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Research paper

A Governmental Approach to Address Risks from Cryptocurrencies: Focusing on South Korea

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Abstract

Background/Objectives: Cryptocurrency-related risks range from fraud, to hackings, and to money-laundering, terrorist financing, and tax-evasion. This study aims to investigate how the Korean government has developed and implemented regulatory policies.
Methods/Statistical analysis: This study draws on documentary research. Various documents were used, mainly including government publications, research papers, and trend analysis reports. Documentary research was an appropriate method in this research. Firstly, there has not been enough attention to this research topic, which needed to acquire contextualized knowledge before carrying out empirical research. Secondly, performing empirical research was not feasible at the time of this research due to fast-changing technical elements.
Findings: To effectively control misuse of cryptocurrencies, the Korean government has developed and enforced regulatory policies. The government policies were manifestations of an interdepartmental approach initiated by the higher government. However, those regulatory policies were not based upon any comprehensive regulatory framework tailored to cryptocurrencies. Also, two strands of regulatory strategies were adopted. The first strategy focused on regulating cryptocurrency exchanges. Those exchanges were found to be the least regulated by the government unlike comparable financial exchanges. This approach could be effective in that individual users were required to use traditional banking services when buying and selling cryptocurrencies. The second strategy depended on the pre-existing financial regulatory framework by utilizing public financial institutions. This traditional regulatory framework included watchdog agencies, banks, and credit card companies. The financial regulatory framework also set the boundary for relevant policies of non-financial institutions. In this respect, non-financial institutions involved did not have a clear presence in the framework, while public financial institutions' role was extensive enough to put pressure on cryptocurrency exchanges.
Improvements/Applications: The governmental approach to cryptocurrencies needs to be revamped over time because the contextual factors change constantly. It needs to incorporate government's responses as well as market trends.

Keywords: *cryptocurrency, regulatory policy, financial regulatory framework, financial institutions, non-financial institutions*

1. Introduction

Since the founder of Bitcoin, Satoshi Nakamoto, published his ground-breaking paper in 2008, "Bitcoin: a pear to pear electronic cash system"[1], his conceptual idea has become a reality. Cryptocurrency is an electronic currency which is based on a block chain technology. This technology allows for storing information across the network of personal computers, making them not just decentralized but distributed. This means no central company or person owns the system, yet everyone can use it and help run it. This is important because it is very difficult for any one person to take down the network or corrupt it. Direct financial transactions between trading partners through an electronic ledger which is disclosed to everyone, thus cannot be manipulated. In other words, there is no need of engaging with institutional banks as intermediaries. There are many names for electronic currencies, including not limited to the following: cryptocurrency, digital currency, virtual currency. In this paper, Bitcoin and other electronic currencies will be referred to as cryptocurrency.

Cryptocurrency has emerged as a formidable alternative to fiat currencies. The value of all cryptocurrencies surged over the last couple of years from $7 billion in January 2016 to $600 billion in January 2018. This shows that cryptocurrency markets have continued to expand drastically. Only during January 2018 a total value of the entire cryptocurrency markets fluctuated between $829 billion and $348 billion, which indicates the extremely high volatility. This naturally drew attention from institutional and individual investors, but also from criminals. The emergence of cryptocurrencies has given an investment opportunity to some, while this has posed a risk to many others.

In general, there are three concerns. First, investment fraudsters lure individuals to buy cryptocurrencies for unproven profits. This is because there are people who want to make profits from the hugely violate markets. These people become an easy target of investment fraudsters. There have been several fraud cases dealt with by the South Korean police. Second, large-scale hackings occurred against cryptocurrency exchanges. The biggest cryptocurrency exchange in South Korea, Bithumb, was hacked in June 2017 and personal information of around 36,000 users was leaked[2]. Likewise, in January 2018, Japanese cryptocurrency exchange 'Coincheck' was hacked and lost roughly US$ 500 million[3]. One of the repercussions of hacking events was that there were financial and psychological damage to individual users of those exchanges. Third, organized criminals use cryptocurrencies for money-laundering, terrorist financing, and tax-evasion. Due to an anonymity of cryptocurrencies, organized criminals sought to utilize digital currencies in order to hide their

illegal proceeds.

A group of technicians claim that a cryptocurrency does not incorporate criminal nature in itself, which indicates that the technology itself is neutral as any other technologies. However, in general cryptocurrencies are considered a key facilitating tool for criminal exploitation. Media portray that cryptocurrencies are the main vehicles for illegal activities due to their privacy and anonymity. In a similar vein some researchers[4]argue that cryptocurrencies provide criminogenic opportunities to people who do not want to be seen by the authorities. Criminological research seemed to perceive that cryptocurrencies facilitate a range of criminal activities, such as the anonymous trading of drugs, financial and private information, hacking tools[5,6].

The emergence of cryptomarkets was credited to Dark web browsers (e.g., Tor) and cryptocurrencies (e.g., Bitcoin) which cybercriminals use to trade illegal goods and services[4,7,8]. The general perception on cryptocurrencies demonstrates that cryptocurrencies are more likely to be taken advantage of by people with malicious intentions. It was estimated that the average annual revenues from the Darknet marketplaces reached between $150 and $180 million[9]. It was found out that illegal drugs accounted for the disproportionately large portion of the entire trading. As evidence of this, [10] estimated that the total drug revenues on Darknet crypto-drug markets were between $12 and 21.1 million for one month, January 2016. These concerns were also found in South Korea. The South Korean government, including financial watchdogs and criminal justice agencies, has attempted to address criminogenic consequences from cryptocurrencies. It was fairly recently that the authorities identified the consequences and took steps to make some policies.

The research question is this: How does the South Korean government develop and implement regulatory policies regarding cryptocurrencies? The fact that the use of cryptocurrencies extend across cyberspace and physical space poses a new set of challenges. This indicates that addressing risks and threats related to cryptocurrencies requires a different approach from traditional currencies. First and foremost, a relevant policy should have coordinated efforts from various public and private sector organizations, such as banks, financial watchdog agencies, relevant Ministries, and criminal justice agencies, etc. In this regard, it will be looked at the process through which these newly-emerging threats were dealt with by relevant public agencies. The examination of government responses to a new type of security threats is a rare opportunity for academics. In the Korean context, an exploration on regulatory policies on cryptocurrencies has not been carried out yet. This rarity can be a vital contribution to future studies.

2. Materials and Methods

This study draws on documentary research method to investigate the government's approach to regulate cryptocurrencies. This method is the techniques which "categorize, investigate, interpret and identify the limitations of physical sources, most commonly written documents, whether in the private or public domain" [11]. This research strategy has a wide application at any sort of the research process. In this study, various documents were used, mainly including government publications and research papers. On top of them, trend analysis reports were adopted because the research topic here involves a recent emerging phenomenon. When selecting proper documents, we have tried to depend on primary sources rather than secondary sources due to the originality of primary sources. Documentary research was an appropriate method in this research for two reasons. Firstly, as this study aims to explore the South Korean governance on cryptocurrency-related regulations, documentary analyses can be great sources for this exploration. The fact that there has not been enough attention to this research topic, we needed to attain some contextualized knowledge before engaging in empirical data collection and analysis. Secondly, carrying out empirical research was not feasible at the time of this research. As was suggested before, cryptocurrencies and their regulatory policies were very recent developments which merits an exploratory approach rather than confirming or disconfirming a set of hypotheses.

3. Results and Discussion

Market trends of cryptocurrencies in South Korea have been bullish especially since 2015. Cryptocurrency transactions in South Korea accounted for about 23% of the total global transactions. As the virtual markets rise, the volume of transactions in an exchange has surged. Most domestic transactions have been generated through three exchanges(i.e., Bithumb, Coinone, and Korbit). According to CoinMarketCap, one of prominent global indexes of cryptocurrency prices, as of March 2018, there were over one thousand cryptocurrencies available for trading globally. Although all these currencies were based on similar technologies, the global society watched a flood of various virtual currencies with different characteristics. Moreover, as the awareness of cryptocurrencies becomes higher, transaction volume and price fluctuation surged drastically as shown in Table 1. This caused a concern about price manipulation and market speculations. In case of Ethereum, the daily average transaction increase over 1,500% between 2016 and 2017, and the maximum price fluctuation on a daily basis was 53% [Table 1]. This shows how unstable cryptocurrency markets are.

Table 1: Transactions and price fluctuation of major cryptocurrencies (US$)

Cryptocurrencies	Daily average transactions			Maximum daily price fluctuation
	2017	2016	% change	
Bitcoin	623.2 million	89.1 million	600% ↑	47%
Ethereum	329.7 million	20.0 million	1,544% ↑	53%
Ripple	77.0 million	1.4 million	5.4% ↑	91%

(Source: coinmarketcap.com and Coinone.co.kr)

Although cybercrimes related to cryptocurrencies were new in South Korea, it has emerged as one of the most damaging issues in the past few years. According to the statistics by the Korean Police[12], 714 cases of cryptocurrency related offences were reported to and investigated by the police in the first half of 2017. As described in Table 2, the National Police Agency classified cryptocurrency-related offences into three groups: extortion, fraud, and money-laundering types. As cryptocurrencies become household names, types of the related offences have increased and diversified correspondingly. In 2015, cryptocurrency-related crimes centered around simply selling and buying ransomware and illegal drugs online. In 2016, cryptocurrencies were more widely used, which led to new types of cybercrimes. For example, in order to avoid arrests and prosecutions, fraudsters used to borrow a bank account from a third person, but now they could use cryptocurrencies instead.

Table 2: Major crimes related to cryptocurrencies (January 2017 - June 2017)[12]

Total	Extortion type		Fraud type		Money-laundering type	
	hacking	Cyber fraud	Investment Recruitment	Illegal money borrowing	Illegal transaction	Damage claim

			fraud			
714	86	109	168	134	82	135

As of July 2017, it was estimated that around 20 cryptocurrency exchanges operated in South Korea. At the time of this research, there was no unified domestic system which could identify existence and operation of the exchanges. Because the exchanges were registered as a tele-marketing business, they were not required to reveal the nature of their business to the government. The Korean government identified around 20 exchanges with the help of National Tax Service and local banks and online searching[13]. Eleven exchanges were identified by investigating exchange-bank transactions and three exchanges were found because of their business registration for tax services. This represents that the current regulations do not provide an accurate landscape of the operating cryptocurrency exchanges in Korea yet.

Over $1 trillion transactions are carried out daily without applicable regulations. The lack of the regulations opened a loophole in protecting investors, regulating foreign transfers, and policing speculation, etc. However, there are no unified responses to cryptocurrencies on the international level as well as by nations. First and foremost, it is difficult to define the nature and characteristics of cryptocurrencies. Should they be recognized as a legal currency or investment product? This is the underlying question. Unless this question is not answered, finding an effective framework to regulate them would not be possible. Many countries, such as Japan, Spain, Germany, and the EU, recognized cryptocurrencies as a means of payment and tried to apply currency-related laws[14].

The first difficulty is derived from the untraceable nature of cryptocurrencies. Based on anonymous trading, traders can transfer criminal proceeds, avoid taxation, and carry out illegal currency exchanges. In order to stamp out these illegal trading, the authorities should identify the traders. There are three possible scenarios. First, if traders use domestic cryptocurrency exchanges, police can identify traders by using court warrants. Second, if traders use foreign exchanges, court warrants are helpless. To make matters worse, if traders use mixing methods, it is very difficult to identify them. Third, if traders use their own private account without using any sort of exchanges, it is almost impossible to trace them.

The second difficulty related to the inundation of cryptocurrencies. Although most cryptocurrencies depend on blockchain technology, each cryptocurrency has different characteristics by emphasizing a specific nature. For example, some developers created cryptocurrency with strengthened anonymity (e.g., Dash and Monero). Currently, there are over 1,500 types of cryptocurrencies in circulation. Due to the inundation of those cryptocurrencies, fraudsters easily lure individual investors by promising a high return. However, cryptocurrencies have not been vetted by any public authorities and their circulation has not been permitted through a formal procedure. It is worth noting that South Korean police have arrested two groups of fraudsters who allegedly issued new types of cryptocurrencies and lured investors with empty promises.

The third difficulty lies in an absence of regulatory tools on cryptocurrency exchanges. The most important party involved in trading cryptocurrencies is a cryptocurrency exchange. As explained previously, 99% of all domestic transactions occur via the three major exchanges. Considering the scale of daily transactions in terms of money and users, in fact an exchange is run as any other traditional financial institutions. However, unlike those financial institutions, cryptocurrency exchanges are not regulated as much. Based on Korean Capital Market Act, these exchanges are not defined as a financial investment business. These exchanges are reported to the government as a tele-marketing business. This is the same business classification with online shopping businesses. This sort of classification does not require permission for running a cryptocurrency exchange. In line with this lax registration system, there are no financial regulatory interventions such as circuit breakers or transaction monitoring mechanisms[15]. Given distorted market and speculative demand for profit margin, the Korean government needs to find financial interventions to prevent large-scale losses of investors. Under the current circumstances, it is hard to expect full protection of investors and investment in security elements.

As cryptocurrency has become another financial tool with great fanfare, several Korean public organizations held meetings from the second half of 2017. Those participating organizations were mostly financial institutions, such as Fair Trade Commission, Financial Supervisory Service, Financial Services Commission, Ministry of Strategy and Finance, and Bank of Korea, etc[14]. Sporadic meetings which included more participating organizations were held afterwards. Although both financial and non-financial institutions participated in those meetings, discussions and outputs centered on financial regulations. This demonstrated the perception that cryptocurrency should be regulated under a financial framework. The Korean government publicly claimed that cryptocurrencies were not recognized as one of formal financial tools, but as a quasi-financial one[14]. Based on this understanding, the government aimed to contain negative effects of cryptocurrency transactions on financial transaction markets. Following this aim, there were two other ancillary objectives[16]. The first objective was to carry out applicable measures to protect individual users as well as to ensure transaction transparency within the legal boundary. The second objective was to fix loopholes in crypto currency transactions along with strengthening regulations on them. In order to achieve the aim and objectives, the government established two strands of regulatory strategies. The first strategy centered on creating feasible regulations, whereas the second strategy concerned enforcing already existing regulations.

The first strategy focused on establishing regulations on crypto currency exchanges. As explained in the previous section, the exchanges in South Korea is the least regulated entities. It is well known that financial institutions have reviewed comparable foreign polices from the US and Japan and attempted to find applicable policies in Korea. However, the Korean government has not proposed any concrete policies on regulating the exchanges until now[15]. Instead, the government asked for voluntary self-regulations by themselves[16]. To avoid an overheated market, major exchanges were persuaded to suspend trading on margin and buying crypto currencies via credit cards. Moreover, indirect regulations were created by using pre-existing financial institutions such as banks and credit card companies. These regulations could be more effective and swifter because these financial institutions were strongly influenced by financial watchdog agencies. Firstly, banks implemented a policy which could control a deposit to and withdrawal from accounts related to crypto currency transactions. Secondly, some credit card companies stopped payment services for purchasing crypto currencies.

The second strategy depended on the pre-existing regulatory framework. It has been the usual case that financial and non-financial institutions initiated joint campaigns against illegal financial transactions such as extortion, falsely guaranteeing high interests, loan-sharking, pyramid selling and phishing[16]. Fair Trade Commission, Financial Supervisory Service, the Prosecutor's Office, and the Police were participators in these campaigns. It was the same case at this time. These government organizations carried out regulatory enforcement on fraud cases related to crypto currency transactions from the middle of 2017 and onwards. The table 3 shows five major crypto currency-

related criminal cases in 2017. Once they identify perpetrators, the authorities attempted to detain criminals without bail considering damage, modus operandi, and consequences on real economy. Aligning with private associations in the financial sector, the authorities reinforced monitoring on illegal crypto currency transactions. In case of crypto currency-related crimes, it is important to confiscate digital currencies and return illegal proceeds to victims. The Prosecutor's Office and the Police established a protocol to transfer illegal crypto currencies to an investigator's authorized wallet account to initiate this procedure. While financial institutions took advantage of their leverage in terms of controlling crypto currency transactions, non-financial institutions relied on a crime control approach to address perpetrators.

Table 3: Cryptocurrency-related criminal cases[12]

May 2017	Arrested 71 drug dealers (Korean-American organized criminals and domestic dealers)
May 2017	Arrested 8 illegal porn website organizers (The website had around 1.21 million users and the authorities confiscated 216 bitcoins)
June 2017	Arrested 5 fraudsters who urged victims to invest in 'Coinone' with falsely claiming up to 1,000% profits (Criminal proceeds reached 7 billion won)
August 2017	Arrested a company owner who falsely guaranteed over 100% profits in 6 months if victims buy 'Hedgebitcoin' (There were 35,000 victims and criminal proceeds reached 150 billion won)

The regulatory strategies indicate that regulations on cryptocurrency were predominantly driven by public financial institutions (e.g., Fair Trade Commission, Financial Supervisory Service, Financial Services Commission, Ministry of Strategy and Finance, and Bank of Korea). They not only created regulations, but also engaged in enforcing those regulations. This demonstrates that their role was wide enough to put pressure on cryptocurrency exchanges. Non-financial institutions such as the Police and the Prosecutor's Office had a limited role in that these agencies concerned cryptocurrency-related financial crimes, not directly regulating the flow of cryptocurrencies. In addition, the Korean government has not presented any comprehensive regulatory framework tailored to cryptocurrencies. Instead, they sought a direction for voluntary self-regulations by the exchanges. Most of down-to-earth regulations were based on the pre-existing regulatory framework. This traditional regulatory framework included watchdog agencies, banks, and credit card companies. This approach could be in part effective because cryptocurrency transactions require individuals to use traditional banking services when cashing in and out. However, there are many cases which do not need to go through domestic banking services. If a Korean citizen opens a cryptocurrency account in a foreign nation using a foreign bank account, his or her cryptocurrency transactions cannot be regulation by the framework. Also, if a Korean criminal only engages in transferring cryptocurrencies to and from foreign accounts, it is very difficult to identify this illegal activity.

4. Conclusion

Despite its seriousness, academic research on cryptocurrency-related illegal activities is lacking internationally and South Korea is no exception. The extant literature have focused on understanding risks and threats posed by cryptocurrencies. By contrast, how the regulatory authorities including financial and non-financial institutions developed and implemented policies has not been sufficiently understood, and there is a clear lack of the theoretical background needed for establishing a framework for policing this emerging area. Studying the cryptocurrency-related illegal activities in the South Korean context is of importance in that the transaction volume in South Korea takes up about 23% of the total transactions around the world. Therefore, the Korean governance on regulating cryptocurrency may have a great influence on the global markets.

Discussions on cryptocurrency regulations are at an early stage. The South Korean government has been criticized for its ambiguous strategy. This may due to an inefficiency of public organizations or the complex nature of cryptocurrencies. The analyses here found out that the Korean government has not come up with a new regulatory framework, but largely depending on the previous financial framework that has been hitherto used. Considering that cryptocurrency-related technologies advance over time, this approach will expose loopholes as suggested. Although the government suggested a direction towards self-regulation among the cryptocurrency exchanges, this may be disastrous as a result if any appropriate guidance is not presented. This study is meaningful in that it suggests policy implications from the strategic point of view by reviewing a wide range of documents. It is expected that this study could be used as a supporting material for future strategies or policies.

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