many banks offering internet and mobile banking. South African banks have mobile application for their clients, therefore the concept of individuals conducting banking on their cellular phones of not foreign to the banked population.

To most bank clients, the introduction of internet banking brought about the concept of digital money as they have access to their funds via a mobile application or internet (Ramavhona & Mokwena, 2016). Ramavhona & Mokwena (2016) canvassed the South African rural areas to investigate willingness for adoption of digital banking; they found that there was much willingness to adopt these technologies as long as they were simplified and easy to use.

2.6.4.1. Outdate Banks

Marcelin & Mathur (2014) posit that a combination of poor governance of institutions, an outdated banking system and financial disintermediation could result in amplified fear of bank runs. The fear of bank runs could effectively trigger actual bank runs. Through the adoption of cryptocurrencies, there is a reduced utilisation of intermediaries such as banks for various transactions because these currencies operate on a distributed ledger outside the banking system, therefore banks are being disintermediated. Tying this assertion back to the theory presented by (Marcelin & Mathur, 2014), if banks do not keep up the pace with disruptive innovations, they stand to lose much more.

2.6.4.2. Slow Pace of Regulation in the South Africa

Marcelin & Mathur (2014) built a cogent relationship between the banks, institution and eventually how regulation gets to impact the banks. They posit that regulation of the banking sector is dependent on the judicial reforms undertaken by institutions, but the judicial quality in developing countries such South Africa is not only dependent of the ability of the courts to enforce contracts, but other external factors slow down the publication of regulation.

Therefore in South Africa where reforms are undertaken at a slower pace and dependant on leading countries such as the UK, in relation to cryptocurrencies adoption banks may be in limbo for longer.

2.6.5. Laissez-faire Banking and Cryptocurrencies

Salter (2016) refers to it as free banking, Gorton (1985) refers to it as laissez-faire banking; the concept of free banking is very well established in literature. Salter (2016) defines free banking as a system whereby there are no formal lenders of last resort; banks within this system essentially issue their own money. Gorton (1985) defines the concept of free banking as a system where by banks could be viewed as an alternative to government as they issue notes that are redeemable at par on demand. This idea speaks to the concept of “built-in institutions”, where by operators in the industry are self-regulating.

Questions have been asked throughout history, since Scotland reportedly succeeded at implementing free banking, Gorton (1985) in his review essay of the Lawrence White’s work, asks whether governments should regulate the banking industry. The concept of deregulating banking and encouraging financial innovation was discussed by Cowen & Kroszner (1989), as they posit that this concept “*provides the paradigmatic case of the unhampered evolution of a financial system*”, this was a long time ago before the inception of cryptocurrencies. While reviewing the concept of laissez-faire banking, Gorton (1985) is cognisant of the fact that this model failed in America, however still manages to identify key

differences between the Scottish and American implementation. One of these key differences was that, in Scotland there was no restriction into the banking sector and banks would issue their own notes as long as they satisfied collateral prescripts.

A cryptocurrency = a better bank

In the description of a laissez-faire banking system, Cowen & Kroszner (1989) postulate that this banking platform would operate outside the banking system that is governed by central banks. When one reviews the literature further, it becomes apparent that the concept being described Gorton (1985), Cowen & Kroszner (1989), Nakamoto (2008) and Meiklejohn et al. (2016) is very similar. One could view the Bitcoin platform as both a currency and a bank, the issuance of new Bitcoins (money) is conducted at an independent controlled rate, the community decides on the appropriate regulation and improvement of the platform without any third party involvement.

Much like today, the concept of free banking was criticised by some who questioned the aspect of convertibility to the broader monetary system (Gorton, 1985). This problem has been resolved for the cryptocurrencies as there are multiple exchanges around the world for people to one convert cryptocurrency to another or convert a cryptocurrency to a fiat currency and even vice versa Cheung et al. (2015). Proponents of free banking posit that, this banking system could solve some of major problems that could cripple banks, such as bank runs (Bedard, 2016). Much like cryptocurrencies which have been historically devoid of bank runs, there are more similarities and advantages to free banking system. Salter (2016) concurred with this view and postulates that the way this system is designed, it reduces bank runs and panics that have crippled some banking systems in history.

2.7. Cryptocurrencies

Cryptocurrencies are a peer-to-peer version of electronic money that facilitates online payments without the involvement of a third party such as a financial institution (Nakamoto, 2008; Dwyer, 2015). The value held by any form of money is ascribed to the scarcity of that money; the same concept applies to cryptocurrencies (Böhme et al., 2015; Moore & Stephen, 2016) however this value is determined by the members of the peer-to-peer network (Plassaras, 2013), not any financial institution. Cryptocurrencies are built on the concept a distributed ledger that ensures security, transparency and integrity of the system (Böhme et al., 2015; Nakamoto, 2008; Dwyer, 2015), hence their attractiveness to users.

2.7.1. Production of Money by Communities

Polillo (2011) introduces a fascinating theory regarding the production of currencies, the theory suggest that there are general social processes that that allow for various kinds or networks and organisation to be able to create currencies. Polillo (2011) posits that there is a transition of money production from governments to local communities, there are however conditions under which such events takes place and one of these scenarios is the exercising of moral authority by local communities. Polillo (2011) also argues that in scenario where by credit worthiness of formal institutions such as banks is challenged, the challenging groups should institute alternative criteria of credit worthiness. This scenario is directly associated to the outcomes of the Global Financial Crisis, an argument that was put forward by Blundell-Wignall (2014) where by the Federal Government was challenged on its legitimacy to properly govern the financial system.

Polillo (2011) presents the principle of money as “multiple currencies” and argues that through social practices, societies constantly transform money in creative ways to better suit their needs. The evolution of money to currencies that currently exist has been necessitated by the social needs and cryptocurrencies are as a result of multiple needs that are discussed in this paper. However, cryptocurrencies as a modern mechanism of transacting that has been developed and adopted by societies; it would be prudent for governments to embrace them.

2.7.2. Institutions and Cryptocurrencies

Most of the literature that has been reviewed for this in this chapter suggests that there are quite a number of institutions that are directly affected or challenged by the existence of cryptocurrencies (Centralny, 2015). A bulk of these institutions have the legal mandate to control the creating, use and distribution of money at global level, sub-continental level and national level. Therefore, these institutions are supposed to uphold national or global laws of money regulation to the highest standards, however if that doesn't happen, the net effect is the erosion of the trust placed upon them by various communities.

Consumer protection has been one of the main reasons brought forward to justify regulatory action taken upon cryptocurrencies (Böhme et al., 2015). Challenges however arise in circumstances where the very same institution tasked with protecting consumers violets their mandate. Dwyer (2015) presents interesting evidence from instances whereby fiat currencies underwritten by government were displaced, case in point, the Zimbabwean dollar that is no longer in existence as it was impacted by high inflation. In Somalia, there was a currency in circulation that was issued by a non-existence government (Dwyer, 2015). These cases may be extreme, but they shade some light on what happens if institutional

voids exist, institutions that are mandated to protect consumers collapse, a concept that does not exist in cryptocurrencies as they operate without central authority. So, global institutions such as the IMF should take charge at embracing cryptocurrencies.

The argument brought forward by Plassaras (2013) regarding the IMF taking charge of the cryptocurrency regulation is seriously weakened by the fact that, just like most international institutions, the IMF rules only apply to countries that have agreed to be bound by them (Plassaras, 2013). It can be concluded then, that if a country does not want to abide by the rules of the IMF, it has a choice not to, case in point North Korea. We can somewhat conclude that, if global regulation was to be put in place, the global institution will still have to gain support from all nations. When following the logic provided here through literature review, we observe that regulating cryptocurrencies maybe not happen anytime soon, therefore, the South African banking sector is facing threats posed by these currencies and nothing much can be done about it.

The European Central Bank (ECB) expressed positive sentiments towards cryptocurrencies and it acknowledged that the innovative nature of these currencies is the provision of additional payment alternatives for consumers (Centralny, 2015). The ECB also acknowledges that there are risks entailed in the use of cryptocurrencies, but opines that the risks are currently immaterial (Centralny, 2015). At a United States Senate banking committee hearing in February 2014, the Chair of the Board of Governors of the Federal Reserve System, Janet Yellen said that the American Federal Reserve Bank does not have the authority to regulate cryptocurrencies in any way (Centralny, 2015). She pointed out that it was important for the authorities to understand that this innovation was outside the banking industry (Centralny, 2015).

Amongst the abovementioned institutions, the Reserve Bank of India, the Monetary Authority of Singapore, the Bank Indonesia, the Belgium central bank, the Banque de France and the German Federal Financial Supervisory Authority (BaFin) have all communicated publicly that they do not yet regulate cryptocurrencies, but however issued warning statements on the risks of using these currencies (Centralny, 2015). When considering the attractive qualities of cryptocurrencies that have already been discussed in this paper, it's evident that most national banking sectors around the world have already started experiencing disruptions. The fact that most governments including the South African one, view cryptocurrency disruptions as positive innovation but not regulating them right away means that exploring the risks posed by cryptocurrencies on the South African banking sector remains a matter of importance.

While the debates have been ongoing, some countries have gone ahead and produced regulation for cryptocurrencies, case in point, Japan (Artemov, Arzumanova, Sitnik, & Zenin, 2017; Gupta, 2017). The bank of Japan has introduced legislation that seeks to combat money laundering, therefore there now exist an official exchange rate between the Yen and Bitcoin (Artemov et al., 2017).

2.8. Future of Cryptocurrencies Debates

Cheung, Roca, & Su (2015) are of the view that cryptocurrencies are unstable; they are a phenomenon that will eventually implode, citing the collapse of Mt Gox, Bitcoin's biggest exchange. Cheung et al. (2015) also characterise cryptocurrencies as bubbles that are ready to explode and has gone as far as to release a study that detects these bubbles using a technique that was developed by (Phillips, Shi, & Yu, 2014). Cheung et al. (2015)'s analysis of cryptocurrencies is scathing as it declares that these currencies do not have any intrinsic value and they derive value from being a speculative commodity. However, it can also be argued that, no currencies are without faults and that will be a lengthy debate that this study will not engage in. It is noteworthy to mention that market capitalisation of cryptocurrencies has significantly increased since 2013 as already mentioned above.

In a traditional banking model, high levels of privacy are achieved through limiting access to information only to the parties involved in a transaction and a trusted third party (usually central banks) (Nakamoto, 2008). Anonymity is not offered by the traditional banking model; therefore authorities have visibility of the transacting parties. In contrast to the traditional banking model, cryptocurrencies are designed in such a way that all transactions are publicly announced, yet still maintaining privacy and providing anonymity to the users (Hardy & Norgaard, 2016; Nakamoto, 2008). The anonymity is a huge selling point for cryptocurrencies and this is not desirable for the SARB.

Böhme et al. (2015) concur with the view of the SARB and thus posits that cryptocurrencies are a safe haven for criminals who use them to pay for illegal good and services because they perceive a lack of regulatory oversight. Blundell-Wignall (2014) posits that the prevalence of cryptocurrencies could exacerbate tax evasion. Be that as it may, it can also be argued that transactions conducted through cash payments cannot be traced either (Hardy & Norgaard, 2016); therefore, the SARB might have a challenging time using this argument against cryptocurrencies.

Blundell-Wignall (2014) has some strong views on cryptocurrencies and says that, cryptocurrencies will never become an alternative for fiat currencies because people still have to pay taxes. Blundell-Wignall (2014) provides no further elaboration on how this will happen though, it's not clearly articulated if the national governments will get involved or an

international body will take charge. The argument however sounds cogent to some extent, as one could imagine that governments around the world would make a concerted effort to eliminate cryptocurrencies. Blundell-Wignall (2014) further makes an argument for cryptocurrencies to exist alongside fiat, thereby broaching the concept of parallel currencies.

It has been argued that events such as the Global Financial Crisis that was experienced in 2009 led to the loss of trust in trading platforms, payment systems and trusted third parties Blundell-Wignall (2014). Yelowitz & Wilson (2015) states that *“the unregulated setup makes it appealing to Libertarians who philosophically oppose inflationary central bank meddling.”* Böhme et al. (2015) echoes similar views and suggests that cryptocurrencies extend a line of cyber-libertarianism which could be traced back to 1996 when John Perry Barlow declared the independence of cyberspace; this event was in protest of government oversight on online communications. It could be argued that such events shine light on the governments' inefficiencies, thereby swaying large numbers of people around the globe to distrust regulators and institutions. Although, most governments might be able to defend the positions they adopt when regulating currencies, evidence presented in chapter 1 suggests that they may not be doing enough to allay the concerns of individuals who have decided to place their trust in cryptocurrencies.

Similar studies to this one have been conducted in Europe and so far most European governments are still searching for long term solutions (Centralny, 2015), however not so much in the South African context. Results from the studies that have been conducted in Europe and the US represent diverse views, ranging from some publications advocating that cryptocurrencies be abolished, regulated and some simply in awe of the innovation, thus embracing it (Plassaras, 2013; Meiklejohn et al. 2016).

2.9. Cryptocurrency Exchange

Figure 2 shows the top 7 cryptocurrencies, while figure 3 shows the Bitcoin exchange rates with some major currencies around the world. Just as Bitcoin, other cryptocurrencies are traded on multiple exchanges and most of these exchanges are standard and privately owned (Brière, Oosterlinck, & Szafarz, 2015). Brandvold, Molnár, Vagstad, & Valstad (2015) conducted an extensive study to determine which exchanges reacts quicker to new information, to determine the leading exchange they posit that *“if the exchange does not correlate more with lagged market returns than with concurrent market return then the exchange is a leader”*. Their study brought to light at least 7 exchanges, Bitcurex, Bitfinex, Btcn, Btce MtGox, Virtex and Bitstamp (Brandvold et al., 2015). South Africa has its very own cryptocurrency exchanges, namely Luno and ICE³X (LUNO, 2017; ICE³X, 2018).

Value held in cryptocurrencies can now be exchanged to physical currencies without public disclosure of personal identity (Dierksmeier & Seele, 2016; Böhme et al., 2015). This study has already discussed the attractive qualities of cryptocurrencies; the fact that they can be exchanged to fiat currencies and vice versa is an added advantage. Dierksmeier & Seele (2016) highlight another interesting advantage of cryptocurrencies over fiat currencies and it's the fact that they are much less open to social pressure since they are not linked to any national or global institution. Since cryptocurrencies have established exchange rates with major fiat currencies around the globe and have low transaction costs, a strong case could be made that most people will rather prefer sending money across borders using cryptocurrencies over banks.

Cryptocurrencies have low transaction costs (Dwyer, 2015; Kim, 2015). For majority of South Africans, access to cryptocurrencies has become very easy as they can get these currencies from Luno and ICE³X, accessing various other cryptocurrencies such as Ripple has also become much easier as individuals can now go on trade and exchange platforms such Coinbase and Bitstamp (Brandvold et al., 2015). This point could explain why cryptocurrencies are gaining popularity in South Africa, however the literacy rate and technological aptitude are too low in the country, this could be a bit of a challenge for the adoption of these currencies. Another deterrent for users to get on to the exchange platforms is the issue of cybercrimes and high risks, the technology is still new and scepticism is high (Dierksmeier & Seele, 2016).

Just like fiat currencies, cryptocurrencies have multiple competitive exchanges and the biggest observation here is that most of the exchanges are affiliated with and traditional institutions. Therefore, users can easily conduct transactions from different countries and bypass financial institutions.

2.10. Cryptocurrency: Legal, Regulatory, and Institutions

As already mentioned, according to the South African Reserve Bank Act, 1989 (Act No.90 of 1989), the bank governs the management of currency and has the sole mandate to issue or cause to issue banknotes and coins in the Republic of South Africa. Section 3.2.4 of the very Act further states that only the Reserve bank is allowed to issue legal tender (SARB, 2014) and the definition of legal tender does not include decentralised virtual currencies such as Bitcoin. The SARB is not alone in this position; various other central banks around the world such as the European Central Bank (ECB) are of the same view. The ECB does not recognise cryptocurrencies from a legal perspective, but defines them as digital representation of value (Centralny, 2015).

However, in section 2.1 of the Bank's Act, the SARB acknowledges the use of cryptocurrencies as a medium of trade and exchange although it maintains that cryptocurrencies do not have legal tender status. Be that as it may, there is evidence of the South African adult population participating in online shopping, of which most these online platforms make use of cryptocurrencies (Rudansky-Kloppers, 2014).

There are numerous publications that have investigated the threat of cryptocurrencies (Dierksmeier & Seele, 2016) of which most put forward a though-roughly researched view that suggests that national government will eventually come to terms with the adoption of cryptocurrencies (Kaplanov, 2012). However, Trautman (2014) and Böhme et al. (2015) are of the view that tackling cryptocurrencies which operate at a global scale, by means of national regulation will be extremely difficult.

Dierksmeier & Seele (2016) states that Eber (2014) on the other hand has come out totally against cryptocurrencies and therefore recommended that these currencies be prohibited entirely. This paper has already discussed the views put forward by Plassaras (2013) who suggested that, regulating cryptocurrencies falls within the purview of the global organisations such as the IMF. To achieve total oversight, Plassaras (2013) does not however propose a concrete solution on how the IMF would perform this role, as it would have to be in charge of all the records that exist within the distributed ledger and also have some dictionary to cross reference people's names and cryptocurrency key. Even if every individual currently using these currencies would comply and reveal their identity, criminals might still find ways of circumventing this process by not supplying true identities.

Because of the anonymity provided by cryptocurrencies in conjunction with other tools used to mask network traffic, businesses operated by crime syndicates thrive as it is extremely difficult for law enforcement to identify perpetrators (Hardy & Norgaard, 2016; Meiklejohn et al. 2016). A very famous example of how cryptocurrencies were used to cover up an international criminal operation was "Silk Road", an encrypted online marketplace that sold a variety of drugs such as Cocaine, Cannabis and Hash (Böhme et al., 2015; Hardy & Norgaard, 2016). Law enforcement eventually managed to bring down Silk Road, however alternative markets opened up (Böhme et al., 2015). Cryptocurrencies pose risks to societies and various other institutions such as law enforcement; this highlights a greater need for regulation. For these reasons, cryptocurrencies have been demonised, something that might be easily reversed if regulation comes in place.

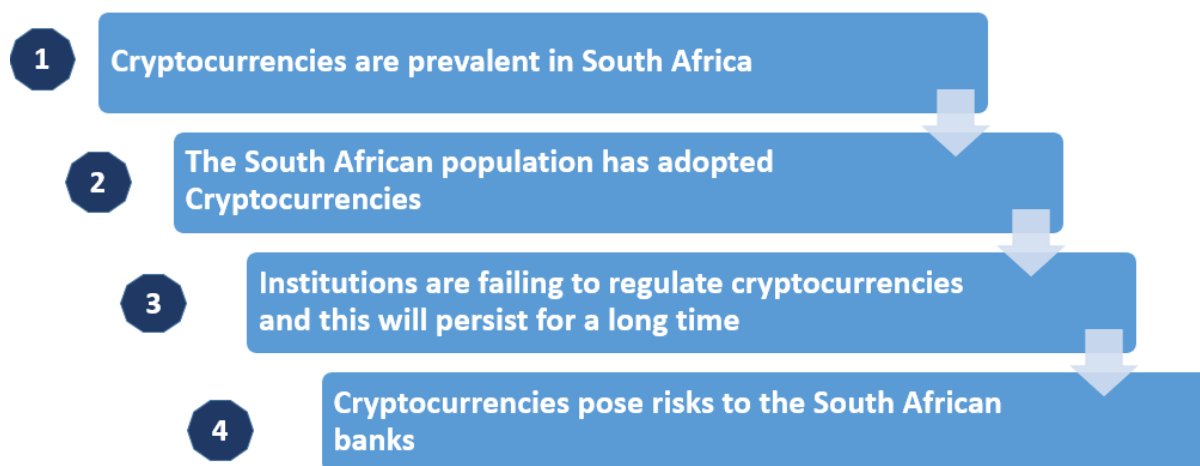
2.11. Summary

Although there are multiple voices and opinions regarding the regulation of cryptocurrencies, there seem to be one prevailing voice and that seeks a solution through a combination of national legislature and global governance initiatives (Dierksmeier & Seele, 2016). One of the biggest challenges facing global and national leaders is to find a solution for regulatory measures that will not stifle nor hinder innovation, but rather embrace it and use it for the greater good (Blundell-Wignall, 2014).

3. Research Propositions

This research seeks to explore the risks posed to the South African banking sector posed by cryptocurrencies through answering four propositions that have been derived from literature review.

Figure 7: A Conceptual Model of the Research Proposition



3.1. Research Propositions

Research Proposition 1: Cryptocurrencies are prevalent in South Africa

Research proposition one seeks to show that cryptocurrencies are indeed prevalent by exposing their popularity, growth in value as quantified by market capitalisation and consumer awareness. The prevalence of Cryptocurrencies will be established in three ways, namely the increase in the number of enquiries by the general populace, the increase in acquisition by the populace and finally the increase in utility by the general populace.

Research Proposition 2: The South African population has adopted cryptocurrencies

Research proposition 2 seeks to show that South African consumers and merchants have adopted cryptocurrencies as they are already familiar with the concept of digital money. While establishing the level of adoption of cryptocurrencies by the South African populace, the study will explore the driving and enabling factors that improve adoption. This proposition also seeks to understand the challenges that inhibit the adoption of cryptocurrencies by the South African population.

Research Proposition 3: Institutions are failing to regulate cryptocurrencies and this will persist for a long time

Research proposition 3 aims to show that the perpetuated failure of institutions to regulate cryptocurrencies could fast track their adoption in South Africa.

South Africa is a signatory to multiple international governing bodies such as the IMF, bodies that regulate monetary policies. This proposition seeks to provide evidence that global institutions such as the IMF have not produced any form of regulation that seeks to govern cryptocurrencies. Hence from a global point of view, there are no regulatory expectations for regulation anytime soon. At a national level, it is expected that South Africa will not be producing regulation for these currencies in the near future. This proposition also seeks the put forward evidence that multiple individual governments around the world have not put forward and regulation in the cryptocurrencies domain.

Research Proposition 4: Cryptocurrencies pose risks to the South African banks

Research proposition 4 seeks to uncover various risks posed by cryptocurrencies to the South African banks by identifying the functions of the banks that will be disrupted.

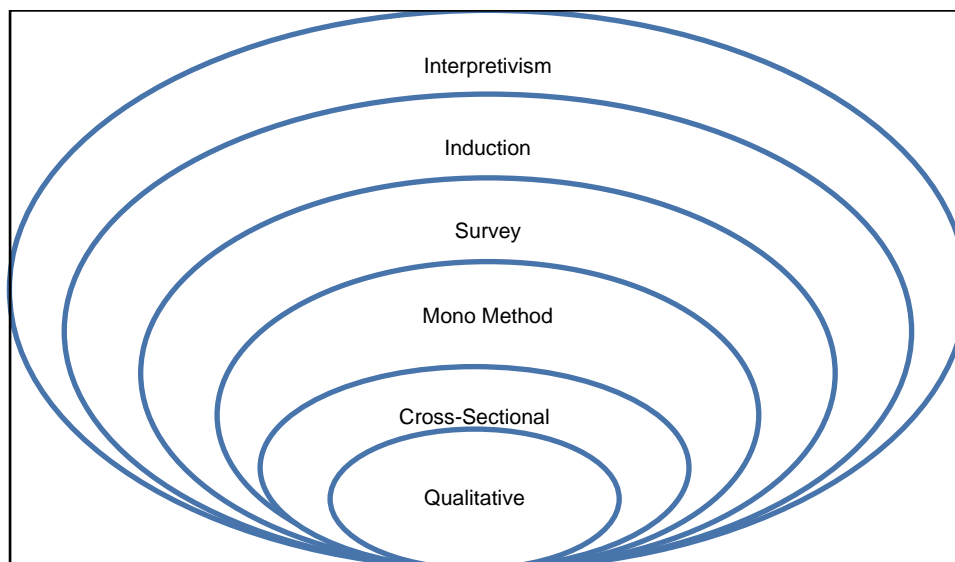
4. Proposed Research Methodology and Design

This study adopted a mono method, (Qualitative) approach and was conducted in an exploratory manor. Hlady-Rispal & Jouison-Laffitte (2014) advances a view that “*a qualitative method is used to describe, decode and advance the understanding of intertwined past, present and future eclectic data*”. This method is known to harness the context richness and diversity of the subject being studied through the use of well-designed questionnaires. For these reasons, this method was chosen for this research as the study’s aim was to gather important unquantifiable data from the subject matter expects in the South African banking sector.

4.1. Choice of Methodology

This research was conducted using “The Research Onion” research process shown in Figure 1, this process was introduced by (Saunders & Lewis, 2012). This “research onion” process has 6 layers namely Techniques & procedures, Time horizons, Choice, Strategies, Approaches and Philosophies. As can be seen the Figure 1, the outer layer of the research process speaks to the approach and philosophies. The middle and inner layers speak to choices taken, strategies adopted, data collection and its analysis.

Figure 8: “The Onion” Research Process (Saunders & Lewis, 2012)



Exploratory

Zikmund, Babin, Carr, & Griffin (2013) describes exploratory research which often involves qualitative methods as an essential first step to a more conclusive, confirmatory study that will significantly reduce the chance of beginning with an inadequate and misleading set of research objectives. Earlier on, in the year 2000, Zikmund (2000) described exploratory research as initial research paramount for defining and clarifying the nature of a problem. This type of study is particularly valuable when the researcher wishes to clarify their understanding of a problem, especially if they are unsure of the precise nature of the problem (Saunders & Lewis, 2012). Following upon these guidelines, this study was conducted through extensive analysis of academic literature and by also conducting in-depth interviews that helped the researcher gain new insights as recommended by (Saunders & Lewis, 2012; Zikmund et al., 2013). The key strength here is that this study benefited immensely from the diverse elaborate views of the different specialist within the South African banking sector.

Induction

This is a research approach where by data collection and analysis enables the researcher to develop the theory (Saunders & Lewis, 2012). Gray (2013) elaborates on this view and states that the very fact that an issue has been selected for research implies judgements about what is an important subject for research and that the inductive research does not set out to corroborate or falsify a theory. Rather, inductive research aims to gain insights, establish patterns, consistencies and meanings through a robust data gathering process (Gray, 2013). This study is going to be inductive because the researcher is going to rely on the results from data analysis so as to determine the risks posed to the South African banking sector by cryptocurrencies.

In conclusion of the “The onion” research process, a cross sectional design was undertaken for this study because data was collected from the participants at particular period in time and this was due to time constraints. The study was also conducted in a qualitative manor and semi structured interviews were conducted so as to gain more insight and consistent information from the interviewees (Saunders & Lewis, 2012). The semi structured interviews allowed the interviewer to probe and prompt various strands of the interviewee’s narrative. After the data collection phase, extensive data analysis was conducted so as to gain deeper understanding of the information (Saunders & Lewis, 2012).

4.2. Population

Banks are considered to be primary targets that will be mostly impacted by introduction of cryptocurrencies because their processes are slower, have complex administration and are still governed by a massive layer of regulations (Leith & Jordaan, 2016), hence they were chosen for this research. Having said that, there are other industries that will also be disrupted by the cryptocurrencies, but they were out of scope for this study.

Saunders & Lewis (2012) define a population to be a “*complete set of group members*”. Therefore the relevant population for this study from where a sample was drawn was identified to be comprised of 3 groups of individuals, firstly the senior executives, senior managers and senior consultants that work within the South African banking sector, more especially at the reserve bank, retail and commercial sectors. The second group consists of senior law experts that work for law firms on retainer by banks and the third group consists of senior consultants from firms that deal with risk and advisory to retail and commercial banks.

All the identified individuals within the three groups were subject matter experts in the field of cryptocurrencies. The researcher has built an extensive network of subject matter experts for this population through an active online presence, attending conferences, talks and various technology disruption events held in South Africa. The researcher has also recently taken up employment at one of the big banks in South Africa; this opportunity further benefited the study because the researcher was presented with more opportunities to extend their network of subject matter experts in the banking sector.

4.3. Unit of analysis

This study proposed that expert opinions of the various specialists in the banking sector will form the units of analysis. Therefore, the researcher engaged in meaningful and guided conversation with the population subjects as this allowed them to consider carefully all the possible risks posed to the South African banking sector. The motivation for this approach is supported by Creswell & Poth (2017) as the best method for data gathering that will net the most useful information to answer the research questions (Creswell, 2013). Saunders & Lewis (2012) state that this method provides an opportunity to gain deeper understanding throughout the conversation to answer the research question posed.

Mock interviews were conducted before actual the population for the interviews were contacted, this exercise better prepared the researcher in multiple ways such as identifying if voices were audible enough for the recordings and to eliminate bad habits. Saunders & Thornhill (2014) postulate that this process is a great idea because the interviewer is exposed to some of the difficulties that they may have to deal with during the actual data gathering process and it also helps in identifying ambiguous questions.

4.4. Sampling Method and Size

The SARB defines a bank as a public company registered as a bank in terms of “The Banks Act, 1990, Act 94” (SARB, 2015), therefore there are over fifty banks operating in the South Africa economy. However this study was focused on the reserve bank, retail banks and commercial banks in South Africa.

The purposive sampling method is defined as “a type of non-probability sampling method in which the researcher’s judgement is used to select the sample members based on a range of possible reasons and premises” (Saunders & Lewis, 2012). Saunders & Lewis (2012) also state that this method is appropriate in instances where the researcher is conducting a qualitative study. This study meets the definition given above and therefore considered the following reasons and premises: the relevance of the bank to the South African economy which was defined by parameters such as, the size of the bank (market capitalisation, number of employees employed and customer market share) and contribution to the country’s GDP.

The snowball sampling method is defined as a non-probability sampling procedure where initial respondents provide critical information regarding subsequent respondents (Saunders & Lewis, 2012). This method is commonly used in circumstances where it is difficult to identify members of the desired population (Saunders & Lewis, 2012). However, this study used this method for slightly different reasons. Only one interviewee was requested to recommend other credible experts within the chosen population industries because they had knowledge of individuals who could provide valuable insights. As already been mentioned in section 4.2, the researcher relied on their extensive personal network for the first set of participants for this study and therefore could not pass up an opportunity to enrich the study.

A sample subset of the population was studied, this subset was used to represent the entire population described (Saunders & Lewis, 2012). The sample proposed by this study gathered data from individuals who work for or recently worked for the reserve bank, retail banks, commercial banks, law firms on retainer by banks and other firms that deal with risk and advisory to South African. From the proposed sample, specific individuals from specific departments were chosen for the interviews. These individuals posed the following

characteristics, knowledgeable, seniority and were in strategic positions of the organisations.

Table 1 categorises the respondents as per the industry, sector and society in which they belong. This table also illustrates the enumeration of the designations for the respondents that participated in the study.

Table 1: Enumeration of Industry Experts Based on Industry, Sector and Society

| Industry/ Sector/ Society | Designation | Number of respondents |
|--|--------------------------|------------------------------|
| Commercial /Corporate Banking | Senior Management | 1 |
| Retail Banking | Senior Management | 1 |
| Commercial /Investment Banking | COO | 1 |
| | Compliance Specialist | 1 |
| Central Banking | Team Lead (Snr Position) | 1 |
| Stock Exchange | Financial Architect | 1 |
| Consulting | Director | 1 |
| | Senior Associate | 1 |
| Law Society | Partner | 2 |
| | Associate | 1 |
| Banking Fintec Advisor/ Ex Commercial Banker | Director | 1 |
| Total | | 12 |

Qualitative research samples are generally small for good reason, there is a point of diminishing return as one keeps increasing the sample size (Ritchie, Jane 2013). As the researcher continues to conduct more interviews, they start to identify matters, issues and ideas that would were raised by the first interviewees and this concept is called saturation. Eventually there is a point whereby the researcher no longer receives new data that contributes to the evidence they seek to support the study. The selected sample size of twelve for this study where in-depth interviews were conducted is consistent with the

suggested size by Guest, Bruce and Johnson (2006). A high level of saturation was reached after conducting 11 interviews, however this does not mean to say that the last responded did not add value, they gave the researcher some insightful statistical evidence of what their banks had observed regarding the adoption of cryptocurrencies by high net worth individuals in South Africa.

4.5. Measurement Instruments

Data for this study was collected through in-depth interviews; therefore interviewees were not supplied with a measuring instrument such as a questionnaire, although questionnaires that contain open-ended questions were used (Allwood, 2012). This study also made use of “semi structured interviews” and asked the interviewees a predetermined set of questions that was meant to guide the conversation so that various responses and validity was enhanced (Saunders & Thornhill, 2014). The use of a predetermined list of questions that are commonly known as “interviewer-administered questionnaires” was used and it assisted the researcher in determining saturation and in conducting response coding using the Atlas.ti tool (Saunders & Lewis, 2012).

4.6. Data Gathering Process

Creswell & Poth (2017) have proposed a list of questions for researchers to consider before embarking on the data collection journey. This study followed a similar approach and answered the questions in the fashion below:

Ethical considerations: as prescribed by Creswell & Poth (2017), this study attended to all ethical considerations, starting with ones prescribed by the Gordon Institute of Business Science ethics committee shown in Appendix 3.

Recording permission: respondents were asked whether the interviewer could record them for the purposes of record keeping so that future readers can assess the conversations. Creswell & Poth (2017) present an argument that some interviewees may not be willing to be recorded on audio, hence recording them without permission might jeopardise the success of the interview.

Recording the information: the best approach to collecting data during interviews will be to record the interviewees on audio and simultaneously take down some important notes during an interview (Saunders & Lewis, 2012). The recordings are very useful for many reasons, amongst those being that they afford the interviewer the ability to re-listen to the interview and make notes in their spare time.

Transcribing interviews: after conducting the interviews, the researcher transcribed the entire interview recordings and thereafter confirm with the recording if the information transcribed was accurate, and complete. This will also be a measure of ensuring due diligence (Saunders & Lewis, 2012).

Table 2: The Research Propositions and Mapping to the Interview Question

| Research Propositions from Chapter 3 | Interview Questions |
|--|---|
| <p>Research Proposition 1:</p> <p>Cryptocurrencies are prevalent in South Africa</p> | <ol style="list-style-type: none"> 1. Would you say cryptocurrencies are prevalent? Probe... <ul style="list-style-type: none"> • Increase in enquiries • Increase in usage and acquisition 2. Do you intend to use the currencies if not already using them? |
| <p>Research Proposition 2:</p> <p>Establish the adoption of cryptocurrencies by the South African consumers</p> | <ol style="list-style-type: none"> 1. Have you experienced growth in the SA space in the past 5 years? Probe... <ul style="list-style-type: none"> • Driving factor (financial independence, crime) • Enabling factors 2. Do you think the South African population using cryptocurrencies? <ul style="list-style-type: none"> • Would you be able to say why? (driving factors) 3. What challenges are currently facing growth of cryptocurrencies in SA? |
| <p>Research Proposition 3:</p> <p>Institutions are failing to regulate cryptocurrencies and this will persist for a long time</p> | <ol style="list-style-type: none"> 1. Are you aware of any proposed regulation by global institutions? (i.e. IMF) Probe... <ul style="list-style-type: none"> • What is it? • What does it seek to achieve? • Will it stifle innovation? 2. Are you aware of any regulation by individual governments or bodies such as the EU? Probe... <ul style="list-style-type: none"> • What is it? • What does it seek to achieve? • Will it stifle innovation? <p>Can you think of any regulation that could be deemed appropriate?</p> |
| <p>Research Proposition 4:</p> <p>Cryptocurrencies pose risks to the South African banks</p> | <ol style="list-style-type: none"> 1. Do you perceive any risks posed to the banks in SA? Probe... <ul style="list-style-type: none"> • What are they? • Which banking sector will be affected the most? (Commercial, central, investment etc.)? Why? • What will be the impact of the risks if they manifested? <ol style="list-style-type: none"> i. National, money government? |

| | |
|--|---|
| | <ul style="list-style-type: none"> ii. Customers? <ul style="list-style-type: none"> • Can banks do anything about it? <ul style="list-style-type: none"> i. Will use of Blockchain technology help the banks in any way? How? ii. What else can the banks do? • Can governments do anything to protect the banks? |
|--|---|

4.7. Data Analysis

Data analysis in qualitative research was conducted hand in hand with other parts of developing the qualitative study, namely, the data collection and the write up of research findings (Creswell, 2013). This approach turned out to be brilliant because it helped the interviewer gain valuable information regarding established patterns and consistencies. This information was utilised to fully explore the emergent patterns in subsequent interviews (Saunders & Lewis, 2012). The interview recordings were transcribed and though roughly analysed for trends, consistencies and variations (Zikmund et al., 2013). This study made use of Atlas.ti as a data analysis tool of choice, this tool was recommended GIBS because it is quite friendly to use and it works like CAQDAS a tool that was suggested by (Saunders & Lewis, 2012). Hence, coding for analysis was conducted using reputable software. This study used the thematic analysis, a widely recognised and respectable method of identifying and analysing patterns within qualitative data (Braun & Clarke, 2006).

4.8. Data Validity

Validity is concerned with whether the findings of the study are really what they appear to be about (Saunders & Lewis, 2012). Zikmund et al. (2013) refers to validity as a degree to which the accuracy of a measurement measures the “phenomena in question”, this also provides evidence to whether the measurement is accurately measuring the element. Qualitative research is likely to lead to inconsistent interpretations of data and also likely to be subjected to various biases (Saunders & Lewis, 2012). Therefore, this study applied mechanisms that were meant to eliminate most of the factors that could have jeopardised the validity of the study. Firstly, the selection of the research population was carefully done so as to ensure that the respondent will contribute significantly to the study. Secondly, the questions to be asked during the interviews were subjected to a robust and rigorous process so as to ensure that there is no ambiguity and confusion around the focus of the study.

4.9. Reliability

The definition of reliability that states that a particular method can consistently lead to the same measurements or results has been rejected as trivial and misleading in a book by (Flick, 2014). Silverman (2016) defines reliability simply as assuring the accuracy and inclusiveness of research data. The researcher worked very hard to ensure that errors such as “bias errors” were eliminated by not asking the same question in different ways so as to influence a specific response. The researcher worked very hard to practice objectivity and inclusiveness when analysing the results so as to avoid interpreting the same data in different ways, there by biasing the finding and conclusions (Saunders & Lewis, 2012).

4.10. Limitations

There are a number of limitations around this study and one of the main ones is the conducting of interviews. Getting hold of senior individuals and specialists within the banking sector who will be willing to be interviewed for at least 30 minutes was not an easy task. The qualitative data obtained from some interviews proved to be difficult to analyse since there are limited tools in the industry that perform such tasks. Also, there is one situation where a participant was asked to recommend a subject matter expert in the field, this sampling approach might have resulted in a situation where by the interviewer ends up interviewing individuals who think alike or share the same views on the research problem, there by narrowing the quality of the data collected.

Some of interview questions that address the first proposition of the study, which seeks to establish the prevalence of cryptocurrencies in South Africa, may not have been adequately answered as most respondents predominantly came from Durban, Johannesburg and Cape Town. Therefore this could have resulted in geographical bias from the respondent's answers to the research questions. One other limitation is that, the researcher is not a trained expert on the best practices of conducting interviews, therefore this could have impact on the quality of the data gathered collected (Agee, 2009).

5. Research Findings

5.1. Introduction

This chapter sets out to present the research findings; the layout of the findings is in accordance with the research propositions stipulated in Chapter 3. The findings presented in this chapter are a product of thorough analyses of the data that was collected through in-depth one to one interviews with experts in the South African banking sector. A consistency matrix was utilised in chapter 4 to deduce substantial value from a combination of the interview questions, research propositions stated in chapter 3 and the literature review that was conducted in chapter 2.

5.2. Description of Sample and Respondents

Table 3 presents a list of the respondents that participated in the study; this list seeks to highlight the relevance of the individual expert's contribution. Table 3 also shows a brief summary of the respondent's accomplishments, experience and knowledge in relation to the South African banking sector, this serves as justification for their selection to contribute in this study. As can be observed from the list of respondents in table 3, all participants held senior positions within the organisations that they work for and they in are one form or another responsible for advising on or implementing monetary policies in South African banks.

Table 3: The Research Propositions and Mapping to the Interview Question

| Respondent Name | Designation | More about the Respondent |
|------------------------|---------------------------------------|---|
| Respondent one | Senior Manager: Retail Bank | Respondent one has had an illustrious career in the financial sector in South Africa. He is currently a Senior Manager in charge of Client Experience at one of the leading banks. Respondent one is also a Financial Engineer who dispenses advice on purchasing, mining and trading of cryptocurrencies. Respondent one holds and Masters of Business Administration degree that he obtained 21 years ago in 1996. |
| Respondent two | Solution Architect: Stork Exchange | Respondent two is a "contagiously passionate" Financial Solutions Architect at a Stock Exchange. He currently leads a multidisciplinary Fintech think tank that primarily focusses on developing disruptive |

| | | |
|------------------|---|--|
| | | <p>financial models.</p> <p>He has delivered a significant number of talks around the country at various conferences; his area of specialisation is on disruptive technologies such as Blockchain and cryptocurrencies.</p> |
| Respondent three | Managing Director: Fintech, recently left a Retail Bank | <p>Respondent three is a visionary seasoned entrepreneur who has founded 3 Fintech companies. He has great knowledge of the banking sector as he has also worked for one of the leading banks in the past, he is currently a contributing member of various incubators</p> <p>Respondent three is well versed in the study of cryptocurrencies and therefore has delivered talks around South Africa in the field of cryptocurrencies and the Blockchain technology.</p> |
| Respondent four | Chief Operating Officer: Commercial Bank | <p>Respondent four has been an Executive Head at one of the leading banks for the past 8 years. At the banks, Respondent four is responsible for the Group's Strategic Planning. He is also a qualified Chartered Accountant from the South African Institute of Chartered Accountants.</p> <p>Respondent four has also spent some time as a Consultant Supervisor at one of the leading consultancy firms based in the US.</p> |
| Respondent five | Partner: Law firm | <p>Respondent five is a Partner at one of the prestigious law firms in South Africa, where she practices as a Technology, telecommunication, Media and Intellectual Property Lawyer. Respondent five has over 15 years of experience as a Technology Lawyer</p> <p>She holds a Masters of Laws – LLM from a prestigious university.</p> |
| Respondent six | Partner: Law firm | <p>Respondent six is a Partner at one of the prestigious law firms in South Africa, where he practices as a Financial Regulatory Lawyer. Respondent six also practices as a Financial Advisory and Intermediary Services lawyer. He is an expert in Banking Law, Stock Exchange and Securities Law.</p> <p>Respondent six has worked extensively with the National Credit Act of 2005 as well as dealing with matters related to the JSE.</p> |
| Respondent seven | Senior Strategic Analyst: Corporate | <p>Respondent seven is a Senior Manager in charge of the Strategy and Research department at one of the leading banks. Most of</p> |

| | | |
|-------------------|--|---|
| | Bank | <p>Respondent seven's research is based on emerging technologies such as Blockchain, Machine Learning, in Payments and cryptocurrencies.</p> <p>Respondent seven holds and Masters of Business Administration degree from a prestigious university.</p> |
| Respondent eight | Director: Consultancy firm | <p>As an Associate Director at a consultancy firm, Respondent eight is currently leading the Fintech and Blockchain capability in South Africa. Respondent ten has extensive experience in the SA Financial Services Industry.</p> <p>Also an entrepreneur, Respondent eight mentors financial startups at boot camp programs in South Africa</p> |
| Respondent nine | Senior Associate: Consultancy firm | <p>Respondent nine is a Senior Associate in the Digital competency of the advisory line at one of the leading consultancy firms; Respondent nine has worked within the Financial Services industry in multiple countries in Africa</p> <p>Respondent nine has also been a Mentor for start-up boot camp accelerator programs based in South Africa. As a mentor he was assisting start-ups in creating business models and refining their value propositions.</p> |
| Respondent ten | Associate: Law firm | <p>Respondent ten is an associate in the Financial Regulatory Practice at a prestigious law firm. She is experienced in financial and insurance regulatory law and commercial litigation.</p> <p>She obtained her LLB from a top university in South Africa with a distinction.</p> |
| Respondent eleven | Business Unit Head: Central Banking | <p>Respondent 11 has extensive knowledge of the inner working of the SARB as he held a senior position at the SARB for over 4 years.</p> |
| Respondent twelve | Compliance Specialist: Investment Bank | <p>Respondent twelve spent more than 4 years at a retail bank in South Africa and has spent more year the her current job as a financial compliance specialist looking after regulation and governance.</p> |

5.3. Results Presentation

Some of the information provided by the respondents was verified by the researcher before including it into the study, case in point figure 11.

Table 4: Top 16 Commonly Referenced Themes

| Name | Grounded |
|------------------------------------|----------|
| ◇ Prevalence in South Africa | 43 |
| ◇ Blockchain Technology | 41 |
| ◇ Ease of Use | 40 |
| ◇ Increase in Awareness | 39 |
| ◇ Risks Posed to SA Banks | 34 |
| ◇ Lack of Regulation | 29 |
| ◇ Increase in Acquisition | 24 |
| ◇ Utilisation as Investment Assets | 24 |
| ◇ Trust | 23 |
| ◇ Disintermediation of Banks | 22 |
| ◇ Utility of Cryptocurrencies | 17 |
| ◇ Dominance of Cryptocurrencies | 17 |
| ◇ Enquiries | 16 |
| ◇ Scepticism | 14 |
| ◇ Business Adoption | 14 |
| ◇ Financial Transactions | 14 |

Table 4 presents the 16 commonly referenced constructs that were articulated by the respondents as they were addressing the research propositions that were introduced in chapter 3. Context to these themes will be presented within this chapter and though roughly discussed in chapter 6.

5.4. Research Proposition 1 Results: Prevalence

Proposition 1: Cryptocurrencies are prevalent in South Africa

The purpose of the research proposition 1 is to establish the prevalence of cryptocurrencies in South Africa. The prevalence of cryptocurrencies was explored from multiple lenses:

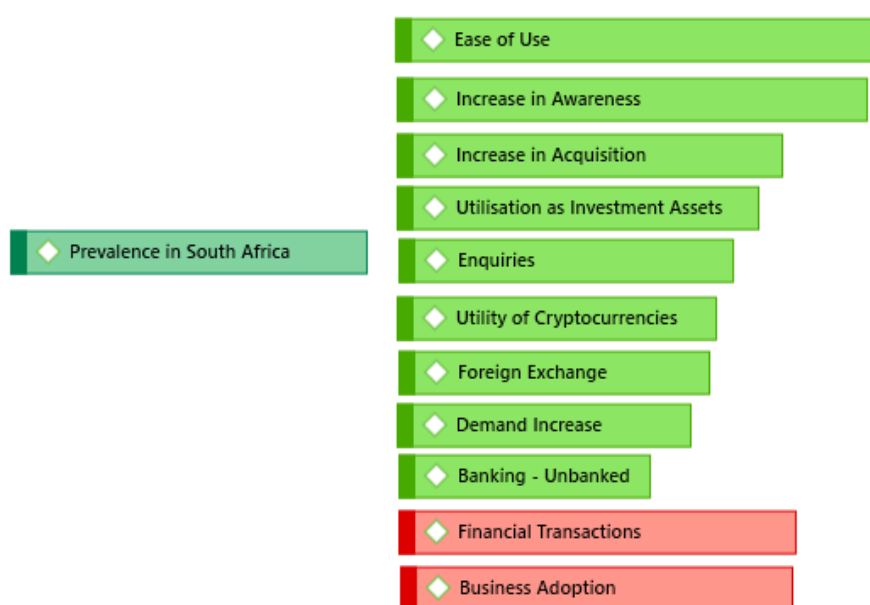
1. The increase in awareness by the South African populace
2. The increase in the number of enquiries of cryptocurrencies by the South African populace.
3. The increase in acquisition cryptocurrencies by the South African populace.
4. Increase in utility of cryptocurrencies by the South African populace.

The question of prevalence is broad and one could measure various aspects pertaining to

prevalence, hence the respondents were asked follow up questions regarding the aspects that contribute to prevalence. In order to establish the prevalence of cryptocurrencies in South Africa, there is a list of questions that had to be answered by the respondents:

1. Would you say cryptocurrencies are prevalent? Discuss
 - I. Increase in awareness
 - II. Increase in number of enquiries and acquisition
- a) What are the driving and enabling factors for question 1?
- b) Do you intend to use the currencies if not already using them?

Figure 9: Factors Impacting Prevalence of Cryptocurrencies in South Africa - Network Diagram



Question 1 that was asked, along with the follow-up probing questions that sought to confirm that cryptocurrencies are indeed prevalent in South Africa. There were a significant number of themes that were drawn out of the conversations with the industry experts who participated in the study, regarding the prevalence of cryptocurrencies in South Africa. Figure presents the 11 common themes that were articulated by the respondents. Amongst the 11 constructs that were identified to contribute strongly towards prevalence, “increase in awareness” was extremely high.

The constructs shown in figure 9 are accompanied by colour coding, red and green colours that signify their contribution towards or against prevalence. A good example of the construct that contributes towards prevalence is “utilisation as investment asset” which has a green colour. The size of the bar signifies the quantum of mentions of a particular construct by respondents. On the same token, red coloured bars such as the one accompanying the “financial transactions” construct, signifies that most respondents also said that

cryptocurrencies are not yet prevalence in South Africa because there is limited use of these currencies for settling transactions.

Table 5: How Respondents Answered the Question on Prevalence

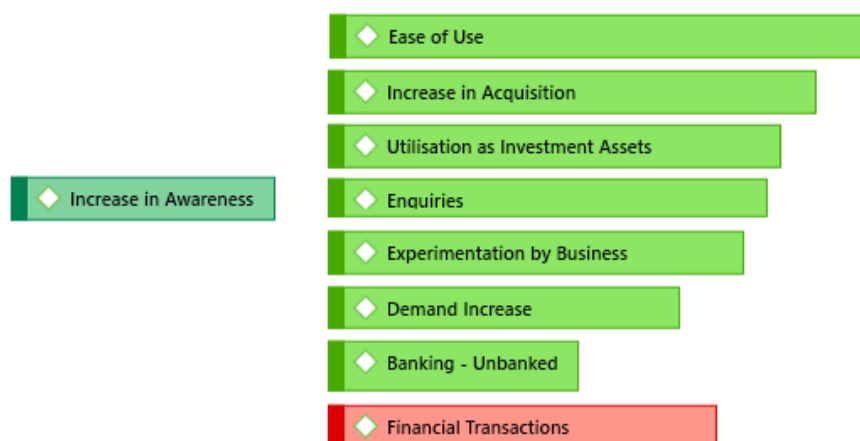
| R1 | R2 | R3 | R4 | R5 | R6 | R7 | R8 | R9 | R10 | R11 | R12 |
|----|----|----|----|----|----|----|----|----|-----|-----|-----|
| | | | | | | | | | | | |

Table 5 presents the responses that were given by the respondents when they were asked if cryptocurrencies were prevalent in South Africa or not. The green tick signifies the respondents who agreed with the proposition, whereas the red x represents respondents who disagreed with the proposition, hence 58% of the sample agreed with proposition 1. Therefore; 58% could signify how moderate the impact of cryptocurrencies could be on the banking sector.

5.4.1. Awareness

Table 4 shows the number of times participants mentioned awareness in relation to prevalence. When observing the data through the “awareness” lens, it is evident that most respondents are of the view that a majority of the South Africa population is aware of cryptocurrencies. As already discussed, awareness alone does not suggest prevalence, however when combined with other measures such the number of enquiries, acquisitions and the degree to which cryptocurrencies are used in South Africa, prevalence becomes a relevant construct for discussion.

Figure 10: Prevalence and Increase in Awareness Network Diagram



Most participants are of the view that the majority of the South African population is fully aware of the cryptocurrencies and that the number of enquiries has significantly increased over the past 5 years. In response to the first question which elicits the views of the respondents about the prevalence of cryptocurrencies in South Africa, a Financial Solutions

Architect made the following statement.

“The one think I would say though is that, it’s of high interest to most people, I think it’s gotten mainstream to the point where, if you say Bitcoin to somebody in the street they will know what you are talking about. They may not be able to explain Blockchain, they may just say, oh it’s that high value thing or it’s like a scam but they’ve heard of it. So the point is; it’s crossed into like mainstream consciousness now.” (R2)

One of the partners from a law firm based in Cape Town concurs with the views expressed by Respondent two and goes further to explain that, it’s not all the members of the population that own cryptocurrencies, however there is more awareness of these currencies in South Africa.

“I mean, there are many people who have Bitcoin, who might have some Bitcoin, I don’t think everybody holds Bitcoin. I don’t think it’s everywhere, I don’t think it’s a...the average man on the street necessarily owns Bitcoin, but it’s certainly present; I don’t know how prevalent it is”. (R5)

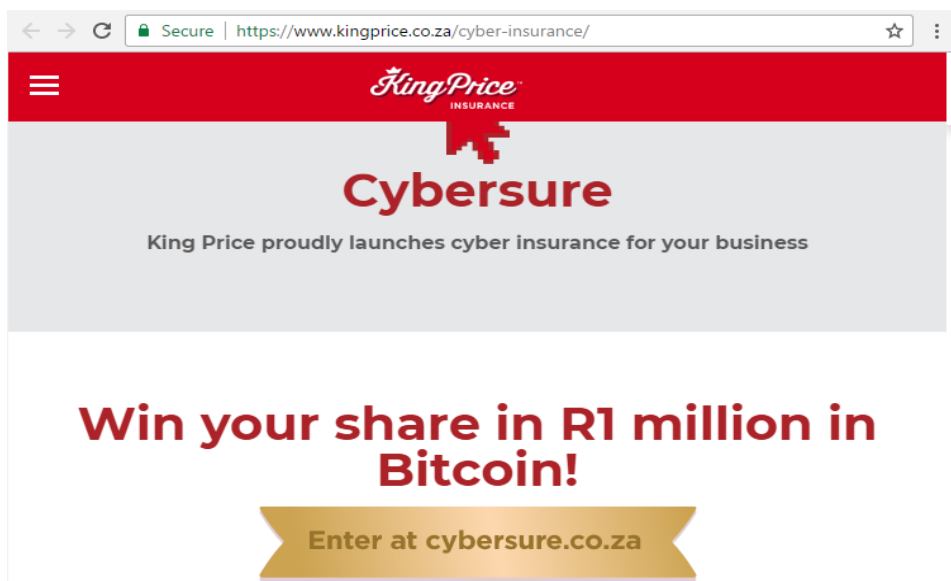
Respondent eight a Director at consultancy firm actually stated that cryptocurrencies are “absolutely prevalent” in South Africa; his explanation of this view was based on practical experiences that most people in the country have undergone over the 2017 festive season. He made mention of probably one of the most popular conversation examples that transpire at social gatherings, this example is in regard to a relative enquiring about cryptocurrencies.

“Just based on Luno’s numbers or based on just conversations over braais and Christmas dinner tables and things, it’s absolutely prevalent, to me it’s becoming something that people are getting involved in, whether they understand them or not is another question, or whether they understand them fully is another question, but absolutely people are getting into this space through Bitcoin and then Ethereum largely because Luno has made that easy, and probably easier than anybody in the world has made it to be honest because their user experience is excellent.” (R8)

Respondent one, a Senior Manager at a retail bank who has conducted some research in the field of cryptocurrencies in South Africa mentioned some examples of well publicised events where big retail companies have associated themselves with cryptocurrencies. During the data verification process, the researcher found the image shown in Figure 11. This image shows an advertisement that was aired on national television by the King Price Insurance Company and also advertised on their official website. The image depicts the price money that will be won by the successful competitor which is the equivalent of one Million Rands in Bitcoin.

“Yah, and last night I saw on television that King Price actually gives you a million Rands of Bitcoins as a prize. I mean, it’s the full-size television advert.” (R1)

Figure 11: Prevalence and Awareness Network Diagram



Respondent nine, a Senior Associate from a consultancy firm mentioned another well-established big retailer in South Africa (Pick n Pay), who according to (R8) conducted a marketing exercise when they announce that they had successfully integrated Bitcoin onto their payment system.

Respondent four the COO of a cluster at one of the top banks in South Africa is of a slightly different opinion that is contrary to the five previously mentioned respondents in regard to the prevalence of cryptocurrencies.

“So, I don’t think they’re yet prevalent, can...I think the better question is, can they be prevalent? That’s maybe a better word.” (R4).

However during the conversation, Respondent four used an example that perhaps supports the views expressed by the five previously mentioned participants. His example supports the proposition which states that cryptocurrencies are prevalent in South Africa as he addressed awareness and acquisition.

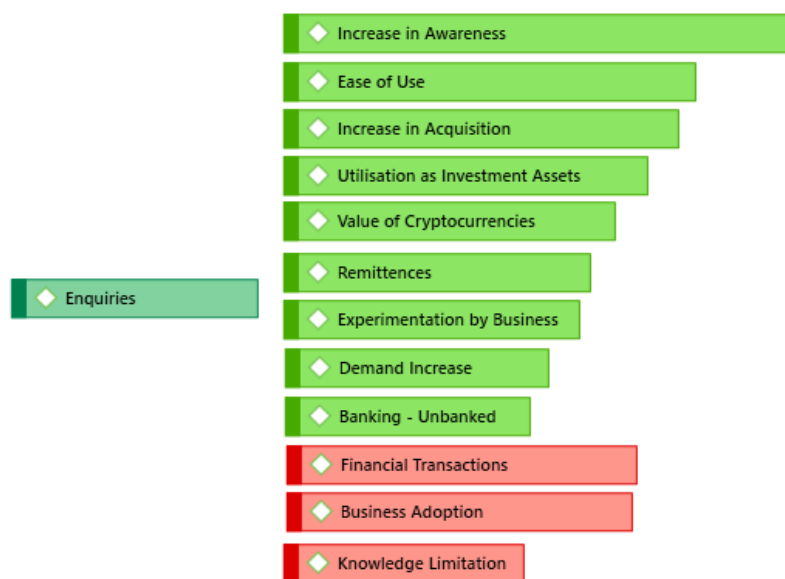
“I think we have seen an increase in people buying Bitcoins. When you start hearing a housewife talk about buying Bitcoins, I think we have seen an increase in buying.” (R4)

The question of prevalence may have not been eloquently put to Respondent four in regard to the awareness, enquiries and acquisitions, but his example certainly suggests a high level of awareness and acquisition.

5.4.2. Enquiries

Figure 12 shows the number of times the participants mentioned Enquiries in relation to Prevalence. When observing the data through the “enquiries” lens, it is evident that most respondents are of the view that a majority of the South Africa population is aware of, and enquiring on cryptocurrencies. Figure 12 also shows other constructs that are boosts the number of enquiries in the country.

Figure 12: Prevalence and Enquiries Network Diagram



The data collected shows that there has been an increase on the enquiries related to the cryptocurrencies in South Africa, some of the respondents gave personal encounters where they have been asked by friends, family and personal contacts on how to obtain cryptocurrencies. Respondent one is one good example; he has received numerous enquiries from a lot of personal contacts, though he asserts that the increase in number of enquiries he receives is not of exponential nature.

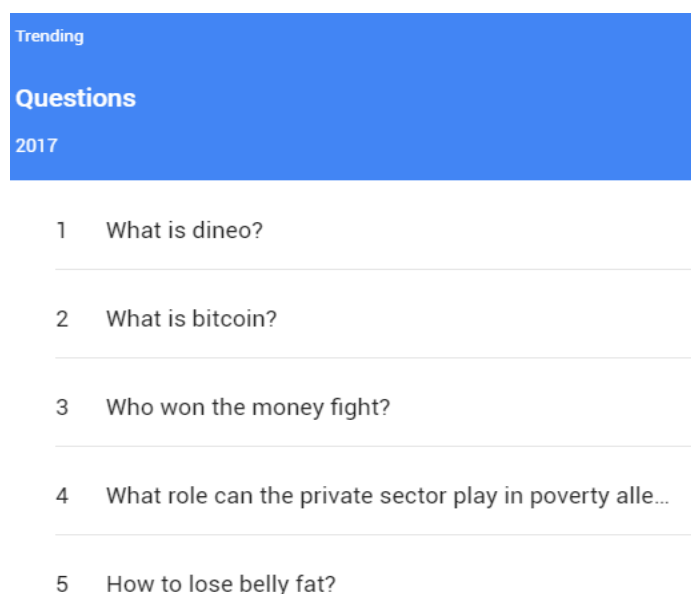
“I can definitely say that there’s more anticipation, there’s more...I’ve received more personal contacts of people asking questions. So, definitely, I think it’s a...I won’t say it’s exponential growth, but there’s definitely an increasing trend.” (R1)

Respondent ten on the other hand said that interest in cryptocurrencies was very high in South Africa and advised the researcher to utilise Google Trends and extract information regarding the most searched terms in the country. Figure 13 below gives evidence to Respondent ten’s statement, “what is Bitcoin”, Bitcoin one of the most prevalent cryptocurrencies around the world was the second highest searched term after the term “Dineo” a hurricane that devastated Mozambique.

“We’re looking at people who are...in South Africa, one of the most searched terms in 2017 was, how do I buy Bitcoin? How do I buy cryptocurrencies? People are doing research into

this because of the sudden demand in interest. In South Africa alone, I mean, the market capital, it's millions.” (R10)

Figure 13: Most Popular Search Terms in 2017 by South Africans (Google Inc, 2017b)



“So, there is a lot more interest in it. There’s a lot more people who are interested in understanding how it works, how so much money is being made off of it, how do we get it, what do we use it for, how do we unlock the value in it. So, there is definitely a lot more enquiries about it.” (R10)

Respondent two concurs with the views expressed by Respondent one and Respondent ten as he has also experienced an increased in the number of South Africans enquiring about cryptocurrencies. These enquiries are of a various nature though, some individuals just want to know what these currencies are, and other individuals actually want to start acquiring these currencies. He goes further to cement his point by giving an example about his mother, whom he describes as an individual who hasn’t kept up with technological advancements; however she wanted to acquire cryptocurrencies.

“I mean when my mother comes to talk to me about what her friend mentioned about Bitcoin mining and this is my mother who’s talking to me about this, you know it’s crossed over. My mother just got a Facebook account like two years ago so, the point is that that kind of thing is showing that at a grassroots level and also from a non-technical level basically that people are asking questions about it and local organisations like Luno and ICE³X are making it easier for people to acquire Bitcoin.” (R2)

Some participants who contributed to the study are attorneys that provide legal advice to some of the largest businesses in South Africa. Therefore; while responding to a question

regarding the enquiries their law firm has received from corporate clients, Respondent five alleged that the number of instruction regarding cryptocurrencies has definitely been on the rise in past few years. Hence the results obtained suppose that the number of enquiries by South Africa businesses has been increasing.

“So, you mean are we getting more instructions around cryptocurrencies? Yes, yes. So, we are. Lots of clients come to us and ask for our advice around cryptocurrencies, or crypto tokens are the other new growth area. So, remember the cryptocurrencies, you know, for example, the Bitcoin.” (R5)

5.4.3. Acquisition

Figure 14: Prevalence and Acquisition Network Diagram



Figure 14 shows the number of times the participants mentioned acquisition in relation to prevalence. When observing the data through the “acquisition” lens, it is evident that the measure of prevalence will also be directly influenced by the steady growth of cryptocurrencies acquisition in South Africa. Various other constructs that contributed to acquisition were remittances, “utilisation as an asset” ad ease of use.

There was consensus amongst the participants regarding the increase in acquisition of cryptocurrencies by the South African population and most respondents attributed the increase to the availability of 2 cryptocurrencies exchange companies that operate in South

Africa, namely Luno and ICE³X. Cryptocurrency exchange companies enable individuals and companies to purchase cryptocurrencies using fiat currencies. In the case of Luno and ICE³X, these 2 companies enable South Africans to acquire cryptocurrencies such as Bitcoin and Ethereum using the South African Rands (LUNO, 2017; ICE³X, 2018)

Respondent twelve gave a statistical example from her business unit; they have experienced an increase of 30% on the number of transactions conducted by their clients. These transactions are done via intermediaries, since the bank does not currently offer cryptocurrencies.

“In the last tax year, from my business unit perspective, we have seen an increase of 15% enquiries, 30% transactional behaviour, transactional behaviour being the acquisition or the selling of Bitcoin.” (R12)

As a means to paint a picture on how the South African population has grown to appreciate and seeks to acquire cryptocurrencies, Respondent four asserted that enquiries about buying cryptocurrencies are now emanating from unlikely sources. Segments of our population who, under normal circumstance would be expected not to be buying these currencies are looking for information on how acquire cryptocurrencies.

“I think we have seen an increase in people buying Bitcoins. When you start hearing a housewife talk about buying Bitcoins, I think we have seen an increase in buying.” (R4)

Although Respondent three believes that the acquisition of cryptocurrencies has increased in South Africa, he posits that a significant increase may have only been experienced in the past few months. He also attributed this increase to the availability of 2 companies that have registered as cryptocurrency exchanges in South Africa, more especially Luno.

“They have picked up that, I think over the last three months, they’ve tripled their number of subscribers, their members. Their members have just shot up, every month by three times. So, they are doing very well and it’s those kinds of apps that give you the access to the market.” (R3).

Respondent three raised another thought-provoking way of interpreting behaviour of the South African population as far as acquisition of cryptocurrencies is concerned. He suggested that better acquisition of cryptocurrencies will be achieved once cryptocurrencies have been properly regulated in South Africa. In a way alluding to the fact that acquisition of cryptocurrencies has not been that high.

“So, the consumers won’t use it, because they have no idea. The moment it gets regulated, the consumers know that there is a bigger body looking after my interests, and it’s therefore safe to go into this technology. So, you’ll always find that innovation happens first, regulation tends to follow.” (R3).

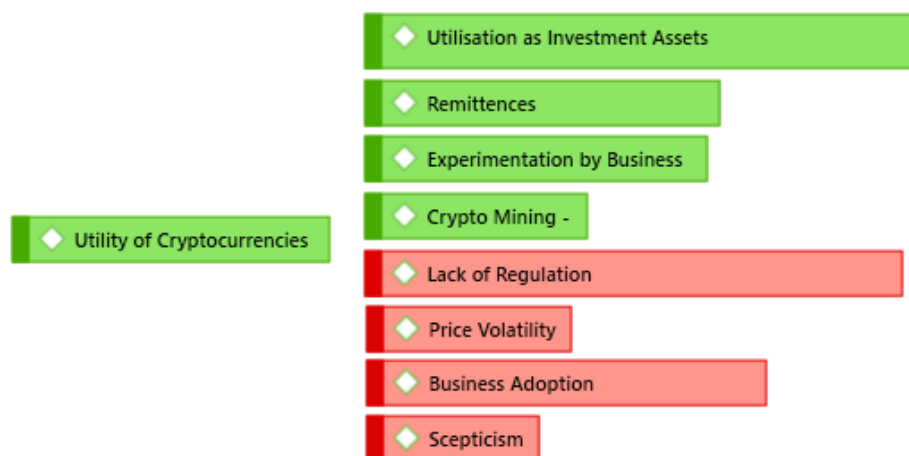
This view was echoed by other respondents, Respondent six made a similar statement to the one made by Respondent three as he expressed some frustration on behalf of the population. He said South Africans will maintain a negative attitude towards the cryptocurrencies as long as they are not regulated. Therefore, advocating that regulation will pave a way for greater adoption of cryptocurrencies in South Africa.

“I think the first thing is regulatory uncertainty. People don’t know how cryptocurrencies will be regulated, they don’t know if it’s lawful or not, so there’s just a lack of regulation that I think puts people off.” (R6)

5.4.4. Utility

The data obtained shows that the utility of the cryptocurrencies as a means of transacting is extremely low if not close to non-existent in South Africa. Respondents mentioned that there were various aspects to utility of cryptocurrencies in South Africa. The first aspect of utility was the use of cryptocurrencies as an investment asset that accumulates value, the second aspect of utility was the utilisation of cryptocurrencies for settling transacting and the last aspect of utility was utilisation by business. Figure 15 show the number of times mentioned the utility of cryptocurrencies in relation to prevalence, along with other constructs that contributed towards and against utility.

Figure 15: Prevalence and Utility Network Diagram



5.4.4.1. Utilised as Invest Products – Increase in Value

When observing the data through the “utility” lens, it is evident that most respondents are of the view that a majority of the South Africa population are not conducting financial transactions to settle bills with cryptocurrencies, however they are acquiring and keeping cryptocurrencies as investment assets that appreciate in value. This behaviour is driven by value of cryptocurrencies as depicted in figure 16, most people are still hopeful that the value of cryptocurrencies will continue climbing.

Figure 16: Price of Bitcoin and Ethereum in South Africa (LUNO, 2017)



Respondent three asserts that, the true value of a cryptocurrency is when it is used as a payment mechanism. However his reasons as to why South African would acquire cryptocurrencies and keep them as assets are twofold. The first reason has already been depicted in figure 17; it's that most people believe that value of the cryptocurrencies will continue to appreciate. The second reason is that, there are not enough mainstream retailers or places to spend a Cryptocurrency such as Bitcoin.

“Currently, what do you do with it? You buy Bitcoin for investment purposes and that's all. And it's not an investment purpose. That's a side... it's almost a Bitcoin side chick. It's something on the side, but it's not the true value. The true value of Bitcoin is a payment mechanism, its currency, I pay with you it. It's not there for an investment.” (R3)

Respondent ten also agrees with the views expressed by Respondent three, that currently in South Africa, individuals who own cryptocurrencies are not spending them on goods and services, but they rather keep them as a means of investment.

“I think its actual usage hasn't grown that much, because I think what we're doing is, we're seeing people holding cryptocurrencies as a speculative instrument for trading.” (R10)

Respondent ten continued explain the same point while making reference to South Africa specifically

“And now, I don't think that it's that particular use. I don't think that using Bitcoin to buy goods and services has increased in any way... I think our use of Bitcoin has evolved dramatically from buying goods and services specifically in South Africa, to now holding it as an investment.” (R10)

As already mentioned, most respondents stated that many South African citizens who own cryptocurrencies are currently holding on to them as assets that will appreciate in value. However, Respondent four was of a different view as he stated that these currencies should not be used as an asset, but a mechanism of settling transactions.

“The reason I won’t own them as an asset is I don’t think that a cryptocurrency is an asset. It’s merely a mechanism of settling a transaction. It’s like saying to me, would I own a US Dollar, and a US Dollar for me is a currency and not necessarily an asset.” (R4)

5.4.4.2. Utility by Mainstream Businesses

Utility by corporate citizens in South Africa is growing and this is supported by the evidence presented by law experts who participated in the study. Also, evidence already presented in this paper shows that law firms who provide legal advice to banks and corporate firms in South Africa have experienced significant growth in the number of instructions related to cryptocurrencies. Respondent five gave examples of how the corporates were using cryptocurrencies and one of the uses was to develop product mixes that are based on Bitcoin. Unfortunately most of these financial products are designed to steal market share from the banks, by various corporates.

“So, it’s like a derivative product really, where when you own that token, you own an investment product that’s based on Bitcoin, but you don’t own the Bitcoin itself. So, I think there’s a lot of growth around and a lot of interest in crypto tokens, and viewing cryptocurrencies almost as an underlining asset class, really. If you think of it as gold, or as an asset based, and then there’s some very creative ways in which one can wrap products around those” (R5).

One other good example of how the South African mainstream businesses are using cryptocurrencies has been presented in figure 10. One of the corporate companies has run massive competitions and promise to pay-out the competition winners in cryptocurrencies. It is noteworthy that while all these events have been transpiring, the South African government did not intervene negatively or positively.

While still addressing the utility of cryptocurrencies in South Africa, Respondent five did however mention that the bulk of the work that they received in relation to cryptocurrencies comes from online retailers. This does make much sense though as one could imagine that it would be easier for an online retailer that already has multiple digital methods of payment already integrated onto their platform to accept cryptocurrencies. The other motivation for online retailers is that, their clientele is no stranger to digital wallets and virtual currencies, therefore adding cryptocurrencies to their list of payment methods would not have a negative impact on customer experience.

“So, I think we’re seeing it...I’m seeing it terms of a payment space. You know, we do a lot of work for online retailers, for example, and you’ll see a lot of websites are now offering payments in Bitcoin.” (R5)

Amongst some of the uses of cryptocurrencies in South Africa, the “cryptocurrency mining” business is quite popular. As already mentioned in chapter one, there are great rewards for Cryptocurrency miners. Respondent five is familiar with individuals that have decided to earn a good living through the mining of cryptocurrencies; this might not be the most popular use of these currencies since mining is not a cheap and easy exercise.

“So, they...there are people who are setting themselves up to run businesses that do nothing but mine Bitcoin, where they get paid very well and it seems to deliver a decent living. So, I think those are probably the three main uses that I’m sort of seeing in South Africa.” (R5)

Although a majority of the respondents stated that, there are not enough places for one to spend their cryptocurrencies, Respondent nine referred the researcher to explore a company called PayFast, an e-commerce and online payment gateway (PayFast, 2018b). Via the PayFast gateway, customers have access to a substantial number of mainstream retailers where South Africans can spend their cryptocurrencies, these include Landrover, Jaguar, Rawson properties and many more (PayFast, 2018a).

“And I think PayFast did Bitcoin integration, and that has largely driven a lot of retailers to start accepting Bitcoin payments. If you go through Luno’s sort of got a blog post sort of outlining it, it’s quite old, but I think by Bitcoin standards it’s a few months old. Just highlighting different retailers where you can actually spend Bitcoin. And then I went through sort of most of them, if you choose PayFast as your payment provider, you can use Bitcoin there. And then most notably, you’ve got Takealot.” (R9)

Over and above the companies listed on the PayFast website, there are a significant number of global companies that were mentioned by respondents during the data gathering process. The list of these companies include PWC who are currently accepting Bitcoin in Hong Kong, although not yet in South Africa, Takealot an online shopping business, Rand Merchant Bank Insurance who are developing product offering based on the Bitcoin and a lot more corporates that were not disclosed by the law firm partners.

“We’re accepting cryptocurrency” (R8)

Respondent eight goes further to recall a conversation he had with a colleague regarding using cryptocurrencies as a payment mechanism in Hong Kong.

I’m not sure, I know...I’ve chatted with Henry yesterday, so the guy was mentioning the guys based in Hong Kong, so we’ve declared in Hong Kong that we will accept cryptocurrency in payment, Bitcoin specifically. We don’t do it here yet...” (R8)

Respondent eight and Respondent nine are in agreement with the assertions already made in the literature regarding the cryptocurrencies being listed as another method of payments on multiple platforms that already accepts various digital methods of payment. Respondent eight goes further to express the simplicity of integrating a cryptocurrencies as one of the payment methods to an existing online platform.

“So, if you put up a thing that says, pay here with Bitcoin, then it’s boom, done. Then that’s quite a small step from using Snapscan. It’s quite a big step from paying with cash or your credit card.” (R8)

Respondent nine concurs with Respondent eight’s statement and framed his agreement in the following way *“It’s not new for the client services industry to alter that behaviour, because people are still trying to get South Africans to move from cards to cash. So, it’s not something that’s new in the financial services industry, but it is that extra sort of step of...I think as Respondent eight says, if you can integrate it seamlessly into what consumers are used to.” (R9)*

One of the most prominent reasons that were put forward by the respondents was that the value of cryptocurrencies was still appreciating; they asserted that this is a major deterrent for most individuals from using their cryptocurrencies to conduct regular business such as paying for goods and services. Respondent one made a good example of his personal experience as he explained a situation where he once paid in Bitcoin for services rendered at his place of residence. He goes further to mention that he would not be using his cryptocurrencies to pay for services anytime soon as he believes that the value of these currencies will appreciate.

“So, as an example, a guy came to my house and we started chatting, and we both acknowledged that we’re in cryptocurrencies, in Bitcoin specifically. And he did some work for me, and I asked him if he would be able to accept Bitcoin, and he said he did, and I paid him in Bitcoin. He gave me his account and his invoice, and I paid him in Bitcoin. So, I’m not eager and keen on using my Bitcoin, because I believe it’s going to still increase in value, so I want to keep what I have.” (R1).

Respondent one was not the only participant who has used their cryptocurrencies to conduct business to settle transactions. Sheshree has also used her Bitcoin to purchase a laptop from a well-known online retailer that has multiple distribution centres in South Africa.

“I bought a laptop off of Takealot with Bitcoin. When Bitcoin was doing very well, I used a piece of my Bitcoin.” (R10)

Respondent eight also volunteer some information regarding a purchase he made using Bitcoin.

“I bought my first Bitcoin in 2016, and then bought my wife a Christmas present using Bitcoin, just because I wanted to, because it was fun. So, I bought a scarf online from a start-up in Cape Town. If I look at it as a financial decision, no, it’s a disaster. It’s an R300.00 scarf, and it’s now more like five or ten grand.” (R8)

Although, there are a number of participants who have used their cryptocurrencies to settle transaction, there was strong consensus that it may not have been a good idea to spend the cryptocurrency. This was because of the same reason already mentioned by Respondent one, that there is a strong belief that the value of the cryptocurrencies will increase significantly in the future.

At the beginning of the interview with Respondent two, he introduced various other reasons why countries would be very receptive to cryptocurrencies or virtual currencies in general. He posits that countries whose financial system has collapsed have no stable currency for transacting; therefore these countries are prone to find solace in the US Dollar or recently adopt cryptocurrencies and virtual currencies. Good examples of these 2 countries are Zimbabwe which has adopted the Bitcoin and Kenya which has adopted Mpesa.

“In Zim, specifically, I mean, the fact is, their currency has failed, mostly due to like just politics...The first thing people did in Zim when their currency collapsed basically was moved to using the dollar, the US dollar.” (R2)

He goes on, further describing the Zimbabwean case and asserts that there is quite a big presence of Zimbabweans working South Africa; therefore one of the uses of Bitcoin is remittance. Zimbabweans earn their salaries in Rands, purchase Bitcoin and send it to family members across the border. He also describes this process of sending money across the border as pain less, less costly, quicker and has less friction. This however does not only apply to Zimbabweans in South Africa, it applies to all foreigners who would like to take their funds out of the country.

“So, they’ve been effectively making payments faster and easier and lowering the friction to payments that banks generally have. Remittance which is ultimately like sending money overseas, like back home to like...I’m from Zimbabwe, I work in South Africa, but I send money home to my family. Doing it, using formal banking channel is an absolute pain and it’s also highly costly and it takes a long time to do it.” (R2)

5.4.5. Conclusion on Proposition 1 Findings

Table 5 would suggest that prevalence is not very high in South Africa as 40% did not support the proposition. However when evaluating constructs such as awareness, acquisition, “utility as investment” that make up prevalence, it is evident that the percentage of individuals who disagree with the proposition will come down. Perhaps the researcher should have asked question 1 again at the end of the interview to see how many respondents were going to change their answer after spending more time thinking about other construct that make up prevalence.

Key takeaways from these results are that, some banks that have high net worth clients are going via intermediaries to assist their clients in closing deals that are financed through cryptocurrencies. Respondent twelve gave example of property and foreign currency deals that involve large sums of money. Large corporate are seeking to produce new financial products that are based on cryptocurrencies because there are no barriers for this yet. Financial products based on fiat currencies are regulated in South Africa, new products based on cryptocurrencies are not, and they are cheaper and compete directly with bank’s products hence speeding up disintermediation.

Hence, before regulation comes in effect, many people and businesses are actually reaping the benefits cryptocurrencies as the banks are losing out on market share.

Other key takeaway was that most respondent actually view cryptocurrencies as means of settling transaction, not an investment vehicle, which is currently the practice in South Africa. Further analysis and discussion will be presented in chapter 6.

5.5. Research Proposition 2 –South Africans have Adopted Cryptocurrencies

Establish the adoption of cryptocurrencies by the South African consumers

5.5.1. Driving Factors for the Adoption of Cryptocurrencies in South Africa

Respondents had a lot to discuss regarding the driving factors that increase the adoption of cryptocurrencies in South Africa. Although some of the enabling factors were discussed in the literature, there were various explanations to these factors that were unique to South Africa.

Figure 17: Driving Factors for Adoption



5.5.1.1. Trust

The aspect of trust was brought up by most respondents; however it was discussed through various lenses, three to be exact in this section. Firstly, there is a view that was expressed by many respondents who postulate that the cryptocurrencies can be trusted because they are built upon a very secure platform which is the Blockchain technology. Secondly, data presented in this paper shows also shows that there is some level of distrust placed upon cryptocurrencies because they are not regulated in South Africa, this of course impacts their adoption negatively and is discussed under the challenges, section 5.3. Lastly, there are many respondents who mentioned that most people have lost trust on the banking sector after the 2008/ 2009 Global Financial Crisis (GFC). Most participants stated that the GFC is the driving factor at a global scale, less so in South Africa although there were remnants of individuals who are still critical of the banking industry.

5.5.1.1.1. Trust on the Blockchain technology

Many respondents discussed the aspect of trust in relation to the Blockchain technology, alluding to how safe and secure the technology, upon which cryptocurrencies are built on, is. This is an important driver for individuals who might be looking for an alternative means of transacting in their day to day business.

“The block chain technology is one that is facilitating a transaction between two individuals which creates trust through a mathematical complex transaction, and one doesn’t have to disclose who one is.” (R4)

Respondent two concurs with Respondent four’s views as he posits that the Blockchain technology affords one trust with having to rely on the middlemen.

“Being a trusted middle man is under threat because you have a technology which allows for trust without requiring somebody to sit in the middle”. (R2)

5.5.1.1.2. Lack of Trust on the Financial Sector

The aspect of trust was also stated from the point of view of individuals losing trust on the banking sector and there were multiple references of the 2008 global financial crisis. The global financial crisis of 2008 has also been attributed to inception of cryptocurrencies as civilians were seeking means of engaging with economies via avenues that that are removed from the banking sector.

“And it’s that system that sits outside of the bank, it sits outside this idea of the banks will work together and nobody gets to see what the banks do, and nobody trusts the banks after 2008.” (R10)

Respondent four passionately agrees with this view as he states that most people don’t trust financial institutions.

“And they don’t trust financial institutions anymore, to be honest. They don’t.” (R4)

The lack of trust on the financial sector drives individuals to seek alternative means of engaging with the economy. In this case, it turns cryptocurrencies are a safe haven for those who have lost or limited trust in banks.

5.5.1.2. Adoption by Mainstream Businesses

The aspect of cryptocurrencies being adopted by some businesses in South Africa has been presented and discussed under the utility section. Businesses such as Takealot and Superbalist already accept Bitcoin as a payment mechanism. Having other businesses such as a consultancy firm being in a position to negotiate options with their clients that could potentially allow clients to pay for services in Bitcoin is definitely a driving factor.

“Yeah, I think from a sort of operational perspective, if we were going to do it, it would have to be...if you want to pay us now. What we’d have to do is say, if you want to pay us in Bitcoin, here’s the web address. When you pay, our rand rate will be converted to a Bitcoin amount and you pay then.” (R8)

Respondent ten cited a similar reason for the adoption of cryptocurrencies to the one already mentioned by Respondent eight.

“I think a factor that has made it prevalent over a long period of time, has been companies like Takealot and a lot of businesses who have decided to accept Bitcoin, for example, as a form of payment for goods and services.” (R10)

5.5.1.3. Anonymity

Respondent four raised the concept of anonymity which has been considered as huge driving factor for the adoption of cryptocurrencies. Respondent four argues the point that, it is close to impossible to be able to be anonymous and conduct untraceable transactions on the current banking network and infrastructure. However, anonymity can be achieved when conducting business in cryptocurrencies; this is desirable for most individuals who may not want revenue authorities to have a full view of their earnings and dealings.

“And I think if one looks at cryptocurrency, today there is a bit of anonymity associated with it. It’s almost like you can do it without anyone knowing, and I think in the financial services world, today that is not true. There is no transaction you can do that way. You have to prove who you are, where you live, are you a registered tax payer, and then only then will the bank accept you as a client.” (R4)

He goes on to marry the concept of anonymity with criminal elements that could be borne out of people conducting transactions anonymously. Serious crimes such as money laundering could be perpetuated on this platform.

“And I think one can say, yes, I don’t want to abide by those laws, but the problem with that is then one is encouraging terrorism, money laundering.” (R4)

5.5.1.4. Remittance

Introducing the concept of cross border trading and transfer of funds, Respondent five started by acknowledging the flexibility of cryptocurrencies, Respondent four then raised some concerns over the current banking platform for being very complex and having many challenges. Respondent five also highlighted the attractive qualities of cryptocurrencies when they are used for remittances. The advantages of cryptocurrencies that Respondent five highlighted were basically speed and low transaction costs.

“But there are others who like the flexibility of holding Bitcoin, and I think that there are a lot of use cases for it. There are multiple uses that one can use Bitcoin for that traditional currency is difficult for. So, I will give you an example: money remittances, right?” (R5)

Respondent four was in agreement with Respondent five as he echoed her statement.

“That is the part that is quite exciting. Some of it for cryptocurrencies I think is immensely challenging, but the power of cryptocurrency is that you would get away of this cross-border complexity.” (R4)

5.5.1.5. New Product Offerings – Expanding Product Mix

The innovation of cryptocurrencies has brought forth more ideas on how businesses can better serve their customers through the creation of new products that never existed before in the market. This is exactly what Respondent six has been dealing with at their law firm. Their banking corporate clients are seeking advice on the legality of new products that they want to send to market.

“I think from my perspective, most of the clients that come and see me, come and see me with new business plans, new proposals that they want to have me look at from a legal perspective. So, I would say the motivation is new ventures, new offerings.” (R6)

Respondent five has also had a lot of clients seeking to expand their product offering in the cryptocurrencies space.

“And a lot of them are sort of new products that might our clients might be looking to roll out, a lot of clients look to see whether it’s legal to do it here, and can they do it, what are the regulatory requirements.” (R5)

5.5.1.6. Testimonials and Success Stories

Respondent three posits that one of the major drivers for the adoption of cryptocurrencies in South Africa is the number of testimonials of individuals who have made profits from investing in these currencies, hence supporting the idea that a majority of cryptocurrency owners treat these currencies as investment assets that appreciate in value. The data presented in this paper already shows that there are much more individuals acquiring cryptocurrencies than the ones using these currencies to settle transactions. One of the major reasons for this is that the value of the cryptocurrencies has been increasing since exchange companies such as Luno started operating in South Africa.

“Bitcoin is prevalent, more and more people know about it, and the driving factor behind it is the amount of money that people has made. The market is littered with stories of people that invested R2,000.00 at the beginning of the year, and suddenly that R2,000.00 is worth R7,000.00.” (R3)

Respondent ten echoes Respondent three’s views as she narrows down the discussion and suggests that the primary driver for the adoption is the availability of social media. According Respondent one, social media has played a huge role as a driving factor because smart phones are now affordable in South Africa.

“I think the enabling factors are predominantly, social media. I think it has a lot to do with a lot of social media telling people how much cryptocurrencies are worth, how much people are making off of cryptocurrencies, etcetera. So, I think that’s what sparked the sudden interest in it in South Africa.” (R10)

5.5.1.7. Security

Respondent three made a comment regarding the security employed by the Blockchain technology when securing people’s cryptocurrencies from hackers. He posits that it is extremely difficult for criminals to gain access into individuals’ wallets and that this security has actually been proven to be one of the attractive features of cryptocurrencies. This opinion was shared by most respondents.

“Another thing that affects adoption is the fact that you’ve got a Bitcoin address that’s unpronounceable, that 0X126A42B with lower case and uppercase letters in between.” (R3)

5.5.1.8. Fear of Missing out (FOMO) and Status Symbol

Respondent eight suggested that one of the driving factors which probably emanates from the testimonies that people have heard is the Fear of Missing out (FOMO). This concept was however not resented in literature and it was quite something unique. However the researcher actually validated Respondent eight's response by uncovering studies by Rifkin, Cindy, & Kahn (2015) on this subject.

"It's FOMO, and it's a cool thing to be in. So, where people uses to talk about that...well, people still talk about this, the iron man or the, or their...what's the other thing? Their MBA" (R8)

5.5.2. Enabling Factors for the Adoption of Cryptocurrencies in South Africa

Along with the driving factors for the adoption of cryptocurrencies by the South African population, respondents were asked to discuss the enabling factors for the adoption of cryptocurrencies. This proved to be a fruitful exercise as the respondents enumerated significant factor are unique to South Africa, and some factors that would apply to most countries discussed in the literature.

5.5.2.1. Infrastructure and Mobile Phones

Respondent one enumerates some of the enablers as he addresses the question put to him regarding the acquisition of cryptocurrencies in South Africa. He asserts that, a majority of the population in South Africa has smartphones, the country also has steady and solid infrastructure, which enables cryptocurrencies to thrive.

"A lot of people have smartphones, so it's very easy for a person that has a cell phone to actually start using cryptocurrencies. So technology in the sense of smartphones is a huge enabler. I think our technology infrastructure is also solid which makes it easier for cryptocurrencies to thrive." (R1).

5.5.2.2. Availability of Cryptocurrency Exchanges

Complimenting Respondent one's statements, Respondent eight made mention of the presence of the cryptocurrency exchange companies such as Luno and IC3x that have made it much easier for South Africans to acquire cryptocurrencies.

"Whether they understand them fully is another question, but absolutely, people are getting into this space with Bitcoin and Ethereum, blah-blah, because Luno has made that easy. It's probably the easiest that anybody has made it in the world, to be honest. Their user experience is excellent." (R8)

5.5.2.3. Banking the Unbanked

Some respondents stated that South Africa has a huge population of unbanked individuals and therefore this has been an enabling factor to the adoption of cryptocurrencies in the country. The fact that South Africa has a huge unbanked population and also has some online businesses accepting cryptocurrencies provides a stable platform for increasing adoption of cryptocurrencies.

Particularly in South Africa, and how it differs from a country like the US, is that we have such a great, unbanked population". (R10)

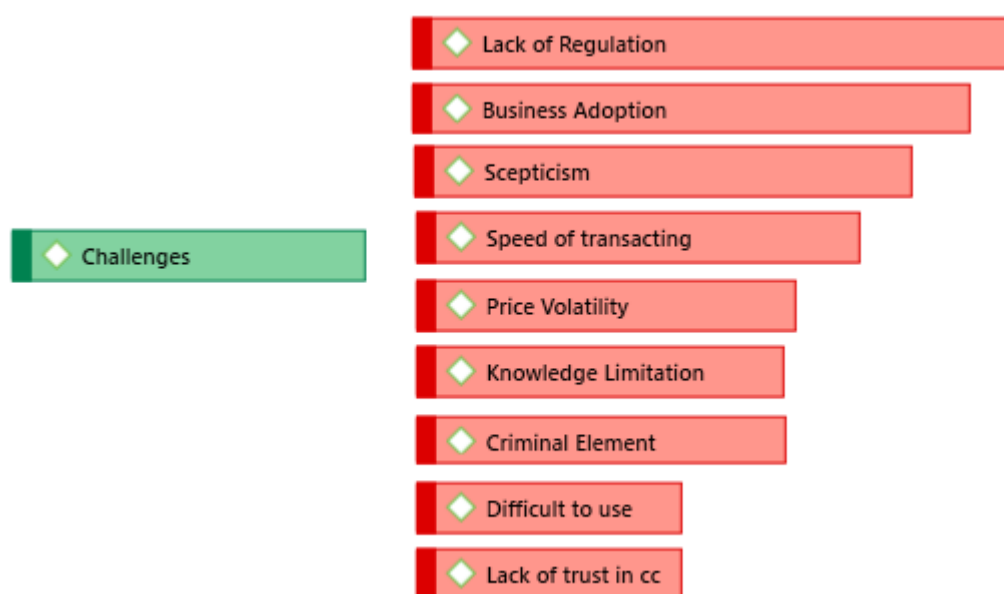
Respondent one was of a similar view with Respondent ten regarding the cryptocurrencies providing financial services and products for the unbanked population in South Africa.

"So, about the forces driving it, I think there's a huge opportunity for firstly, banking the unbanked. In other words, it's an opportunity for people that cannot get financial services like banking products and so on, so they can very easily open up an e-wallet and they will be able to make use of the wallet, and the infrastructures of the block chain to help them make their money safe." (R1)

5.5.3. Challenges That Affect Adoption

Respondents were asked to discuss challenges that contribute negatively to the adoption of cryptocurrencies in South Africa and there challenges mentioned as shown by the table figure 18.

Figure 18: Challenge Impacting Adoption



5.5.3.1. Regulation Uncertainty

Regulation uncertainty is a significant challenge contributing negatively towards the adoption and prevalence of cryptocurrencies in South Africa. Many respondents stated that most people are not adopting cryptocurrencies because they don't know what the future holds for these currencies, if they were to be banned by the government, many people will lose their money.

"I think the first thing is regulatory uncertainty. People don't know how cryptocurrencies will be regulated, they don't know if it's lawful or not, so there's just a lack of regulation that I think puts people off." (R6)

Respondent ten mentioned a scenario that could possibly be a major challenge experienced by most South Africans who earn extra revenue through trading in cryptocurrencies. Individuals who earn money in South Africa get taxed for their earnings, if they purchase cryptocurrencies with their earnings, they will be taxed again when they convert their cryptocurrencies back to Rands. However this scenario could possibly only affect cryptocurrencies that are not yet available in South Africa via the exchanges such as Luno.

"And the SARB recognised that...if you bring Ethereum back into the country and you sell that Ethereum for South African Rands, it's not considered to be a repatriation of the money that was taken out. So, if you took out a million and then you brought Ether back, and you sold Ether for a million, you haven't been regarded as restoring the money you took out of South Africa." (R10)

Building on the previous point, Respondent ten combines the concept of repatriating funds with the current prevailing concept that cryptocurrencies could be viewed as assets. Currently, when a business sells their assets in another country and they may choose to repatriate the funds back to South Africa. Since cryptocurrencies are not country bound, it is not clear how the government will classify the sale of these currencies to a company that is registered outside South Africa. Respondent ten asserts that the government may also face challenges on how to regulate cryptocurrencies since these currencies are out of the SARB's jurisdiction.

"Because there's this whole issue of...well, is a cryptocurrency an asset, is it not an asset, where did you buy it? If you sell it in South Africa, is it really regarded as being sold in South Africa? Do cryptocurrencies have a jurisdiction?" (R10)

5.5.3.2. Scepticism

Scepticism was also identified as a challenge with strong ties to the lack of regulation of cryptocurrencies. Some respondents stated that there is still some level of distrust in cryptocurrencies by the South African population. Respondent four gave an example of how some people view cryptocurrencies; he stated that there is uncertainty on whether these currencies are legitimate or not.

“The regulation ties in quite closely to the legitimacy of it, and I think there’s a whole scepticism around the crime, you know? Is it a facilitation for money laundering, or is it a facilitation for terrorism” (R4)

5.5.3.3. Lack of Adoption by Mainstream Businesses

Although this paper has mentioned a long list of businesses where South Africans can spend their cryptocurrencies, there were some respondents who stated that more businesses were still required to adopt cryptocurrencies. As an example, none of the low cost giant supermarkets and clothing retailers has adopted cryptocurrencies as a payment mechanism yet. A majority of the South African population spends their earnings at the low cost affordable food and furnisher retailers such as Pick n Pay who have trialled the use of Bitcoin but are not yet offering their customers to pay in cryptocurrencies.

“Pick & Pay had that well-publicised bit...it’s a relatively shallow...” (R9)

5.5.3.4. Trust:

The aspect of trust was discussed again at length by most respondents, although this time around, they were discussing this issue under circumstances where by it impacts adoption of cryptocurrencies negatively. The common thread of the discussions was that the aspect of trust is tightly coupled to the aspect of regulation; some respondents stated that the regulation of cryptocurrencies in South Africa will give them the much needed legitimacy.

5.5.3.4.1. Lack of Trust in Cryptocurrencies

With respect to the adoption of cryptocurrencies, not all discussion about the trust aspect were supportive of the proposition, some participants asserted that cryptocurrencies haven’t yet earned the trust that is still being enjoyed the banking sector. *“An intermediary creates trust, and that’s why intermediaries exist. So, if one can eliminate the lack of trust, cryptocurrencies will become immensely powerful.” (R4)*

Respondent four also alluded to the fact that cryptocurrencies will be more prevalent in South Africa if they were to be legitimised by a financial institution such the South African Reserve Bank, hence gaining trust amongst the population.

“So, when people are deciding to buy cryptocurrencies, let’s say Bitcoin, there is a lot of trust involved because you are not buying something backed by the Reserve Bank.” (R5)

Respondent four formulated a similar understanding regarding the idea of cryptocurrencies being legitimised by a financial institution.

“But I think that ties in with regulation. If it’s regulated and people are confident about it, then they will transact. The regulation ties in quite closely to the legitimacy of it, and I think there’s a whole scepticism around the crime, you know?” (R4)

5.5.3.5. Cryptocurrencies Origin

The concerns about the regulation of cryptocurrencies were brought up by every single participant; Respondent one asserted that most people still question the legitimacy of cryptocurrency because of their source of origin. The secrecy around the origin of cryptocurrencies has resulted in some individual like Respondent one classifying them under criminal activities.

“But because its origin is the dark web, people are associating it with the bad guys. But I think globally and proportionally, it’s a very small amount that actually goes to that. So, I think that’s the one thing. So, I think it’s a good thing that companies are applying regulation.” (R1)

5.5.3.6. Complexity of the Blockchain Technology

Some participants mentioned that the adoption of cryptocurrencies was still hampered by the technical complexity of the Blockchain, the terminology used and the architecture. Respondent six posits that the complexity of the architecture deters potential adopters.

“They read about it, and they start learning about things like block chain and distributed ledger technology. It just becomes incredibly complicated and it just puts people off. So, I think those are the barriers really to take up with cryptocurrencies.” (R6)

Although Respondent three is a proponent for cryptocurrencies, he also believes that the acquisition of cryptocurrencies is still a complicated process for most South Africans.

“But it’s not main stream yet, it’s still very techy, it’s still just your early adopters that are willing to risk money on that. What happens with this type of thing, people can’t see it and it is so flawed with technical terms like block chain, and immutable, etcetera, that it scares a lot of people.” (R3)

Over and above Respondent three stating the complexity of the cryptocurrencies technology, he goes further to mention that South Africa has not had cryptocurrency exchanges for a long enough period for the population to start reaping benefits. He posits that Luno and IC3x are fairly new operators in the South African market as compared to well established Coinbase who operate in the United States.

“I think twofold, technology is not freely available yet, apps like Luno have only just come out, the apps like Luno make the integration between your normal bank account and your FIAT, your normal cash currency, Rand currency, and it connects that with the Bitcoin platform.” (R3)

5.5.3.7. Price Volatility

Price volatility of the cryptocurrencies was also mentioned as a major deterrent for most South Africans from using their cryptocurrencies, a couple of respondents said that some individuals and corporate companies were not happy to accept cryptocurrencies as a form of settling transactions because they could lose value just a few moments after the transaction settles. The evidence presented by Respondent three below is related to an actual event he experienced, because of the volatility of cryptocurrencies, the value of the amount he received depreciated significantly.

“And cryptocurrencies are so volatile at this stage, you put a thousand bucks right now... it will drop to nought tomorrow and your money is gone... Incidentally, it happened to me. Right in the beginning, I did it as an investment. I bought Bitcoin, and just as I bought it, it dropped by about 1000%. I almost owed the guy money that I bought it from. So, yes it keeps on being very volatile, and that scares people as well.” (R3)

Respondent eight raised a similar concern to the one raised by Respondent three on the issue of price volatility, Respondent eight stated that the volatility is a disservice to cryptocurrencies being used as a payment mechanism.

“And the whole volatility stuff that we’re seeing. I don’t know if you’ve seen all the Bitcoin stuff this morning, but the whole volatility story is one that doesn’t lend itself to any kind of payments mechanism as we know.” (R8)

Respondent six concurs with the previously mentioned views and his submission was that, most people would be scared of losing their money, therefore will not engage with cryptocurrencies.

“I think the volatility of cryptocurrencies such as Bitcoin, is something that a lot of people are scared about, and finally, it’s a difficult concept for people to understand.” (R6)

5.5.3.8. Slow Speed of Settling Transactions

Respondent four brought up challenges regarding the speed of conducting a transaction when using cryptocurrencies such as Bitcoin and Ethereum. Some cryptocurrencies currently take longer to settle transaction as compared to using cash, debit cards and credit cards.

“I think we still have some challenges around speed, I think that’s an issue that will get better and better, but at the moment it’s quite slow. Cryptocurrency takes quite a long time to settle, and I think if you look at a payment platform, that’s effectively what one settles transactions in the world, like Visa and Master Card.” (R4)

Respondent eight concurs with the view expressed by Respondent four regarding the slowness of cryptocurrencies when settling transactions that a client would expect to be concluded in a few minutes.

“We all know about the...well, the supposed slowness and lack of scalability, but the thing is the slowness when you buy online doesn’t actually matter.” (R8)

5.5.4. Conclusion on Proposition 2 Findings

Some participants brought up concerns about crime and the safety of owning cryptocurrencies. Respondent three explained the difficulty criminals would encounter if they wanted penetrate the security of cryptocurrencies. According to Respondent three, for a criminal to be able to gain illegal access to and steal cryptocurrencies, they would have to attack quite a large number of computers at the same time, an exercise close to impossible. He also asserted that security is a big concern, even for the bank and he gave an example where multiple US Banks’ security was breached in one night.

“And if you think of the big international banks, at a stage about two years ago, eight of the big American banks were hacked on the same night. Those banks spend billions of dollars on security, online and internet security and they still don’t get it right. So, the criminal element will always be there. With regards to Bitcoin, what makes it safe, is that the network is not situated on one server, it’s situated on every single Bitcoin miner’s computer. We’re talking about hundreds of thousands of computers outside that has exactly the same copy of the Bitcoin block chain. So, if you want to hack the Bitcoin block chain, you need to hack all of these computers at exactly the same time.” (R3)

He went further to explain by supplying an estimate number of computers that will have to be compromised for a criminal to gain access to people’s cryptocurrencies.

“Well, 150000 I think, is the number of computers currently on that network. All of them at the very same moment, if you don’t, the others will just kick out the computers that’s changed, so that’s why you cannot hack into that thing. Where you can hack, is guessing

somebody's password. Now, those passwords are normally quite difficult, and it has all kinds of strings. It's a technical thing, so it's very safe. But you always have the criminal element that's gonna try and find stuff." (R3)

While putting forward an argument against the idea cryptocurrencies being considered complicated and difficult to understand, Respondent two raises an interesting debate as he states that people trust the current financial system blindly, this is probably because the current financial system has been adequately regulated, hence has gained trust. Respondent two elaborates further with an example whereby countries have collapsed their own financial system conducting activities such as printing extra money unnecessarily.

"How many people understand how monetary policy actually deploy, how many people understand how monetary policy is influenced, nobody asks those questions but ultimately these are the things that the currency basically is affected by. The Blockchain is just another, a set of technology, a set of rules just like the monetary policy of the reserve bank that affects how this thing has value as well. People look at that and say: "that's a scam", people can see how monetary policy can be influence, right? Look at Zim, right, when they print out, when the literally print more money, that's monetary policy right, but they don't call that a scam." (R2)

5.5.4.1. Speed not an Issue Conclusion

While addressing the issue of transaction settlement speed, Respondent eight asserts that the time delay is insignificant for certain transactions where goods and services could take longer to be deliver.

"It's quicker than swiping your credit card, technically. Okay, your credit card...there's a guarantee your credit card is instant, but if you buy something online, it doesn't matter if it takes an hour for the transaction to validate." (R8)

Respondent eight continues with this argument and gave a practical example where by goods still have to be delivered by an online retailer.

"We can argue it takes an hour for the transaction to get properly validated and that kind of stuff, but in an online context, that's fine. He waits for an hour before he packs the scarf, and then he will send it to me. Maybe he does it a day after anyway, so it doesn't matter." (R8)

Respondent two support Respondent eight's views as he states that there are other cryptocurrencies that settle transactions much faster.

"A Bitcoin transaction can be done in like a minute or three minutes on average. There are other Cryptocurrencies that work a lot faster than that." (R2)

Respondent eight gives an example of Litecoin, another cryptocurrency with fast processing of transactions and is actually much faster than the likes of Bitcoin.

“So, when you’ve got sort of things like Light Coin and that sort of side changes, it speeds things up and enables things, so who knows?” (R8)

5.6. Research Proposition 3 – Lack of Regulation by Institutions

Institutions are failing to regulate cryptocurrencies and this will persist for a long time

5.6.1. Regulation

All participants expressed concerns regarding the lack of regulation of cryptocurrencies in South Africa. Therefore; this has resulted in illegal activities being conducted and these activities being associated with cryptocurrencies because of the lack of adequately regulation. Many respondents however associated the lack of regulation with criminal elements.

“I think cryptocurrencies are good and bad. I think the bad is they’re not regulated, which allows people to effectively use the financial system to do illegal business, which isn’t great.” (R4)

Respondent twelve mentioned that some their clients are already moving large sums of money via cryptocurrencies because there no regulation as opposed to transacting in cash.

“Moving large sum and conducting large transactions and it makes it easier for the clients since there is less regulation.” (R12)

While addressing the legality of cryptocurrencies in South Africa Respondent ten, a Financial Regulatory Practitioner categorically stated that the use and trading of cryptocurrencies is not illegal in South Africa. However, it would seem that this distinction is not fully understood by many people in the country.

“For the record, cryptocurrencies is not illegal in South Africa. So, it is legal to trade in cryptocurrencies in South Africa.” (R10)

Respondent ten goes further to explain the position of the South African government

“South Africa is still trying to understand it in order to regulate it, our position is still at your own risk. That is where it is. There is no regulation for cryptocurrencies in South Africa yet. So, currently, I think globally...and we saw hat with the fork. It’s so much of a self-regulated environment.” (R10)

Respondent seven concurs with Respondent ten’s view that there is no regulation and goes

further to assert that none is required for cryptocurrency exchanges either.

“What about regulation? There is no regulation. The banks think they can control it but they’re not going to. If that is already in place and I don’t need a licence, who says I need a licence to take deposits?” (R7)

Respondent two enumerates a few trading exchanges around the world that have put out regulation remotely related to cryptocurrencies.

“Unfortunately not, from a trading perspective very few exchanges like formal regulatory exchanges in the world are, in fact the only one doing it, there’s two actually...a few months ago Nasdaq in Stockholm announced that they would be listing a Bitcoin’s future, so a Bitcoin future contract is ultimately, it’s not actually Bitcoin, it’s a piece of paper that says: “I believe the value of Bitcoin will be x-percent for..”, if it’s seven thousand three hundred dollars now, three months from now I believe it’s value will be nine thousand dollars and then you can trade this piece of paper which is really a promise.” (R2)

5.6.2. Proposed Regulation

The purpose of this research is to also benefit the relevant institutions that are in charge of financial regulation in South Africa to gain better understanding on how to regulate cryptocurrencies. Therefore, participants were asked to proposed regulation they would deem appropriate for cryptocurrencies.

Respondent three pointed out that the best way he deems fit to regulate cryptocurrencies by institutions is to regulate companies that handle cryptocurrencies. He posits that this will give cryptocurrencies the legitimacy they seek

“You can regulate a company that works with Bitcoin and that is a good thing, because it lifts the stigma of cryptocurrencies and Bitcoin, because there has been a stigma that it’s the dark web, and it’s criminals, and all of those things.” (R3).

Respondent eight is of the view that it would be best to regulate exchange companies that facilitate the acquisition of cryptocurrencies. He mentioned the type of regulation that is already in place by companies such as Luno. He mentioned implementing “Know Your Customer” (KYC), a piece of legislature that has already been implemented by banks and various financial institutions. This legislation seeks to combat money laundering.

“Luno is doing that. They’ve got an entire page dedicated to KYC...” (R8)

Respondent nine finished Respondent eight's sentence regarding the type regulation already put out by Luno and banks such as FNB.

"Most of the exchanges have actually been very good at KYC, and they're actually quite a good example for other banks on how to do KYC. But I can KYC from my phone, versus if I want to open an account at FNB, I have to go into the branch." (R9)

Respondent ten however contradicts the view put forward by some participants who want governments to release regulation aimed at cryptocurrencies. She is pretty clear on what the regulation should be and suggest that the communities who are engaging with cryptocurrencies should be left to decide on the rules that should govern the operations regarding these currencies. She also explains the limited role that should be played by governments and legislature.

"In South Africa, my view is that it needs to be a self-regulated regime. Similar to the way in which the JSE and exchanges operate on a self-regulatory basis. The idea being that they get to decide what their rules will be, and then you have a broader framework legislation that says, you can decide what your rules are going to be, just remember your rules can't do this and this. But you get to decide. Make sure that the markets don't fall apart, make sure that nobody is cheating in the market, and make sure that nobody is abusing the market." (R10)

She gave an example of how these communities have been functioning and making decisions through a voting process on how to enhance cryptocurrencies.

"The environment gets to decide that, how much it's worth. Then the environment also gets to decide how it should improve, or what kind of protocols we need to adopt to make it better. It's not governments that get to decide that. But in the same way, if it's the community that wants to decide this thing, then it's also the community that needs to take responsibility for how the market operates, how consumers are dealt with and when consumers get hurt." (R10)

Although Respondent ten believes that the cryptocurrencies communities need to be self-regulated, she however appreciates the minimal involvement of governments and institutions to provide oversight on matters regarding money laundering and tax. As per the examples given by Respondent ten this is a valid point since governments and institutions are better equipped to monitor such kind of activities.

"But if you look at the US where...and the UK and Singapore, the main focus of these regulations is not what it should be or how should we classify this, it's around money laundering and tax. Those are the main issues that regulations are focusing on in the US, and Singapore, in the UK, the EU where they've been asked to introduce legislation around anti-money laundering, that is a potential big risk for cryptocurrencies." (R10)

Respondent two is a proponent for the regulation and cautions how regulation should be approached. He proposed a tempered approach that will not stifle the innovation of cryptocurrencies.

“Regulation completely has the ability to stifle innovation, I’m not a believer in strong regulation, I’m a believer in regulation should be there to ultimately protect people not to control something, because regulation must be in service of something not to try and dominate something for the sake of dominating it. A good example, China is famous for being highly regulated to the point where it basically throttles innovation.” (R2)

5.7. Research Proposition 4 – Risks Posed to Banking Sector

Proposition 4: Cryptocurrencies pose risks to the South African banks

Many respondents could easily enumerate risks that are posed to the South African banks as the adoption of cryptocurrencies is seemingly on the rise as per the evidence given under proposition 1 results section. Although some participants did not consider cryptocurrencies to be prevalent in South Africa, there was overwhelming evidence that there is a very high level of awareness, enquiring and acquisition of cryptocurrencies by the population.

5.7.1. Lack of Trust in Financial Sector

Banks could lose most of their customers because of the lack of trust on the financial sector these customers could choose to conduct all their transactions in cryptocurrencies. Attractive qualities of these currencies have been covered at length in this paper.

As already mentioned, the aspect of “trust” featured significantly in the responses from the respondents. Many respondents expressed the lack of trust on the financial sector by the public; this came out to be one of the major reasons why people would prefer cryptocurrencies over dealing with banks. Respondent four addressed the concept of trust in conjunction with the concept of banks being viewed as intermediaries who provide products and services. He supposes the risks to the banking sector could be dire if cryptocurrencies played the role of a trusted intermediary in regard to financial transactions in South Africa.

“It’s trust, and what will happen is, by eliminating the intermediary, one will make the transaction less... there will be less friction in the transaction, so it means there will be less costs. It will be faster, easier, cheaper to do it.” (R4)

He goes further to elaborate and quantifies the risk posed to the banks

“I think it’s a huge risk to banks. I think it’s definitely a big risk to banks, from a payment point of view, a huge risk. And I think it’s something they definitely need to be very conscious of. They could effectively disintermediate, as these platforms are not used anymore, and cryptocurrency platforms are being used.” (R4)

5.7.2. Banking the Unbanked Population

The concept of banking the unbanked population was brought up by many respondents and was thought to be particularly a big issue in South Africa. Part of the mandate of most South African banks from their shareholders is to expand and acquire as many as customers as they can so as to increase profits, therefore regarding the unbanked population that the banks were hoping to acquire as clients, this process could prove to be impossible as they now have other means of engaging with the economy on the outskirts of the banking sector.

“And we still have that sector that’s marginalised by the banking sector, that’s marginalised by the financial services sector, and now you have cryptocurrencies that sit outside of it. You have cryptocurrencies which you can hold as an asset, which you can use to buy and sell, and we have this whole system that doesn’t sit there, that’s telling people that one, we’re based on pure technology so all you need is a phone and access to the internet, and two, you don’t need a bank account to do this...” (R10)

5.7.3. Transactional Banking

Respondent one was probed further so as to determine which segment of the banking sector was going to experience most of the threats posed by the prevalence of cryptocurrencies in South Africa. He mentioned that transactional banking would be impacted the most because most people will not be settling their transactions using fiat currencies but will be transacting in cryptocurrencies. Regarding concept of banks customers switching from cheque and credit cards, there currently exists cryptocurrency cards therefore some people may continue using their cards to pay, but those cards will have cryptocurrencies instead of Rands.

“I think the most widespread segment of the financial industry and banks that are going to be hit. As more people come into using Bitcoins and cryptos, they’re not going to use banks to do the normal banking transactions of cheque accounts, of...I’m thinking carefully now in terms of cards. So, your card usage, because there are crypto cards that you can use.” (R1)

He gave another example of services that are currently supplied by the banks. Small businesses currently settle their transactions via the banks. This paper already presented information regarding PWC and how they bill some of their clients in Bitcoin while operating overseas in Hong Kong. There is not much that hinders other companies from settling their

transactions in Bitcoin here in South Africa. If businesses to business transactions were to be conducted in cryptocurrencies, this would result in big losses of revenue for South African banks.

“The second one is business to business, that’s already happening. So, that’s your small business, business banking, and even corporate banking.” (R1)

5.7.4. Traditional Banking Monopoly

Banks in South Africa could lose their oligopolistic advantage and in turn this could reduce their revenue inflow

Respondent seven discussed the concept of traditional banking in a grim light as he accused the banks to be part of a monopolist club subservient to the top rich 1% of the population. He goes further to state the reasons why he thinks the banks are ripe for disruption.

“The bank dominates the financial services, they are slow, it’s expensive, its monopoly, and it’s the one percent, the one percent of all the wealth belongs in the financial services sector. The wall street guys, they can manipulate.” (R7)

5.7.5. Lack of Transparency in Traditional Banking

Banks could lose most of their customers because of the lack of transparency on how they conduct their business. Some respondents posit that customers value transparency and that there is more transparency in the way which cryptocurrencies operate; this transparency is brought upon by the distributed ledger technology.

Referring to the Goldman Sachs bank and the other top five banks in the US, Respondent seven laments a situation where by banks are allowed to accumulate large amounts of loans that they do not declared on their balance sheet. He stated that banks traditionally abuse the concept of derivatives and are also protected by the governments; therefore there is not much transparency in the dealings of the banks.

“If you look at their balance sheet, they are supposed to have assets and loans and that makes them liquid. But guess what happens with derivatives? It’s off balance sheet? Who did that? The government allows them to have off their balance sheet and it’s not visible and it’s illegal. So, Goldman Sachs, these five banks hold about fifteen trillion derivatives. Goldman Sachs derivatives are about two thousand percent higher than what the actual balance sheet allows. But all this derivative trading has created enormous wealth for the one percent. That’s just one example of how the regulation suits the banks.” (R7)

5.7.6. Power of the Blockchain Technology

Respondent seven also discussed the simplicity to which financial technology companies can now set up an entire banking platform using the Blockchain technology, thereby bypassing and rendering the current banking system obsolete. Of course the best currency for such infrastructure will be a cryptocurrency.

“You can get an entire bank on a platform, in a cloud on a platform with APIs and I can link this bank, if I wanted to, if I didn’t want to, I don’t need to. I can link exchanges, channels, anything to any other organisation or person and I don’t need a licence to do it. And everything is electronic, and everything is in the cloud and I don’t need a licence and it’s one hundred percent safe if I put it onto the Blockchain and there are no third parties. Is this a threat to the SA banks? Absolutely” (R7)

Respondent three was of the a similar view as Respondent seven, he stated that it is much easier for small technology companies to compete directly with the banks and offer similar or better products at prices that are lower than the banks.

“So, one of the biggest risks is that the banks have always had the computing power. They have had the servers and the stuff to do offer all kinds of services to their clients, and the administrative power to drive those services that smaller brokers and your smaller fund managers wasn’t able to do. Now suddenly, with cryptocurrencies, these guys, the smaller guys, can offer exactly the same service than the bank can, and compete with them on price.” (R3)

5.7.7. Difficulty to Commit Fraud in Cryptocurrency

Many participants alluded to the fact that it is next to impossible for one to commit fraud when dealing with cryptocurrencies because they are built upon very the secure distributed ledger technology. Respondent seven gave an explanation as to why banks’ processes are currently slow and hence require a lot of documentation.

“Okay, so the biggest risk here is fraud... So, the risk is reduced. So, fraud in terms of people taking advantage, okay? But the risk has reduced dramatically, block chain. That’s why the banks want a thousand documents. So, it’s reducing the risk, that’s what’s happening, okay?” (R7)

5.7.8. Disintermediation of Banks

The concept of banks being viewed as intermediaries has been extensively discussed in this paper. Respondent two based his argument on this concept and states that cryptocurrencies do not require an intermediary, therefore societies do not require banks in this respect because the Blockchain technology makes it easy for everyone on distributed ledger to trust

each other.

“So, banks can be disintermediated by technology like Bitcoin, like Blockchain which ultimately says: “You don’t actually need to have a trusted third party, everyone can trust each other through the network, the network basically builds the trust, the proof of work algorithm builds the trust”.” (R2)

There are some disadvantages associated with cryptocurrencies that have been mentioned by respondents. One of the disadvantages is that cryptocurrencies are also very expensive to mine because the process of mining them consumes large amounts of electricity. However, Respondent two gave an example of new algorithms being implemented by cryptocurrency developers that does not require large amounts of electricity, hence making cryptocurrencies more attractive and cheaper.

“There are other algorithms, like; “proof of stake” which Ethereum is moving to, which is less costly from an electricity perspective than what Bitcoin’s proof of work algorithm uses, but ultimately that’s the real threat to banks, that being a trusted intermediary, being a trusted middle man is under threat because you have a technology which allows for trust without requiring somebody to sit in the middle”. (R2)

5.7.9. Impact on Remittance

Currently, some people still use banks for transferring funds between countries. This process has been criticised by many participants for being very slow and expensive. Respondent two suggested that banks offering this service are already losing business because customers are now using cryptocurrencies as a means of moving their funds to other countries.

“Payments and remittance has been under threat even without Bitcoin, so if you look at companies like; Snapscan, like Zapper, they have been, effectively, walking at the edges, specifically dealing with easier payment onramp. So, they’ve been effectively making payments faster, easier and lowering friction to payments that banks generally have.” (R2)

Respondent eight concurs with the statements made by Respondent two as he states that banks are already losing margins on the foreign exchange business because people are now using cryptocurrencies to expropriate funds.

“The other risk is the kind of commercial stuff of...if I as a bank make a lot of money from remitting funds overseas, and somebody builds a cryptocurrency where doing that is much more cheaper and efficient, I’m losing marginally, because then some of my business is going away. Payments the same thing, if I make money off credit cards and that revenue moves onto crypto-based systems, that’s an issue.” (R8)

5.7.10. Impact on Lending

One of the most famous services provided by the bank is lending and this is a good revenue stream for the banks. Respondent two presented an example of a company that provides lending that is based on the cryptocurrency being collateral. So future business in lending may not be taking place in banks, but crowd funding organisations such as the one that fund initial coin offerings

“Lending, so banks ultimately, they get a fraction of reserve banking, it’s based on the bank lending out more money than he physically holds in reserve or the money you deposited basically, they ultimately, they lend out to other people as loans and then they charge interests on those loans, that is probably the next big thing that Crypto currency could effectively disrupt. So, there’s a company right now, a start-up called SALT, but ultimately what they do is they allow you to use cryptocurrency as collateral for a loan.” (R2)

Respondent eight gave another brilliant example on how the need for cryptocurrencies has brought about the development of Initial Coin Offering (ICOs). ICOs do not raise money by borrowing from the banks as traditional companies would do, they raise funding through the concept of venture capitalism, a method that will totally disrupt the banks’ lending market and model.

“The other one is ICO’s, where you completely disrupt the venture capital market, because you’ve created a way for people to raise funding without incurring debt, and that totally decentralises it.” (R8)

5.7.11. Impact on Banks Liquidity

Respondent one posits that there could more money being moved to cryptocurrencies; hence South African banks may experience some liquidity problems. Banks could face more cash lending challenges if they do not have money for cash loans because most people would have moved their money onto cryptocurrencies. He also continues to express some concerns over the government losing out on taxes if people are fully transacting in cryptocurrencies and states that SARS will not have visibility.

“So I think the first risk that comes to mind which is quite serious, if there is a large flight of Rands going to Bitcoins, and a lot of the financial activities running in Bitcoins, and people are not necessarily declaring that, a huge source of funds for the government through taxes are going to disappear.” (R1)

5.7.12. New Product Offering

Banks such as Nedbank and Rand Merchant Bank have massive insurance divisions and they operate in South Africa. Respondent three brought up an example of insurance companies who offer service that are based on cryptocurrencies. He gives an example of a company based in a different continent but being able to provide insurance to South Africans, the premiums and claims are all processed via cryptocurrencies. This is a big risk for banks who provide and underwrite insurance services.

“So, insurance as an example, through Bitcoin and through Bitcoin payments, an Australian firm can insure my next trip instead of a South African firm. A UK business can suddenly insure my home contents, because the only thing that needs to happen is I need to pay for it. And if they’re willing to pay out in Bitcoin, why not?” (R3)

Respondent ten is of a different opinion from most of the participants in regard to the banks being at risk due to the prevalence of cryptocurrencies. She stated that the Blockchain technology poses bigger threats to the banking sector because this technology will enable other businesses such as Fintechs similar services currently offered by the bank at much more affordable costs to the banks.

“The greatest risk to the banks is this technology. The underlined Blockchain technology and not the cryptocurrency itself. That technology removes those functions that are currently being held predominantly by banks. Banks do clearing, banks do settlements, banks are the intermediaries that stand between people, because...and the reason why we need banks is because we need, an independent party that goes, checks if you have the money, checks that I actually have the products you want, confirms with you, confirms with me, and then settles; that’s the purpose of a bank.” (R10)

Respondent eight also brought up other risks that have a direct impact to the banks and will eventually affect the banks’ balance sheets. Since cryptocurrencies are perceived as lucrative investment assets in South Africa, some individuals are acquiring loans from banks so that they can acquire cryptocurrencies. This could be very problematic when most of these individuals lose their money due to the price volatility of these currencies.

“The guys who are borrowing money or re-mortgaging their houses to put money into Bitcoin because they think it’s going to change their life, that’s scary. I mean, the Bitcoin has dropped off 75% in the last week. Just this morning in fact, so that kind of thing is terrifying.” (R8)

5.7.13. How Banks Can Mitigate Threats

When asked about step that banks can take to prevent being significantly disrupted by the prevalence of cryptocurrencies, Respondent two suggested that South African banks should adopt cryptocurrencies just as they have with other foreign currencies.

“Yes and no. So, a bank deals with currency all the time, they just mostly happen, like local banks just happen to deal with South African currency but they do a lot of foreign exchange as well. If you think of Bitcoin or Ether or Lite coin or Dash or Maneroo or Ripple as just being another foreign currency, nothing really stops a bank from actually being able to transact in those foreign currencies. They transact in digital currency all the time, most of the money that they move the bank basically is just entries in a file somewhere, it’s not physical cash that is being moved around.” (R2)

Respondent three gave examples of the recent investment initiative that have been undertaken by some banks in the cryptocurrencies space. One of the banks has invested large sums of money in Cryptocurrency exchanges such as Luno. They have also commissioned some smaller technology companies to build them products that are based on cryptocurrencies. Therefore there are suggestions that banks could refocus their business models towards cryptocurrencies.

“If you look at the Rand Merchant Bank group with Alpha code, they are investing in entrepreneurs to do what we are doing at the moment, and that is to innovate, to build solutions, and they will look at it... When a promising technology does come up, like Luno, they would invest in that.” (R3)

5.7.14. Conclusion on Proposition 4 Findings

Respondents had a lot to discuss regarding risks that are posed to the banking sector by cryptocurrencies but not much adequate measures that banks can implement to prevent the disruption.

Some respondents argued that banks could adopt cryptocurrencies and have them as part of their stable of currencies. Firstly, it has been argued in chapter 2 that the South African banking sector is tightly regulated, hence most financial products sold by banks have to fall under this regulation. It has also been stated that cryptocurrencies are not regulated and this will be the case for quite some time in South Africa. Therefore, banks cannot start offering cryptocurrency based products before these currencies are adequately regulated.

Even if banks had to adopt cryptocurrencies, there are few services they can offer in this space because cryptocurrencies do not rely on the presence of a third party. People purchasing goods and services will be paying their suppliers directly and there is no involvement of the bank in these scenarios. Therefore; it wouldn't make much of a business case for the banks to invest in this integration with cryptocurrencies.

6. Discussion of Results

6.1. Introduction

In chapter 4, it was stated that this research sets out to collect and analyse data so as to enable the researcher to develop a theory, this approach is in line with the recommendations from Saunders & Lewis (2012). Therefore; this chapter sets out to discuss the results that were collected and presented in chapter 5, this discussion will be conducted in reference to the literature review that was conducted and presented in chapter 2. Furthermore, this chapter sets out to provide detailed insights of the findings presented in chapter 5; hence a detailed analysis, comparison and contrast of the results against the literature reviewed will be presented so as to address the research propositions stated in chapter 3. The purpose of this exercise is to provide insights on the impact of the propositions stated in chapter 3, if they were to come to fruition and to offer new unexplored insights that have not been examined in the current literature.

























6.2. Research Proposition 1: Prevalence

Research Proposition 1: Cryptocurrencies are prevalent in South Africa

Research proposition 1 sought to establish the prevalence of cryptocurrencies in South Africa through multiple lenses, namely awareness, enquiries, acquisition and the utility of cryptocurrencies. For cryptocurrencies to pose significant threats to the South African banking sector it was necessary for the researcher to first establish their prevalence or lack thereof, hence this section will present the insights in above mentioned lenses.

Around the world, it has been established that cryptocurrencies are very popular in some countries such as US; Böhme et al. (2015) gave evidence to this effect. As already stated in the introduction, literature relating to the prevalence of cryptocurrencies in South Africa is limited, hence the discussions relating to proposition 1 will be mostly based on the on the data collected. The data collected will be contrast, compared with information presented in the literature and finally a conclusion drawn in line with the objectives of the study.

Table 6: Adjusted Table of Results after Analysing Responses on Prevalence

| | R1 | R2 | R3 | R4 | R5 | R6 | R7 | R8 | R9 | R10 | R11 | R12 |
|-----------------|---|---|---|---|---|---|---|--|---|---|---|---|
| Old |  |  |  |  |  |  |  |  |  |  |  |  |
| Proposed |  |  |  |  |  |  |  |  |  |  |  |  |

As an entry point to the discussion with respondents, they were asked to state if cryptocurrencies were prevalent or not in South Africa. Table 5 presents their responses; however, upon further interrogation of the proposition using the 4 measures awareness, enquiries, acquisition and utility, some respondents gave responses that encouraged the researcher to reconsider their initial answers. Case in point was Respondent four, who was of the view that awareness, enquiries and acquisition were all high. Therefore the researcher attributed this scenario to the fact that respondents may not have had enough time to properly engage their mind regarding the prevalence of cryptocurrencies.

Row 1 of Table 6 presents data that demonstrate the frequency of how participants responded to each of the measures that contribute to the prevalence of cryptocurrencies in South Africa. Row 2 (proposed) of table 6 presents the adjusted data after thoroughly analysing respondent's responses. Hence prevalence moves up to an approximate 67%

6.2.1. Awareness

Blundell-Wignall (2014) posits that the awareness of cryptocurrencies is high in the US, Europe and some Asian countries; however there is limited literature that speaks to the level of awareness in South Africa. The awareness of cryptocurrencies by the South African population was perceived to be very high as some respondents alluded to the fact that cryptocurrencies have entered mainstream consciousness of the members of the public. Respondent two mentioned that, for a majority of the South African population, it was not just a question of awareness but most people expressed interest in the acquisition of cryptocurrencies.

To support the view of awareness of cryptocurrencies being high in South Africa, some individuals had to give practical examples that will convince one to actually believe that the awareness is very high. The examples that were presented highlight the fact that certain segments of the population that would generally be expected not to be bothered by the presence of cryptocurrencies were making enquiries.

One of the major drivers of awareness was the public interaction between some big companies and cryptocurrencies. Case in point was, when one of the major retailers in the country conducted a public transaction that was settled in Bitcoin. This example was also mentioned by Respondent eight who thought the retailer, Pick n Pay was conducting a marketing campaign. Another example of a company that conducted an “above the line” marketing campaign is KingPrice, who launched television advert of one of their competitors and undertook to pay winners in Bitcoin.

Therefore in conclusion, the data gathered from the interviews for this research supports the fact that awareness of cryptocurrencies is high in South Africa and awareness being a contributing measure to prevalence, it therefore means that to a certain extent, the prevalence of cryptocurrencies is high.

6.2.2. Enquiries

One other highly ranked contributing measure to prevalence which was explored in this study was the number of enquiries. As already presented in figure 12, most respondents posit that the number of enquiries has significantly increased in the past few years; therefore this positive increase in the number of enquiries also contributes positively to the prevalence of cryptocurrencies in South Africa. Although the number of enquiries were not physically counted, respondents gave evidence as to how often they and people in their circles have had to respond to enquiries regarding to cryptocurrencies.

Enquiries regarding to cryptocurrencies were not only limited to the individual members of the public, but most businesses are starting to actively enquire and experiment on product offerings that are based on cryptocurrencies. Examples mentioned by Christie, Respondent ten and Respondent six regarding the number of corporate clients that they work with have significantly increased.

6.2.3. Acquisition

Table 7: Respondent Who Own Cryptocurrencies

| R1 | R2 | R3 | R4 | R5 | R6 | R7 | R8 | R9 | R10 | R11 | R12 |
|---|---|---|---|---|---|---|---|--|---|---|---|
|  |  |  |  |  |  |  |  |  |  |  |  |

First and foremost, individuals were asked if they own cryptocurrencies or intend to acquire them in the near future. Table 7 shows that 83% of respondents own cryptocurrencies, this includes respondents who were not so optimistic about cryptocurrencies.

Respondents discussed the fact that they have experienced an increase in the acquisition of

cryptocurrencies by the South African population. The acquisition of cryptocurrencies by individuals and business has been identified to pose significant threats to South African banks because the money used to acquire cryptocurrencies has to be moved from the holding banks. As already mention in the literature that banks are required by the Banks Act section 70 to maintain certain levels of liquidity (The Banks Act, 2007), this could cause serious problems for banks if most people had to move their money from their primary banks.

High levels of acquisition will also translate to most people transacting in cryptocurrencies, hence banks losing on transactional costs, this supposition is in line with views presented by Rudansky-Kloppers (2014). The aspect of lending will be impacted, it has been stated that most people in South Africa are using cryptocurrencies for investment purposes; people taking their money out of the banking sector to invest in cryptocurrencies could also impact the banks negatively as the banks rely on deposits so as to be a good position to extend loans. As already been stated in the literature review, banks make most of their revenue from extending loans to their clients at profitable interest rates (McLeay, Radia, & Thomas, 2014).

In conclusion, the rate of acquisition of cryptocurrencies is high in South Africa and the acquisition measure contributes positively to the concept of prevalence.

6.2.4. Utility

6.2.4.1. Utilised as Invest Products – Increase in Value

According to Blundell-Wignall (2014), the utility of cryptocurrencies currencies has significantly increased in Western countries and most people use Bitcoin for settling transactions such the purchasing of food; however there is inadequate academic literature to suggest utility is high or not, in South Africa. Many respondents emphasised that the South African context was different from the west, as the majority of the population who own cryptocurrencies utilise these currencies for investment purposes. The main reason for this was that, at the time when the South African population was exposed to platforms such as Luno, they started participating more in the acquisition of cryptocurrencies and during that period these currencies were experiencing massive price increases as shown in figure 15. Therefore; Respondent one explained this behaviour by stating that many people wanted to hold their cryptocurrencies as they expected the value to go up.

Rudansky-Kloppers (2014) argued that a significant portion of the South African consumers were going to start utilising cryptocurrencies to pay, this has not happened yet for the reasons already explained above. However, some participants who have acquired cryptocurrencies expressed some level of regret after having utilised their cryptocurrencies to conduct business or settle transactions because they believe that the value of cryptocurrencies is still going to increase.

In conclusion, South African individuals are not utilising their cryptocurrencies in their day to day transactions as is the case overseas, however they are utilising these currencies as investment assets.

6.2.4.2. Utility by Mainstream Businesses

Many respondents argued that mainstream businesses in South Africa are not utilising cryptocurrencies when conducting their day to day business because of the regulation uncertainty. However, some respondents stated that they have advised many corporate clients who were seeking legal advice on whether to invest money on developing products that are based on cryptocurrencies. According to many participants, the lack of regulation for cryptocurrencies in South Africa as explained by the SARB (2014) acts a major deterrent for businesses to adopt and utilised these currencies, this in turn contributes to the low levels of utilisation by the consumers who have nothing better to do with these currencies but keep them as investment assets.

Although, the utility of cryptocurrencies by mainstream businesses in South Africa seems to be non-existent, there is some evidence supplied by the Respondent eight and Respondent nine that points to some big companies being in a position to accept cryptocurrencies. Respondent nine gave examples of companies such as PayFast (2018a) who have integrated their payment gateways with many other mainstream business in South Africa, via PayFast South African consumers can purchase cars from Landrover for example. Although consumers have the option to purchase on these platforms, this does not say much about whether the mainstream businesses are utilising cryptocurrencies.

The utility of cryptocurrencies in the western countries is far greater than in South Africa and the findings presented in chapter five supports this assertion. Utility is one of measures that contribute to the definition of prevalence in this study, therefore the fact that utility is low, reduces the level of prevalence of cryptocurrencies in South Africa.

In conclusion, there is much talk and examples of businesses that investigating the utility of cryptocurrencies, but there are few companies that have been reported to be actually using these currencies. Many companies mentioned in chapter 5 may be accepting cryptocurrencies as a mechanism of settling, this will be negated by the views of the population who are not will to spend these currencies just yet.

6.2.5. Summary

Overall, there are slightly more participants who posit that cryptocurrencies are prevalent in South Africa and most respondents who stated that prevalence was low also mentioned they are experiencing sign of increase.

6.3. Research Proposition 2: Adoption

After having concluded that the level of prevalent is high in South Africa, the researcher had to ascertain the adoption of these currencies in the country. While examining the adoption of cryptocurrencies, the driving and enabling factors were explored, along with the challenges that may be hindering adoption. Data collected for this section also shows that South Africa is quite unique on the factors that influence adoption of cryptocurrencies. The literature reviewed shows that adoption around the world as indicated by the evidence presented by Böhme et al. (2015) who stated the number of Bitcoin transactions in excess of 60 Million.

6.3.1. Factors that Drive the Adoption of Cryptocurrencies in South Africa

The findings supported the limited literature that was presented in this paper regarding adoption; however there were new insights that were obtained from the respondents that are not presented in the literature. As a consequence, this study will be contributing to the body of knowledge regarding to factors that drive the adoption of cryptocurrencies in the South African context.

6.3.1.1. Trust

Trust on the Blockchain technology was mentioned by many participants as a major driving factor for the adoption of cryptocurrencies. Respondent four described the mathematical complexities employed by the technology in conjunction with an immutable distributed ledger to be the key aspects of the technology that makes people trust cryptocurrencies. This observation is in line with the views expressed in the literature by Nakamoto (2008) and Dwyer (2015).

The lack of trust on the financial sector was also a prevailing factor that drove most people to

adopt a payment system that is not controlled by governments and institutions. Respondent ten and Respondent seven alluded to the lack of trust having perpetuated the Global Financial Crisis; this argument was also presented by Blundell-Wignall (2014). Respondent four was also in agreement with view and he reiterated that people don't trust the banks because their dealings are not very transparent to ordinary citizens.

In conclusion, the fact that people don't trust the financial sector as already presented by "Old Mutual Saving and Investment Monitor" (2017) and at the same time there are more people who are beginning to place their trust on cryptocurrencies, this could exacerbate the disintermediation of banks.

6.3.1.2. Adoption by Mainstream Business

Although many respondents did not think that mainstream businesses have adopted cryptocurrencies in South Africa, they mentioned that this would be a major driving factor because consumers will have outlets on where to spend their cryptocurrencies. Aside from the fact that most people are not spending their cryptocurrencies due to their expected appreciation in value, some participants posit that this this situation may change and be similar to Western and some Asian countries where most people still transact in cryptocurrencies.

Respondent eight mentioned that their company a consultancy firm transacts in cryptocurrencies in other countries such as Hong Kong and that at an operational level, nothing stops them from transacting in cryptocurrencies in South Africa besides the regulatory uncertainty. As already mentioned, the researcher actually found that there are many companies in South Africa that accept payment in cryptocurrencies as indicated by PayFast (2018a) and LUNO (2017).

Mainstream businesses in South Africa are working on various product offerings and most of the businesses have already integrated with cryptocurrencies. It seems they are prepared the change but have not yet advertised their preparations.

6.3.1.3. Anonymity

The aspect of anonymity was well supported in the literature, it is also clearly articulated that cryptocurrencies provide privacy (Hardy & Norgaard, 2016; Nakamoto, 2008). Respondent four argued that anonymity was also a major driving factor for individuals who want to conduct untraceable transactions, alluding to the fact that there may be some criminal elements in these transactions. In the literature, it has been argued that the anonymity is

“perceived” but not necessarily offered in reality (Ali et al., 2014b; Yelowitz & Wilson, 2015). Participants still stated that anonymity was a strong driving factor for the adoption of cryptocurrencies in South Africa and around the world in general.

6.3.1.4. Remittance

The aspect of remittance was successfully argued by Plassaras (2013) as he mentioned that cryptocurrencies pose a serious threat to economic stability of the foreign currency exchange market as they continue to grow in usage and value. This point was also brought up by almost all respondents as they stated that this was one of the driving factors of adoption. Examples that were mentioned by respondents mostly related to the number of foreigners that earn a living in South Africa and send their money to countries such as Zimbabwe because these countries accept cryptocurrencies as their financial systems have collapsed.

The other lens that was presented by some participants was the remittance of funds to the Asia and Western countries. There were examples presented of European business people that preferred to repatriate their funds using cryptocurrency because it is quicker safer and untraceable by the authorities. Although remittance was presented in literature, specific scenarios of businesses repatriating funds to Western countries were not mentioned.

6.3.1.5. Testimonies

Respondent three posits that the internet is littered with testimonials of individuals who have made significant profit while dealing with cryptocurrencies. Although there is some mentioned of the value of cryptocurrencies exponentially growing, the aspect experienced in South Africa is not totally aligned with the literature. This happened because at time most South Africans discovered exchanges such as Luno, the value of the cryptocurrencies was escalating at a phenomenal rate; hence the stories of success became a significant driving factor.

Coupled with the testimonials, Respondent eight raised another valid point and states that the adoption was boosted by the fear of missing out. The FOMO concept was thoroughly explored by Rifkin et al. (2015) who concluded that there are powerful psychological forces that influence behaviour when people are exposed to a group of individuals engaged in a particular activity. Thus, the conclusion here is that many people will be adopt cryptocurrencies on the basis of hearsay and FOMO.

6.3.2. Factors Enable the Adoption of Cryptocurrencies in South Africa

The driving factors for the adoption of cryptocurrencies were complimented by some significant enabling factors.

6.3.2.1. Exchanges

Without the enablement as was the case before companies such as Luno and ICE³X started operating in South Africa, most participants stated that it was extremely difficult for most South Africans to acquire cryptocurrencies. Respondent three mentioned that, one had to firstly purchase US dollars and then use the dollars to purchase cryptocurrencies from exchange site such as Coinbase, this was a cumbersome exercise. Many participants mentioned that the presence of these exchange companies the primary enabler of the South African population to start acquiring cryptocurrencies. This was true because the process of acquisition is very simple for most people according to Respondent two.

The literature present by Brière et al. (2015) talks to the fact that there are a lot more exchanges around the world. In contrast to only 2 that have been established in South Africa, it's obvious that adoption and enablement could benefit from more exchanges opening up in South Africa.

6.3.2.2. Racial Lines or Previously Disadvantaged

Literature does not introduce the aspect of race regarding the adoption of cryptocurrencies, however it presents some evidence that countries whose financial system have collapsed are susceptible to adopting alternative currencies faster, cryptocurrencies being one of them (Mbiti & Weil, 2013).

There was an interesting observation that was brought up by Respondent one; he stated that there are some races in South Africa where adoption of cryptocurrencies happens much faster than other races. His observation was that adoption was much higher amongst the black population as opposed to other races. This statement is closely linked to the one made Respondent ten in regard to banking the unbanked population in South Africa. The previously disadvantaged communities have found affordable means of engaging the economy.

“And I think one of the other factors driving it is, there’s a huge appetite for...and I’m not talking race here, but my exposure has been to such an extent that I feel that the Black community is much more receptive and eager to engage with it than the typical White people that I speak to.” (R1)

Respondent one gave further insight on how adoption has been like by other races such as white people in South Africa. He points out white people may have been too comfortable with the traditional method of banking that other races may have not been predisposed to, hence the slow rate of adoption of cryptocurrencies by whites.

“Yah, so the Whites are very critical. They don’t trust it; they’re the ones who are saying it’s a bubble that’s going to burst, all of those types of things. But I think it’s because some of the people grew up in a particular financial management model which teaches you A, B, C, D and E. Now, they want to take those A, B, C, D, E and apply it to cryptocurrencies, and you cannot, its apples and oranges, you cannot compare the two.” (R1)

In conclusion, findings in this section of the study were not totally aligned to the literature as the researcher uncovered unique aspects of South Africa’s antecedents that influence behaviour of societies. The aspects of race and the unbanked population were unique to the South African population

6.3.2.3. Infrastructure and Mobile Phones

For any individual who wants to acquire Bitcoin or Ethereum from Luno, they must download the Luno mobile phone application, register and follow a few more steps. They will also require a good signal for quality application download and usage, which is not a problem in South Africa. According to Respondent one, South Africa as a country generally has good telecommunications infrastructure that and this makes it much easier mobile phone operators to offer a good and quality service. This enabled most South Africans to own a mobile smart phone, Respondent one mentioned that, that’s pretty much what one requires to be enabled to acquire cryptocurrencies.

6.3.3. Challenges That Affect Adoption

While still grappling with the aspect of adoption, participants were asked to discuss challenges that impact the adoption of cryptocurrencies negatively in the South African context. This turned out to be an easy exercise as most participants had already experienced many problems surrounding the adoption of cryptocurrencies. Figure 18 shows a summary of the challenges and it is evident that most of the challenges are in line with the literature although there are some that affect Western and Asian countries.

6.3.3.1. Lack of Regulation

There are conflicting views that surfaced as participants were discussing the aspect of regulation. Some participants indicated that the Blockchain technology was a bigger threat to banks as opposed to cryptocurrencies. However, there is evidence that some banks in South African have already adopted the Blockchain technology and created private ledgers to streamline some of their processes. Therefore; the Blockchain technology does not qualify to be mentioned as a challenge as it enables banks to be more efficient.

The challenge though with cryptocurrencies is that, these currencies can perform a majority of the bank's functions. As already mentioned, it becomes a major challenge to track remittance, money laundering and to enforce protective regulation for consumers. There is a brewing debate as some respondents stated that banks could incorporate these currencies onto their current platforms and other respondents such as Respondent four stressing the importance of regulation before any formal business can be conducted using these currencies.

In conclusion, while these debates are brewing, the public has not stopped interacting with cryptocurrencies, according Coin Market Cap (2017), market capitalisation is still growing and the financial sector will be standing on the side-lines.

6.3.3.2. Scepticism and Origin of Cryptocurrencies

Scepticism on cryptocurrencies was discussed at length within the literature, Cheung et al. (2015) once characterised cryptocurrencies as a bubble is ready to explode. Phillips et al. (2014) went a step further to develop a model that describes how cryptocurrencies as a bubble will explode. This scepticism was echoed by some respondents who questioned the origin of these currencies. Respondent three posits that there is a stigma attached to the cryptocurrencies as they are perceived to be associated with criminal elements and pyramid schemes. Respondent three's views were not unique as they were repeated by Respondent one who argued that literature is still not clear if Nakamoto (2008) is the real discoverer of the Blockchain technology.

Many participants echoed the lack of regulation as the foundation for many challenges that impact adoption. Scepticism is a big challenge that impacts the adoption negatively and this was evident in the responses given by some of the participants, Respondent four mentioned that he did not personally trust cryptocurrencies because they have not been regulated, Respondent five mentioned a similar statement. Other participants stated that such experiences were not just limited to Respondent four and Respondent five but larger population in South Africa. Most of the corporate clients that consult with the legal experts

that were interviewed were not clear about the legality of cryptocurrencies and development of products that are based on cryptocurrencies.

6.3.3.3. Price Volatility

According to Moore & Stephen (2016), cryptocurrencies have battled the issues of price volatility for quite some time now and many participants raised this as a big challenge that impacts adoption negatively. There are various examples that were presented by participants regarding the aspect of volatility, some participants actually lost money due to this and some participants posit that adoption will be very slow because some members of the South African population are risk averse.

Respondent eight labelled price volatility as a disservice to cryptocurrencies being used as a payment mechanism. Since a few members of the sample have had negative experiences related to price volatility, it is quite safe to classify this aspect as a challenge that needs to be overcome by cryptocurrencies.

6.3.3.4. Complexity

The issue of complexity impacting the adoption of cryptocurrencies was not encountered in the literature. Respondent six raised the aspect of complexity as a significant factor that limits adoption, he posits that the technology is littered with foreign terminology to most members of the South African population; hence most people are not acquiring cryptocurrencies. This view is probably true for exchanges already mentioned in the literature Brandvold et al. (2015), these exchanges are Coinbase and Bitstamp, operate overseas.

Respondent two raised a counter argument to this assertion and stated that the current South African monetary policy is far more complex than the technology surrounding cryptocurrencies but people still believe in the value of the Rand and use it every day without having to understand how Rands are produced or secured. Another counter argument here is the statement that was raised by Respondent eight as he was admiring how easy Luno has made it for individuals to acquire Bitcoins, therefore the aspect of complexity may not contribute much to issues of adoption.

6.4. Research Proposition 3: Lack of Regulation

Research Proposition 3: Institutions are failing to regulate cryptocurrencies and this will persist for a long time

The third research proposition states that the regulation of cryptocurrencies is lacking in South Africa and this will persist for a long time into the future. Participants were therefore asked if they knew of any regulation that was produced by the South African institutions which are responsible for the governance and issuing of money in the country and all participants stated that there was no regulation at present. This revelation was in line with the concept of institutional voids presented by Mair et al. (2012). There are technologies that have the capability to destroy industries and sector of countries, if these technologies are not adequately regulated, quite often these technologies destroy industries.

6.4.1. Role of Institutions

The literature reviewed in chapter 2 presents the role of institutions and consequences of failure by institutions to fulfil their mandate. Botha & Makina (2011) postulate that there are four scenarios that explain the role of institutions, firstly they state that government would put out regulation so as to minimise information asymmetries and also make sure that its interest are aligned to that of the regulated entities. Secondly, institutions exist to protect operators from rivals who would perhaps have unfair advantages (Botha & Makina, 2011). In the South African context and in this study, the operators would be the banks. There are institutions such as the SARB and the Financial Intelligence Centre (FIC) that are responsible for the regulation of the banking sector (FIC, 2017b; SARB, 2014).

The work from Botha & Makina (2011) was challenged by some respondents who frowned upon the use of the word “protect” in the statement that explains the role of institutions. Many participants expressed strong views on why banks should not be protected if they are not competitive, or if they do not develop or adapt to new technologies.

North (1991) posits that institutions reduce the cost of transactions thereby ensuring that maximum gains are realised, Respondent seven and Respondent ten posit that, what North is referring to is already built into the Blockchain technology. Therefore; by virtue of cryptocurrencies being a product of the Blockchain technology, cryptocurrencies already have institutions built into them. This also sparked a lengthy conversation with Respondent ten stating that cryptocurrencies do not require and regulation, but businesses that utilise cryptocurrencies are the ones that have to be regulated. Respondent ten did not reference the concept of free banking during the discussion, but that’s what she was definitely referring

to as per Gorton (1985).

Literature reviewed in this paper also supports the view that South Africa has often taken a back seat when it comes to producing regulation for foreign technologies and concepts. Botha & Makina (2011) concur with this view as they further state that the South African financial regulatory system metamorphosed towards the UK's Financial Services Authority (FSA) and the US regulation practices. Many participants also alluded to a similar conclusion and some of them categorically stated that the South African government had no concrete plan in place for the regulation of cryptocurrencies.

Shimpalee & Breuer (2006) state that institutions tend to have an impact on the health of the nation's economy and social cohesion. Many respondents posit that South Africa has good, cogent financial laws that helped the country escape the 2008 GFC fairly unscathed; however it has been argued that South Africa was not at the epicentre of the GFC seismic events. Some respondents have criticised the "wait and see" attitude of the SARB that they postulated in (SARB, 2014), Respondent six expressed frustration and sentiments that the use of these currencies outside the purview of the country's institutions could be very problematic.

6.4.2. Institutional Theory

Coercive Isomorphism

Kraft & Furlong (2004) posit that aspects of institutional theory explain how rules, norms and routines are created, adopted and adapted by institutions over a specified period of time. In light the approach taken by the SARB on cryptocurrencies, some respondents concluded that there are institutional voids. In circumstances where there are institutional voids, societies tend to take matters into their own hands, either by forcing institutions to act or completely bypassing the institutions. Powell et al. (1993) introduce the concept of coercive isomorphism, whereby institutions are forced to act under pressure. According to respondents there hasn't been an evidence of coercive isomorphism regarding regulation of cryptocurrencies.

Mimetic Isomorphism

The literature asks questions regarding fitness and independence of the South African institutions when it comes to independently producing regulation for future technologies. The short answer to some of these questions is that this government relies on mimetic isomorphic and normative approaches. Along with the views expressed by Powell et al.

(1993), Mizruchi & Fein (1999) suggest the views that have been expressed by the respondents as the SARB plays a “wait and see” game. South Africa is not alone in this game, there is extensive literature that was presented in paper regarding the aspect of regulation; Individual governments around the world are also struggling with the regulation of cryptocurrencies (Centralny, 2015).

Proponents of cryptocurrencies wanted the government to pronounce these currencies legal so they could be fully adopted by mainstream businesses, hence they will have outlets to utilise their cryptocurrencies. There are also many participants who posit that the longer cryptocurrencies are left unregulated, the more damage will be done on the country's financial system. Case in point, the Chinese government decided to ban cryptocurrencies for this very same reason, to protect the powers of their central bank and currency (Dandapani, 2017).

6.4.3. Criminal Elements

The aspect of anonymity was discussed at length by many participants and was alleged to be the main reason behind criminal activities that are conducted and settled in cryptocurrencies. This view supported in literature by Hardy & Norgaard (2016). Even if institutions could manage to identify all the individuals on the Blockchain network, they still have a massive task of auditing the types of goods and services that are being exchanged for cryptocurrencies as this will not be available on the ledger. This conversation becomes more difficult because individuals engaged in criminal could reside in different countries and it could take law enforcement a very long time to connect the dots. Criminal could also have a massive negative impact on the country's financial system.

6.4.4. Remittance

Respondent ten raised some concerns regarding the allowable amount of money an individual is allowed to remit. With the cryptocurrencies operating outside the realm of the SARB's mandate, some people could remit as much money as they wanted. Respondent eight and Respondent nine raised some concerns regarding the “Know Your Customer (KYC)” regulatory aspects that are supposed to curb money laundering, when dealing with Cryptocurrencies most people do not get to adhere to this regulation.

6.4.5. Customer Vulnerability

According to literature, the SARB and various other central banks have made their positions clear on the use of cryptocurrencies; that all activities related to acquisition and trading of cryptocurrencies are performed at users' independent risk (Böhme et al., 2015). Banks customers and the members of the population who want to engage with cryptocurrencies are left vulnerable to elements such as fraud and criminal elements that exist in cryptocurrency platforms.

6.4.6. Proposed Regulation

One of the major objectives of this research is to contribute to the body knowledge in the field of cryptocurrencies in South Africa. This body of knowledge will benefit the government and various institutions on how to tackle issues of regulation in relation to new technologies. The mimetic isomorphic stance taken by the institutions may result delayed responses which could have dire consequences. Respondents were therefore asked to propose regulation targeted at cryptocurrencies, regulation they would deem appropriate in the South African context.

This question proved to be very challenging to most respondents who easily enumerated the risks posed by cryptocurrencies to the South African banking sector. Most participants postulate that, as much as banks are governed by strict regulation, cryptocurrencies should also be strictly regulated because they enable societies to conduct their business without the need for a bank. Therefore if cryptocurrencies were to eventually assume the responsibility of the bank along with the greater use of the Blockchain technology, there must be regulation put in place to protect consumers. As already mentioned, KYC was the popular example of regulation put forward by participants.

Respondent two suggested that the regulation should be focussed on the companies that conduct businesses in cryptocurrencies, not the cryptocurrencies themselves. This concept has already been implemented in countries such as Japan, companies that operate in cryptocurrencies are required to obtain a license and the Japanese government conducts annual audits the company's activities (Gupta, 2017). Respondent eight's recommendation was that there should be strict regulation aimed at the exchanges, his main concern was about protecting consumers and their deposits the exchanges.

Respondent ten however contradicts the some of the evidence introduced in the literature and some views expressed by some participants who want governments to regulate cryptocurrencies. She postulates that this technology was developed by the society, for the society; therefore institutions should have limited involvement in the governance of

cryptocurrencies.

This approach could prove to be disastrous though, in every community, there are capitalists, and some of these individuals may seek to extend their gains by exploiting some aspects of the technology such as the price. A good example here is that some capitalist may start manipulating demand by placing large orders that they have no intention of honouring, on the Blockchain network. If someone places a large order a low price, the prices of the cryptocurrency fluctuates towards fulfilling order placed at that low price.

Although, regulation will be a good thing to do, Respondent two expressed similar views to those of Kraft & Furlong (2004) regarding the regulation process which should be followed and stated that institutions should take a tempered approach that will not stifle innovation.

6.5. Research Proposition 4: Threats Posed to South African Banks

After having established the significant presence of cryptocurrencies in South Africa, the final proposition of this research states that cryptocurrencies pose risks to the banking sector. Literature presented in chapter 2 supports this assertion as Leith & Jordaan (2016) argue that banks are the prime target of the disruption brought on cryptocurrencies. There are various threats that were enumerated by the participants.

6.5.1. Threats Posed to South African Banks

The threats presented in the evidence collected show that banks will be losing most of their current clients, future clients; this will in turn result in loss of revenue and profits. Respondent seven described the South African banking sector as a monopolist club subservient to the top rich 1% of the population. This view could be shared by the majority that was mentioned in the 2017 Old Mutual report, hence so many people not saving their money in the formal sector.

6.5.1.1. Transactional Banking

It was Rudansky-Kloppers (2014) who stated that the South African population will eventually use their cryptocurrencies to pay goods and services. Some respondents have repeatedly mentioned that the adoption of cryptocurrencies by mainstream businesses has not been very significant. If this challenge were to be overcome such as is the case in the US, Europe, Japan and Hong Kong, cryptocurrencies could be used a mainstream currency, banks could lose out on transactional streams of revenue. Currently, the banks are still in charge of facilitating a large portion of the transactions in the country.

Business to business transactions also contribute a big portion to the bank's profits, with businesses choosing to conduct their business in cryptocurrencies, banks will be losing out on even more revenue. Respondent eight mentioned that this is not too far from reality in South Africa as their company already conducts business in cryptocurrencies in Asia.

6.5.1.2. Impact on Remittance

Banks also depend on some transactional gains from their foreign exchange departments (Kim, 2015), for every cross border transfer, banks charge commission for the forex and also charge clients for the transaction. According to the Standard bank annual integrated report that was published in 2016, 31% of capital inflow into Africa was contributed by worker remittances overseas ("Standard Bank Annual Integrated Report", 2016). That is a significant amount of money that is split amongst the businesses in the financial sector. If these remittances were to be conducted in cryptocurrencies, the banking sector will lose significant source of revenue. Respondent two gave an example of how Zimbabwean nationals are already in a position to remit funds to because the Bitcoin is accepted as currency in Zimbabwe.

6.5.1.3. Impact on Lending

The literature introduced in chapter 2 also delves into the concept of lending; banks are popular for investment accounts which are considered as assets for investors and lending out money at interest rates that are higher than the investment rate (McLeay, Radia, & Thomas, 2014). This is a profitable model for the banks as they generate significant revenue from this business model. Respondent two posits that here are companies that have been offering loans that are backed by cryptocurrencies as collateral. This revelation could significantly supplement the concept of communities totally moving onto cryptocurrencies.

As already been mentioned, ICOs do not borrow money from the banks, but they raise funding through the concept of venture capitalism. Initial funders of the ICOs benefit in the future because they get to own a portion of the cryptocurrency that will be developed. According to Respondent eight, this method of raising funds is now popular, therefore people do not lend from banks as much as they use to in the past.

6.5.1.4. Lack of Trust in Financial Sector

Evidence presented in the literature review suggests that a certain portion of the South African population has lost trust and confidence in the financial sector, most people will cherish the opportunity to migrate onto a financial system where they have more control and transparency. Respondent four posits that the lack of trust on banks will speed up their elimination as trusted intermediaries because the Blockchain technology will substitute the intermediaries. This position is supported in literature by Blundell-Wignall (2014) who gave an example of the after effects of the 2009 GFC.

Other examples that were put forward participants include the conduct of the American banks whereby they carry loans that are not reflected on their balance sheet. This practice is not unique to the US; some South African banks also follow this practice as it has been deemed legal by the governments. Respondent seven described this lack of transparency an off-putting factor to some member of societies.

6.5.1.5. Banking the Unbanked Population

The South African government pays social grants to approximately 30% of the country's population and it has been stated in the literature that maintaining a bank account is not cheap. Therefore, it is prudent to assume that the 30% of the population would not own an active bank account because of high banking fees in South Africa.

Having painted that picture, these views were expressed by Respondent ten and Respondent one as they posit that there is a great opportunity for the unbanked population to engage with the economy through the acquisition of cryptocurrencies. The literature states that one of the attractive qualities of cryptocurrencies that there are low costs associated with their use (Böhme et al., 2015; Ali et al., 2014a).

Most businesses with shareholders have expectations from the shareholders to grow in size and revenue. Hence part of growth for South African banks would be growing their client base and revenues. Therefore banks may find it challenging to expand their client base because they are governed by regulation that states that they cannot do business with every single individual in the country (Leith & Jordaan, 2016), but individuals who meet certain criteria. The cryptocurrencies platform is not regulated, hence there are no restrictions on who can own and transact in these currencies.

In conclusion, a majority of the unbanked South African population may not require bank accounts after all.

6.5.1.6. Power of the Blockchain Technology

The Blockchain technology has been hailed as a novel ground breaking piece of innovation, Respondent seven explained how simple it is to setup a banking platform on this technology and then use cryptocurrencies as the means of transacting. With this kind of setup, an entire community can bypass the current financial system. Respondent three posits that the current banking infrastructure has multiple layers of regulation and to cater for most of the regulation, banks have to spend more money, this results in banking being expensive in South Africa.

6.5.1.7. Disintermediation of Banks

Disintermediation was discussed by multiple respondents as they pondered to imagine the purpose and the functions of a bank. Respondent two reiterated the point that cryptocurrencies are built on network that enforces trust amongst the member of the network; therefore this lowers the cost of the transactions. This understanding was introduced in the literature by North (1991), who posits that the role of institutions is to reduce transaction costs that are brought about uncertainty when multiple parties transact. This ties in well with Respondent ten's views that cryptocurrencies already have institutions built into them.

Underwood (2016), while defining the Blockchain technology stated that this technology allows companies and individuals to cut out the middleman. This view was also put forward by some participants who are well versed in the technical details of how the cryptocurrencies function. Participants mentioned some companies that have opted to remunerate their employees using cryptocurrencies. This would be a significant disruption to the banking sector in South Africa if most companies adopted this option. One of the functions of the banks is to collect deposits (Banks Act, 2007), therefore without deposits to collect; banks would be one more step closer to being obsolete. Respondent four's views were quite strong on the aspect of disintermediation as he mentioned that this is a huge risk to the banking sector.

6.5.1.8. New Product Offering

Financial technology companies such as the ones that were started by Respondent three and the ones he has worked for are developing products that are based on cryptocurrencies; these financial products are meant to compete with the products that are developed by the banks. Three law experts that were interviewed stated that some of their corporate clients were in the process of developing financial products that are also based on cryptocurrencies. As already discussed in the literature by McLeay, Radia, & Thomas (2014), investment

accounts and products are profitable revenue streams for banks in South Africa. Some of the products that are offered by the South African banks require an individual to at least have a bank account or to fulfil a certain regulation checklists with aspects such as proof of residence and identification. Therefore with financial technology companies developing an array of financial products that do not require an individual to adhere to the statutes of the current financial system, products that also have low costs of management, it will be difficult for the banks to compete unless they innovate. Because most of these financial products produced by Fintechs are low cost, Fintechs will gain market share from the banks.

6.5.2. How Banks Can Mitigate Threats

Participants were finally asked to propose measures that could be implemented by the South African banks to either limit the impact of the disruption, avert the disruption and how they can stay competitive in such an environment. Respondent two suggested that the banks could embrace the cryptocurrencies and treat them just like any other foreign currency. One of the major challenges with adoption cryptocurrencies at the moment is that their price is very volatile; therefore banks could lose significant sums of money.

According to some experts, in the absence of appropriate and adequate regulation, most banks and companies could lose significant amount of money if the South African were to adopt the Chinese government stance on cryptocurrencies. It has already been mentioned that current regulation forced the South African banks to implement measures such as being able to adequately identify who they are doing business with. With the anonymity that is brought on by the nature of cryptocurrencies, banks adopting these currencies could be in violation of some of the Financial Intelligence Centre Act.

Respondent three gave examples of the recent investment and initiatives that have been undertake by some banks in the cryptocurrencies space. He further alludes to the fact that in future, banks will have to move away from their traditional model and embrace more technologically driven ways of doing business. Basically, banks need to self-disrupt and they can achieve this by adopting the strategies that are implemented by fintechs that seems to be producing ground breaking technologies as a fast pace.

Respondent four postulates that, if the intermediaries do not adapt or adopt new technologies, they may face the same fate as Kodak and Blackberry.

“And that is the intermediary’s challenge. If the intermediary doesn’t adopt and stays old, it will disintermediate itself effectively by not adopting that cryptocurrency. And it’s not only in financial services; it’s quite scary if one thinks about it.” (R4).

While discussing the situation in China, Respondent three alluded to the fact that the Chinese government could be in the process of producing their own cryptocurrency and that is the main reason they have clamped down on ICOs. He posits that the other reason could be to protect their financial system as they have identified that they need visibility of how money flow within, in and out of the country.

“In China, they’ve clamped down on all ICOs, they’ve closed all the cryptocurrency exchanges, and they are now going after Bitcoin miners. And the reason why they’re doing that is, they are trying to recentralise the entire payment financial system of China. They are afraid that if people start taking money in payments and stuff, the financial system into their own hands and decentralise it, the entire economy will suffer, and their economy will just fall apart”. (R3).

Following up on this logic, one could investigate further and ask the following questions, could the South African government follow suite? What would be the benefit of owning a cryptocurrency? Will this still be South Africa again being mimetic isomorphic?

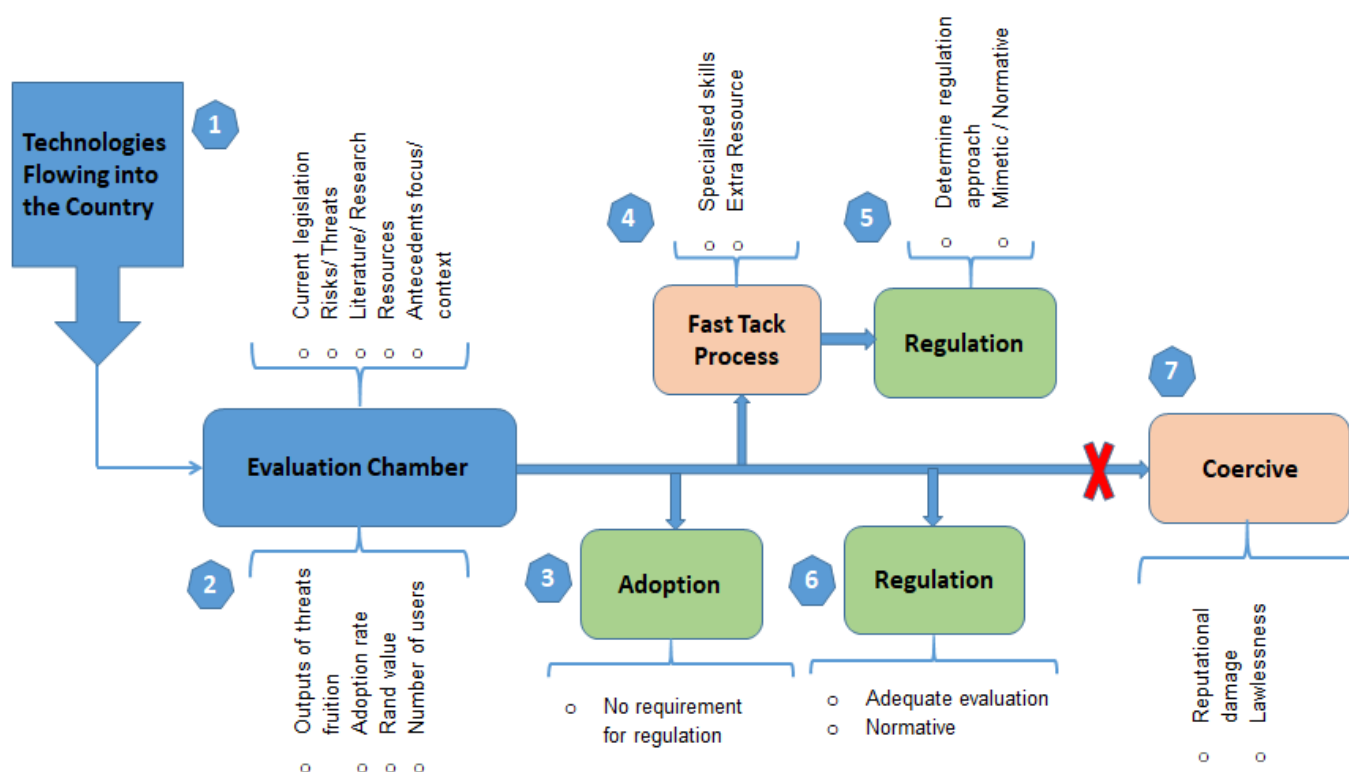
6.6. Disruptive Technology Regulatory Model

6.6.1. Introduction

After much deliberation upon evaluation and discussion of the results presented in this study, a model for the regulation of disruptive technologies emerged. The disruptive technology regulatory model centres seeks to guide institutions on the appropriate steps to follow when faced with any form of technology that poses risks to their respective sector or industries. It’s a simple model that quickly categorises the potential damage of the technology and there after gives appropriate direction to be taken the regulatory institutions.

6.6.2. Use of the model

Figure 19: The disruptive Technology Regulatory Model



The model begins showing various technologies that flow into South Africa or it could as well be disruptive technologies that have been developed internally. Every single technology exhibits qualities of significant disruption will have to be channelled through the evaluation chamber shown in step 2. During this step, there are standard input that will have to be considered, current regulation will be evaluated so as to uncover any gaps in the regulation, antecedents will be taken into account, resource are key so as to facilitate experimentation if need be and threats will need to be though roughly evaluated. Other attributes that should be considered are the approximate rate of adoption by the population, an approximation of the Rand value to be lost by the industry and an evaluation of the outcome of the threats if they were to come to fruition.

Step 3 highlight technologies that does not require regulation and can proceed straight through to adoption because not all disruptive technologies require regulation. Step 4 represents technologies that poses significant risks to the industry and require some form of regulation, at this stage institutions need to throw in more resources and specialised skills so as to fast track the process of regulation and finally these technologies will be adequately regulated in step 5. Step 4 may not always yield the best results because of short timeframes, so institutions should also consider a mimetic isomorphic approach. Step 6 represents a scenario whereby institutions should follow the normal flow of steps to regulation without fast racking the process and incurring overhead costs. Finally, institutions

should avoid step 7 because there is a steep price to pay, if institutions are coerced to act, they might encounter lawlessness and suffer reputational risks.

7. Conclusion

7.1. Introduction

This chapter sets out draw conclusions from the study by developing a model that sums the risk posed to the South African banking sector by cryptocurrencies. The effectiveness of the institutional theory as a tool to explore the role played by the regulatory institutions is also evaluated. Assertions made in chapter 1 and the literature reviewed in chapter 2 are applied in drawing conclusions about the data collected and discussed in chapter 5 and 6 respectively. Based on the model that was developed in chapter 6 and the findings, this chapter will also present recommendations for the banking sector and regulatory institutions. Research limitations and the future research recommendations are also presented in this chapter.

7.2. Research Background and Objectives

Since inception, cryptocurrencies have been proven to pose capabilities that could replace most functionalities of a bank and the South African government has not produced a single piece of legislation for these currencies. The attractiveness of these currencies poses risks for the country's banks as they are perceived to be the primary targets of this disruption.

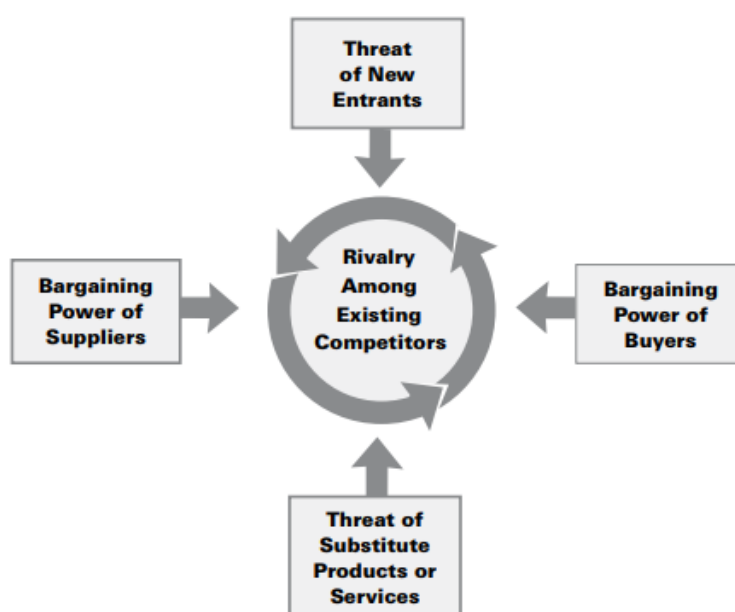
7.3. Discussion of Key Findings

Institutional theory was successfully applied as a lens for this study and this theory added value in understanding the impact of disruptive technologies such as cryptocurrencies. The revelation from this study was that there are some institutional voids in South Africa; the first clue to this effect was the 2014 position paper of the SARB, which basically stated that the SARB did not have any regulation yet for cryptocurrencies (SARB, 2014). The effects of which led to individuals and organisations acquiring these currencies for good measure and sometime to circumvent the laws of the country.

Data collected in chapter 5 suggests that South Africans are very much aware of cryptocurrencies hence they are making enquiries, acquiring them and utilising these currencies for investment and various other activities. Data also reveals that a large portion of the population does not have trust in the formal sector. These 2 constructs existing simultaneously leaves one to suggest that majority of the country would be receptive to an informal platform that offers capabilities of the banks. Adding the lack of regulation (Centralny, 2015) to the mix further suggests that there are risks posed to the formal sector and limited options that could be employed by the formal sector to mitigate the disruption.

The premise of this research was to determine the risks posed to South African banks by cryptocurrencies. To summarise the findings, the foundational Porter's Five Forces model of business strategy was employed to strengthen the argument. This model highlights the weakened position of the banks in the absence and presence of cryptocurrencies. The model will show that banks have been losing market share for quite some time now (Ramavhona & Mokwena, 2016), therefore the introduction of cryptocurrencies could exacerbate the disintermediation process of banks. Another motivation for the employment of this model is that the influence of the competitive forces in Porter Five Forces affords the researcher with a useful constructs of understanding the threats posed to the banking sector.

Figure 20: Porter's Five Forces Applied to the Banking Sector (Porter, 2008)



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|--|---|
| <p>Potential Entrants - Threat of new entrants Legislatively, entrance in to the South African banking sector is very difficult; hence barriers to entry are very high in that regard. Respondents postulate that entrance into the banking sector require larges capital outlay, this is another form of exclusion for new entrants. Existing banks within the industry have also built strong equity as respectable brands; this also acts as a barrier for new entrants.</p> | <p>Buyers – Power of buyers Although buyers have various options of interacting with the economy, their power is still fairly moderate since most people do not utilise the numerous platform available to them for transacting unless it is for savings. As already demonstrated in chapter 1, in the literature review, chapter 5 and 6, a majority of individual buyers are not investing the banking sector as they prefer the informal sector. The aspect of trust was quite prevalent through these chapters; people generally do not trust banks Blundell-Wignall (2014).</p> |
| <p>Suppliers – Bargaining power of suppliers</p> | <p>Industry competitors – Rivalry amongst existing</p> |

| | |
|---|--|
| <p>Law firms, consulting companies, technology suppliers, security firms and labour currently have more power according to some respondents. Banks spend large sums of money to the mentioned groups; hence they charge undesirable high fees for their services, which in turn raise barriers of entry to the unbanked population to acquire bank accounts. This creates “easy pickings” for technologies such as cryptocurrencies that have low barriers of entry everyone.</p> | <p>banks</p> <p>Some respondents have described the banking sector as slow, sluggish and ripe for disruption, one respondent describe the banks as a monopolist club subservient to the top rich 1% of the population. Therefore; there is limited competition within the industry because there are only few players.</p> <p>Banks literally recycle customers amongst each other</p> |
|---|--|

Substitutes - Threat of substitutes

- Online wallets are not new technology in South Africa and a fair amount of the population is familiar with the concept (Rudansky-Kloppers, 2014). These wallets perform some service that use to be predominantly performed by banks, these services include paying for goods and services online (Ramavhona & Mokwena, 2016).
- Telecommunication companies such as MTN are now offering mobile money services, where by their customers can pay goods and services online.
- ICOs – lending for business ideas. Whereas banks used to be the lender of choice for business ventures, some respondent posit that this is no longer the case because individuals can now self-organise and raise funds through crowd funding.

Cryptocurrencies

Chapter 5 and figure 9 paint a clear picture of the capabilities of the cryptocurrencies that will displace banks, amongst these are, the ease of use, low cost, remittances, new product offerings, “use as a currency”, investment, security and many more.

The porter model paints a gloomy picture for the banking sector, the big question that could be further studied, is how are from now could banks be experiencing significant loss of market share.

7.4. Recommendations

Data gathered for this research during the literature review and more so from the respondents clearly articulates the risks posed to the banking sector by cryptocurrencies. The lack of regulation exacerbates the problems because banks remain in limbo and cannot decisively charter concrete strategies. Cryptocurrencies, while unregulated do not only posed risks for the banking sector but various other stakeholders such as the general public and revenue authorities.

7.4.1. Banking Sector Considerations

Knowledge and engagement

First and foremost, it is imperative for the banks understand cryptocurrencies and threats brought about by these currencies. Studies such as this one could uncover some nuances on how banks can mitigate the threats. Banks are in a prime position to influence the regulation in South Africa; therefore they should work closely with academic and regulatory institutions to charter appropriate regulation.

Lower costs

Banking is currently considered to be expensive in South Africa and some of unnecessary costs do not only emanate from administrative responsibilities but inefficiencies. Therefore banks should implement systems that will reduce cost, hence lowering barriers of entry for the unbanked population.

Competitive product offering

Cryptocurrencies offer remittance services that happen in a couple of minutes, banks should consider implementing the Blockchain technology so as to reduce their timelines. Some Fintechs have started experimenting with products that are based on cryptocurrencies, banks should invest more time and effort investigating new products mixes.

Trust and transparency

There is distrust on the banking sector by majority of the population because of the lack of transparency. Banks have been accused of paying big bonuses, charging high fees and not explicitly explaining the way they do business and that resulted in the 2009 GFC.

7.4.2. South African Government Considerations

Knowledge and engagement

The South African public is already interacting with these cryptocurrencies yet the stance of the reserve bank is to wait and see. Treasury and the SARB should take more responsibility in regard to putting out at least bare minimum regulation that will protect the consumers. Currently there are individuals and businesses that are repatriating funds through cryptocurrencies without declaring or paying tax on the funds. It would be prudent for government institutions get involved in protecting the economy.

Other governments are at advanced stages of exploring cryptocurrencies, the South African government and the regulatory institutions should take a mimetic isomorphic position on how to deal with the currencies.

7.5. Research Limitations

Chapter 4 presented the limitations of this research, there are a number of limitations that were further identified and these are as follows:

- The researcher received an offer of employment at one of the big banks in South Africa a few weeks before the commencement of the data collection process. This became a problem for some respondents who were worried about the purity of the intentions of the researcher. Some respondents joked that the researcher may gain some insight on the competitor's strategies during the interviews for the academic study.
- Getting hold of senior individuals and specialists within the banking sector who will be willing to be interviewed for at least 30 minutes was not be an easy task.
- The researcher is not a trained expert on the best practices of conducting interviews, therefore this could have impact on the quality of the data gathered collected (Agee, 2009).
- It came to the researcher's attention that population sample who could adequately contribute to the study was employed in big cities such Durban, Johannesburg and Cape Town. Therefore it was extremely challenging to find banking experts who were based in the rural areas. According to Ramavhona & Mokwena (2016), 38% of the country's population resides in rural areas, therefore the study lost out on the representation of the views of individuals in the rural areas. Furthermore, this could have resulted in geographical bias from the respondent's answers to the research questions.
- Also, there is one situation where a participant was asked to recommend a subject

matter expert in the field, this sampling approach might have resulted in a situation where by the interviewer ends up interviewing individuals who think alike or share the same views on the research problem, there by narrowing the quality of the data collected.

7.6. Recommendations for Future Research

The following recommendations have been identified to be of significant value to the existing body of knowledge on cryptocurrencies and to business in general. Existence of these currencies does seem pose threats on multiple industries and sectors.

Implications of having a global currency need to be explored further because this could have a negative impact on multiple industries.

- Currently, most South African consumers rely on retail stores to purchase goods overseas and in turn resell the goods at their local shops. A good example here is an electronic goods store that sells products which are manufactured in Taiwan. Retailers can afford to do this because it's a cumbersome process for individual buyers to identify stores in Taiwan, obtain the necessary currency and purchase the goods. However; with a global currency; this process will be just as easy as buying from the Amazon online store without having to convert currency and pay commission.
- Some giant insurance companies could easily dominate the insurance industry without having to setup local offices in South Africa; all they need to do is abide by the laws that govern the insurance industry in South Africa. A good start here could be travel insurance that will be built on the Blockchain technology with smart contracts that will self-execute if need be.

It was mentioned in literature that there is adequate governance within cryptocurrencies, further research needs to be conducted so as unpack the adequacy of these built-in institutions.

The implications of having the entire global banking sector operating on the Blockchain has been a dream for organisations such as the IMF, a study needs to be conducted on the level of cooperation of individual countries and various central banks.

7.7. Concluding Statements

Cryptocurrencies are growing at very rapid rate globally, although some governments such as China have banned the use of cryptocurrencies such as Bitcoin in their countries, cryptocurrencies still show growth in market value and adoption. This is so because cryptocurrencies not be blocked at a specific source as per their design, companies can be prohibited by governments from using cryptocurrencies but governments may not be able to stop the general public.

In the South African context there is great awareness and good acquisition of cryptocurrencies by the general public and businesses. This adoption results in reduced utilisation of the banking sector and this further weakens the position of banks in the country and the banks' contribution to the GDP. The lack of regulation, to some extent excludes the participation of the banks in this space as they are high regulated themselves, hence the manifestation of some risk posed to the banking sector. There are countries such as Japan who have successfully managed to regulate cryptocurrencies as a means of protecting their financial systems; South Africa should consider taking a mimetic isomorphic approach to regulating these cryptocurrencies.

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9. Appendices

Appendix 1: Informed Consent Letter

I am conducting research on the risks to South African banks posed by the prevalence of Cryptocurrencies. Specifically I am trying find out how the South African banks will be impacted by the developing market for Cryptocurrencies. Our interview is expected to last about between 60 minutes, and will help us understand how South African banks will be impacted by the prevalence of Cryptocurrencies. Your participation is voluntary and you can withdraw at any time without penalty.

Please initial the box if you agree to the interview being audio recorded. The audio recording will provide an unbiased and accurate record of the interview which I can revisit as I carefully analyse the results of our interview.

Yes

No

The information obtained will be treated with the strictest confidentiality and will be used solely for the purposes of this research. If you have any concerns, please contact my supervisor or me. Our details are provided below.

Researcher name: Mthokozisi Moyo

Researcher Supervisor name: Craig Penfold

E-mail: 173376752mygibs.co.za

E-mail: craig@blox.co.za

Phone: 072 680 8960

Phone: 082 828 7091

Supervisor signature: _____

Signature of participant: _____

Date: _____

Signature of researcher: _____

Date: _____

Appendix 2: Interview Questionnaire

Topic: Determining the risks to South African banks posed by the prevalence of cryptocurrencies

Introduction

- Introduce myself
- Review purpose of study, explain method of data capture and analysis
- Confidentiality and anonymity, contract
- Estimated completion time
- Benefits to respondent

Establish the prevalence of cryptocurrencies

1. Would you say cryptocurrencies are prevalent? Why?
 - Driving factor (financial independence, crime)
 - Enabling factors
2. Do you intend to use the currencies if not already using them?

Establish the adoption of cryptocurrencies by the South African consumers

4. Have you experienced growth in the SA space in the past 5 years?
 - Increase in enquiries
 - Increase in usage and acquisition
5. Do you think the South African population using cryptocurrencies?
 - Would you be able to say why? (driving factors)
6. What challenges are currently facing growth of cryptocurrencies in SA?
 - Resources
 - Knowledge/ literacy⁸
 - Demand
 - Crime

Regulation of cryptocurrencies

3. Are you aware of any proposed regulation by global institutions? (i.e. IMF)
 - What is it?
 - What does it seek to achieve?
 - Will it stifle innovation?

4. Are you aware of any regulation by individual governments or bodies such as the EU?
 - What is it?
 - What does it seek to achieve?
 - Will it stifle innovation?
5. Can you think of any regulation that could be deemed appropriate?

Do you perceive any risks posed to the banks in SA?

2. What are they?
3. Which banking sector will be affected the most? (Commercial, central, investment etc.)? Why?
4. What will be the impact of the risks if they manifested?
 - National, money government?
 - Customers?
5. Can banks do anything about it?
 - Will use of Blockchain technology help the banks in any way? How?
 - What else can the banks do?
6. Can governments do anything to protect the banks?

Appendix 3: Interview Schedule

This interview schedule presents the list of senior individuals that were interviewed for the study, these participants poses expert knowledge of the South African banking sector.

Appendix 4: Ethical Clearance Letter

**Gordon
Institute
of Business
Science**
University
of Pretoria

02 November 2017

Moyo Mthokozisi

Dear Mthokozisi

Please be advised that your application for Ethical Clearance has been approved.

You are therefore allowed to continue collecting your data.

We wish you everything of the best for the rest of the project.

Kind Regards

GIBS MBA Research Ethical Clearance Committee