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# **Financial Studies**



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## FINANCIAL STUDIES



ROMANIAN ACADEMY "COSTIN C. KIRIŢESCU" NATIONAL INSTITUTE FOR ECONOMIC RESEARCH "VICTOR SLĂVESCU" CENTRE FOR FINANCIAL AND MONETARY RESEARCH



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## LONG MEMORY IN TURKISH STOCK MARKET AND EFFECTS OF CENTRAL BANKS' ANNOUNCEMENTS

#### Elif ERER, PhD Candidate\* Deniz ERER, PhD Candidate\*\*

#### Abstract

This paper investigates the response of stock market volatility to CBRT's and FED's interest rate increase and reduction decisions in Turkey over the period of 02.01.2004-31.01.2017. For this purpose, we used APARCH, FIAPARCH-CHUNG, FIAPARCH-BMM models. The results of analysis indicated presence of long memory in the conditional variance and FIAPARCH-CHUNG is the most appropriate model according to Akaike and Schwarz information criteria. It was seen that interest rate decisions made by CBRT and FED haven't any significant effect on stock market volatility. This situation means that expected interest rate decisions are priced by market participants and investors. Shocks to stock markets have persistent effect on volatility.

Keywords: Monetary Policy, Stock Market Volatility, Long Memory

JEL Classification: E52, C58, E44

#### 1. Introduction

It is quite important for financial investors and policymakers to determine the effect of monetary policies implemented by central banks on stock market volatility because volatility is one of risk measures. Increase in the volatility implies means higher risk (Lim and Sek, 2013). Daly (2008) expresses that high volatility of stock market can reduce investors' confidence, economic activity and investments.

The relationship between monetary policy and stock market constitutes first stage of effect of monetary policy on real economy via

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channels of monetary transmission such as the wealth effect, the investment effect, the balance sheet effect and the liquidity effect (Mishkin, 1976). Another way to explain the so-called relation bases on the theory of asset pricing. According to this theory, monetary policy affects stock market prices with two ways: cash flows and discount rate (Bernanke and Kuttner, 2005). One of determinants of stock market volatility is monetary policy. Monetary policy decision can increase or decrease stock market prices by affecting short term interest rate. A contractionary monetary policy rises interest rate and leads to reduce stock market prices (Qayyum and Anwar, 2011; Zare, Azali and Habibullah, 2013).

Interest rate declaration by major cental banks affects especially emerging financial markets. These declarations affect the expected values of discounted cash flows by changing short-run interest rate, and thus lead to increase or decrease in stock prices. The higher stock prices and stock returns cause the lower stock market volatility. This situation is called as "leverage effect" (Zare et. al., 2013). As examined the literature about the effect of declaration by central banks on stock market, especially FED's news are priced by market participants in other countries (Miyakoshi, 2003; Kim, 2003, 2005; Phyklaktis and Ravazzolo, 2005).

We purpose to exhibit the effect of decisions to increase or decrease interest rate implemented by CBRT and FED on Borsa Istanbul index volatility. We came across only a study analysing impact of monetary policy on Turkish stock market volatility (Çelik et. al, 2015). Çelik et. al indicated that impact of a change in CBRT's policy rate and forward guidance of CBRT, FED and ECB on volatilities of 1. session and 2. session of Borsa Istanbul. However, their study did not consider long memory. So, in this study we estimated so-called relationship by FIAPARCH model taking into account long memory in volatility. Therefore, we aim to contribute to literature. The other contribution of this study is to examine separately effects of both reduction and increment decisions in interest rate. Therefore, we can compare the effect sizes for both decisions and revealed which decision is more effective on stock market volatility in Turkey.

#### 2. Literature Review

It is largely examined how monetary policy affect stock market volatility in the literature (Lobo, 2002; Bomfim, 2003; Chen and Clements, 2007; Farka, 2009; Vahammaa and Aijo, 2011). Some of these studies embrace so-called relationship in terms of volatility asymmetry (Lobo, 2000; Bernanke and Kuttner, 2005, Chulia et. al., 2010). Lobo (2000) examined the effect of changes in FED interest rates on stock market volatility using ASAR-EGARCH model and stated that expected monetary policy changes are perceived as a signal by investors, and thus the changes in policy interest rates have not any effect on stock market volatility when expected. Kim and Honda and Kuroki (2006) revealed the response of stock market to the monetary policy in Japon. They pointed out that unexpected interest rate reductions augment stock market returns and diminish stock market volatility. Nguyen (2009) examined the spillover effect of FED's and ECB's interest rate announcements on 12 stock market returns and volatilities in Asia-Pacific for 1999-2006 using GARCH models. Stock market returns decreases In case of unexpected increases in policy interest rate. In addition, the announcements made by both central banks raise stock market volatilities. The news about FED' and ECB's policy decisions lead to persistence in volatility. FED's announcements are more quickly absorbed by market participants than ECB's news. Chulia vd. (2010) examined that the asymmetric impacts of FED announcements on stock market volatility using realized volatility over the period of 1997-2006. In the study, they used high-frequency intraday data connected S&P100. In the result of the analysis, they found that bad news more affected stock market volatility than good news. Moreover, presence of news is more important for bad news while the magnitude of so-called news is more important for good news. Chulia et. al. (2010) indicated that the responses of stock market volatility to FED's announcements about negative and positive interest rate decisions are different using realized volatility model. The effect size of positive interest rate decisions is higher. Kishor and Marfatia (2013) stated that the responses of stock markets in emerging countries and Europe to FED's monetary policy surprises are negative and higher in crisis periods.

Also, there are the few studies which has investigated socalled relationship over different business cycles (Guo, 2004; Financial Studies – 3/2017

Andersen et. al., 2007; Chen et. al., 2007; Jansen and Tsai, 2010; Chen, 2013). Konrad (2009) stated that the response of German stock market volatility to interest rate changes made by central bank is higher in bear markets. Using pooled mean group estimation and Markov switching regression, Zare et. al. (2013) found that interest rate increases made by central bank affect strongly stock market volatility in bear markets than bull markets in ASEAN5 over the period of 1991:1-2011:12. This indicates that monetary policy is more effective in bear markets. Chen (2013) investigated how FED monetary policy movement affected airline, gambling, hotel and travel and leisure index returns in bull and bear markets. For this purpose, he utilised from event study based on Markov-switching model. From the result of the study, it was seen that airline, gambling and hotel index returns gave greater reaction to monetary policy in bear markets in comparision to bull markets. However, travel and leisure index returns was greatly affected by monetary policy in bear markets.

As examined the studies in Turkey, Duran et. al (2010) analysed impact of monetary policy on stock market prices and market interest rates by using GMM method considering heteroscedasticity and found that raises in policy rate reduce stock market prices. Duran et. al (2012) examined effect of monetary policy on asset prices by heterocedastic-based GMM method and conclude that raises in policy rate cause decreases in stock market prices. Celik et. al (2015) indicated effects of CBRT's policy rate and forward guidance of CBRT, FED and ECB on 1. session and 2. session volatilities of Borsa Istanbul. They used GARCH, EGARCH, TARCH, GJR-GARCH and APARCH models. In the end of this study, they found that a raise in policy rate lead to decrease volatility of session, forward guidance raises volatilities of 1. session and 2. session, but it decreases volatility in whole day. Gökalp (2016) investigated effects of lower bound and upper bound of interest rate corridor on Turkish stock market return by using event study and GMM method. From estimation results of his study, he concluded that raises in upper bound lead to decrease stock market prices while decreases in lower bound cause to increase stock market prices. When examined discrimination of sectors, he found effects of lower bound and upper bound differentiate regarding sectors. Gökalp (2016) analysed separately impacts of expected and unexpected monetary policy on stock market prices. From his estimation results, he inferred that both

expected and unexpected interest rate decisions affect negatively and significantly stock market prices and effect of unexpected interest rate decision is more than expected interest rate decision.

#### 3. Data and Methodology

In this study, we used APARCH and FIAPARCH models in order to obtain conditional volatility of BIST 100 index. APARCH model is introduced by Ding, Garnger and Engle (1993). APARCH model determines fat tail, excess kurtosis and leverage effect. This model is expressed as follows:

$$y_{t} = x_{t}\xi + \varepsilon_{t} \qquad t = 1, 2, ..., T$$

$$h_{t}^{2} = \omega + \sum_{j=1}^{q} \alpha_{j} \left( |\varepsilon_{t-j}| - \gamma_{j}\varepsilon_{t-j} \right)^{\delta} + \sum_{i=1}^{p} \beta_{i}(h_{t-i})^{\delta}$$

$$\varepsilon_{t} = \sigma_{t}z_{t} , z_{t} \sim N(0, 1)$$

$$k(\varepsilon_{t-j}) = |\varepsilon_{t-j}| - \gamma_{j}\varepsilon_{t-j}$$

 $y_t = x_t \xi + \varepsilon_t ; t = 1, 2, \dots, T,$ 

mean equation, can be rewritten as

$$y_t = E(y_t | \psi_{t-1}) + \varepsilon_t.$$

where  $\psi_t = \{y_t, y_{t-1}, ..., y_1, y_0, x_t, x_{t-1}, ..., x_1, x_0\}$ .  $\xi, \omega, \alpha_j, \gamma_j, \beta_i$  ve  $\delta$  are parameters.  $\gamma_j$  is leverage effect. Positive  $\gamma_j$  states that negative information have a stronger effect on volatility than positive information.

Volatility tends to change quite slowly over time in APARCH model. Thus, the Fractionally Integrated APARCH (FIAPARCH) model is developed by Tse (1998). FIAPARCH model takes into account long memory in volatility. FIAPARCH (p,d,q) model is expressed as follows:

$$\sigma_t^{\delta} = \omega [1 - \beta(L)]^{-1} + \{1 - [1 - \beta(L)]^{-1} \phi(L) (1 - L)^d\} (|\varepsilon_t| - \gamma \varepsilon_t)^{\delta}$$

where  $-1 < \gamma < 1$  and  $\delta > 0$ . When  $\gamma$  is positive, negative information have a stronger effect on volatility tahn positive information. If 0 < d < 1, the conditional volatility shows long memory characteristic. When d=0, FIAPARCH model reduces to the APARCH model.

The aim of this study is to compare effects of monetary policies implemented by CBRT and FED on the volatility of BIST 100 index. Thus, we used dummy variables that reflect policy rate increase and reduction decisions. We used BIST 100 stock market daily closing price index covering the period of 02.01.2004-31.01.2017. BIST 100 index is drawn from Yahoo Finance database. We calculated return series as follows:

$$r_t = \frac{\log(P_t)}{\log(P_{t-1})}$$

where  $P_t$  is closing price of BIST 100 index. All variables used in the study are shown in Table 1.

Table 1

	Variables	Used In	The Study	/ and '	Their	Defitions
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Değişkenler	Açıklamaları
RBIST100	Daily return of Borsa Istanbul 100 (BIST 100) index
Dummy	Dummy variable indicating interest rate increase or reduction decisions made by central banks



Figure 1 show daily BIST 100 index return. As examined Figure 1, it has seen that large changes in the return tend to be follow by large change and small changes tend to be follow by small changes. This situation is defined as volatility cluster. Besides, it can be expressed that the volatility rises in 2007 and 2008 years when reflect financial crisis periods.

#### Table 2

Statistics	BIST100	
Mean	0.000448	
Median	0.000429	
Standart Devition	0.016803	
Skewness	-0.272470	
Kurtosis	6.508303	
J-B	1779.427***	
Q(15)	22.639 <sup>*</sup>	
Observation	3388	

**Descriptive Statistics of BIST 100 Return** 

*Notes:* \*, \*\*, \*\*\*\* *represent the significance at 10%, 5% and 1% levels.* 

The descriptive statistics relating to so-called return are seen in the Table 2. As examined Table 2, mean of the return is positive. According to skewness and kurtosis values, returns are not normally distributed and display the characteristic fat-tailed behaviour. When considered Q(15) statistics, it is seen that returns have serial dependence.

#### 4. Empirical Results

We utilized from APARCH, FIAPARCH-BMM and FIAPARCH-CHUNG models to analyze sensitive of the stock market volatility to both CBRT's and FED's interest rate decisions in Turkey. Table 3 reports APARCH, FIAPARCH-BMM and FIAPARCH-CHUNG model estimation results. Financial Studies – 3/2017

Table 3

#### APARCH, FIAPARCH-BMM and FIAPARCH-CHUNG Model Estimation Results

		FIAPARCH-	FIAPARCH-CHUNG
Models	APARCH(1,1)	BMM(1,1)	
$\alpha_0$	0.732409***	1.782937	85.017234
	(1.5288)	(2.3669)	(70.343)
$\alpha_1$	0.090331***	0.099467	0.135874
	(0.018250)	(0.10765)	(0.10392)
$\beta_1$	0.844386***	0.236783**	0.315231***
	(0.033364)	(0.11342)	(0.10273)
$\gamma_1$	0.427965***	0.551390	0.626634
	(0.18371)	(0.17598)	(0.20132)
$\delta_1$	1.653690	1.618179***	1.281916***
	(0.48141)	(0.25033)	(0.18892)
GED	1.536929	1.318205	1.325310***
	(0.001971)	(0.055922)	(0.056356)
d-Figarch		0.220952	0.264644***
		(0.049483)	(0.035835)
Akaike	-5.450183	-5.540229	-5.541516
Schwarz	-5.435208	-5.514907	-5.523428
Q(50)	197.79	59.5216	60.0046
ARCH-LM	(5)0.80444	0.37310	0.53898
Q <sup>2</sup> (50)	42.9818	40.2473	42.6844

Notes: Standard errors are given in parenthesis; Q(50) is Ljung-Box Q test statistics at lags 50; \*,\*\*, \*\*\*\* represent the significance at 10%, 5% and 1% levels; ARCH-LM is heteroscedasticity test statistics;  $Q^2(50)$  is Ljung-Box test statistics relating to square errors at lags 50; d-Figarch is test statistics relating to long memory.

As examined diagnostic test results relating to residuals from APARCH(1,1) model, it is seen that autocorrelation problem at 50th lag is not removed. Also, d parameters indicating long memory in FIAPARCH-BMM(1,1) and FIAPARCH(1,1) models are significant at 0.01 significant level. This situation means that APARCH model have long memory. According to Akaike and Schwarz information criteria, FIAPARCH-CHUNG(1,1) model was selected. Tale 5 reports the estimation results of FIAPARCH-CHUNG(1,1) model created to exhibit the effects of CBRT's and FED's interest rate increase and reduction decisions on BIST100 index volatility.

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#### Table 4

#### FIAPARCH-CHUNG Model Estimation Results Relating to CBRT's and FED's Interest Rate Decisions

	Interest	Rate Inc	crementInterest	Rate Red	uction
Models	Decisions		Decisions		
	CBRT	FED	CBRT	FED	
$\alpha_0$	85.741218	84.958527	83.132739	114.458148	
	(76.183)	(78.055)	(74.428)	(71.107)	
$\alpha_1$	0.137816	0.134981	0.131651	0.153411	
	(0.10398)	(0.10547)	(0.10213)	(0.10572)	
$\beta_1$	0.320344***	0.314145***	0.312415***	0.343884***	
	(0.10230)	(0.10378)	(0.10117)	(0.10864)	
$\gamma_1$	0.621529***	$0.626544^{***}$	0.612511***	0.664502***	
	(0.20858)	(0.21263)	(0.20477)	(0.18043)	
$\delta_1$	1.280437***	$0.20791^{***}$	$1.289441^{***}$	$1.228700^{***}$	
	(0.20152)	(6.167)	(0.20322)	(0.14732)	
Dummy	0.002155	-0.000313	-0.001064	$-0.002242^*$	
	(0.0023509)	(0.00090029	(0.00086522)	(0.0014672)	
GED	1.326359***	1.325565***	1.328468***	6.510186***	
	(0.056436)	(0.056392)	(0.056458)	(0.73450)	
d-Figarch	0.265723***	0.264548***	0.266519***	$0.274590^{***}$	
	(0.036087)	(0.036256)	(0.035799)	(0.035320)	
Akaike	-5.541375	-5.540945	-5.542137	-5.541916	
Schwarz	-5.521479	-5.521049	-5.522241	-5.522020	
Q(50)	59.7211	59.8945	59.7306	59.3266	
ARCH-LM(5)	42.7748	0.54557	0.45642	0.60111	
Q <sup>2</sup> (50)	0.59284	42.7262	41.1285	42.7208	

Notes: Standard errors are given in parenthesis; Q(50) is Ljung-Box Q test statistics at lags 50; \*,\*\*, \*\*\* represent the significance at 10%, 5% and 1% levels; ARCH-LM is heteroscedasticity test statistics;  $Q^2(50)$  is Ljung-Box test statistics relating to square errors at lags 50; d-Figarch is test statistics relating to long memory.

As seen in Table 5,  $\gamma_1$  variable indicating leverage effect is significant at 0.01 level and positive for all models. This situation states that negative news have a stronger impact on stock market volatility than positive news. However, dummy variable indicating interest rate decisions of central banks is not significant for all models. In other words, BIST100 volatility is not susceptible to interest rate increase and reduction decisions made by CBRT and

FED. The reason is that so-called decisions are expected by market participants and investors, and they priced previously these decisions. Besides, d parameter is significant for all models. In other words, shocks are persistent effect on BIST100 volatility.

#### 5. Conclusions

In this study, we analysed impact of decisions to increase and decrease in policy rates made by CBRT and FED on stock market volatility in Turkey. In this purpose, we estimated APARCH(1,1), FIAPARCH-BMM(1,d,1) and FIAPARCH-CHUNG(1,d,1) models and found that the most appropriate model considering the persistence in volatility is FIAPARCH-CHUNG(1,d,1) model. The estimation results of this model indicated that stock market volatility is not sensitive to so-called central banks' interest rate decisions in Turkey. This is because the expected interest rate announcements are priced by the market participants and investors in advance. Besides, there exists positive leverage effect, which means negative information have higher effect on stock market volatility than positive information.

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## THE NEXUS OF TREASURY SINGLE ACCOUNT POLICY IN NIGERIA: AN EXPLORATORY DISCOURSE

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#### Abstract

The article examines the nexus of Treasury Single Account (TSA) Policy in Nigeria a developing economy. Generally, government banking arrangements have been seen as important factor in managing and controlling government's cash resources. This is achieved by establishing a unified structure of government bank accounts via a Treasury Single Account (TSA) system. A TSA is a desirable prerequisite for modern cash management and is an effective tool to establish oversight and centralized control over government's cash resources. It provides a number of other associated benefits and thereby enhances the overall effectiveness of a Public Financial Management (PFM) system. Again, incrementalism theory developed by Lindblom and Woodhouse serves as the theoretical underpinning for this discourse. From the foregoing, it is obvious that the primary benefit of TSA is the mechanism it provides for proper monitoring of government receipts and expenditure. In the Nigerian case, it has helped to seal up most if not all the leakages that have been identified as the bane to the growth of its economy. Before the commencement of the TSA policies there exist a situation where MDA's manage their finances with independence as a resort and remit limited revenue to government treasuries. Hence, under a properly managed TSA, this is constrained as agencies of government are meant to spend in line with duly approved budget

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provisions and to remit appropriately. It is therefore recommended that the maintenance of a single account for government will enable it monitor fund flow as no agency of government may be allowed to maintain any operational account outside the oversight of the appropriate agency of government.

**Keywords**: Cash Management, Government Banking, Economic Growth, Treasury Single Account, Nigeria.

#### JEL Classification: G28, O42.

#### 1. Introduction

and banking Government financial arrangements are important factor in managing and controlling government's cash resources. They are critical for ensuring that (i) all tax and non-tax revenues are collected and remittance are made correctly in a timely manner; and (ii) government cash balances are optimally managed to reduce borrowing costs. This is achieved by establishing a unified structure of government bank accounts via a treasury single account (TSA) system. A TSA is a prerequisite for modern cash management and is an effective tool for the government to establish oversight and centralized control over its cash resources. It provides a number of other benefits and thereby enhances the overall effectiveness of a Public Financial Management (PFM) system. The establishment of a TSA should, therefore, receive priority in any PFM reform agenda.

It is important to note that the introduction of the TSA policy in Nigeria has generated a lot of debate both positive and negative. However, it is observed that prior to the introduction of TSA policy various MDAs and public institutions are known to have operated multiple accounts with banks and other financial institutions. This approach is not only against public sector financial management ethics it is also against international best practices. None implantation of the TSA policy has given room for accountability problems both in receipt and in expenditure terms. In 2015, there was a change of government and the high point of this is to curb leakages, corruption and agencies operating multiple accounts. The major approach towards curbing multiple accounts system, financial corruption and leakages is by introducing the TSA policy. The objective therefore of this study is to elucidate the contextual relevance of TSA, its benefits and the need to educate aggrieved because of its novelty.

#### 2. Treasury Single Account in Context

The contextual issues of Treasury Single Account system is ventilated upon in this section. The place of TSA in Public Financial Management, the meaning and relevance of TSA, and the principles of TSA are discussed in this section of the paper.

#### 2.1. TSA in Public Financial Management Systems

If a country has a disjointed system for handling government receipts and payments through the banking system, it is a critical PFM weakness that needs to be addressed. A country with fragmented government banking arrangements pays for its institutional deficiencies in multiple ways. First, idle cash balances in bank accounts often fail to earn market- related remuneration. Second, the government, being unaware of these resources, incurs unnecessary borrowing costs on raising funds to cover a perceived cash shortage. Third, idle government cash balances in the commercial banking sector are not idle for the banks themselves, and can be used to extend credit. Draining this extra liquidity through Open Market Operations also imposes costs on the Central Bank.

A TSA system helps consolidate government cash balances, gives the Agency of Government (Ministry of Finance) oversight of all government cash flows, and brings improvements in budget control and monitoring. It enables regular and effective monitoring of government cash resources by providing complete and timely information. A TSA also facilitates better fiscal, debt management, and monetary policy coordination as well as better reconciliation of fiscal and banking data, which in turn improves the quality of fiscal information. Finally, the establishment of a TSA significantly reduces the government debt servicing costs, lowers liquidity reserve needs, and helps maximize the return on investments of surplus cash (seePattanayak and Fainboim (2010), for a detailed description of benefits of a TSA system).

## 2.2. Exploratory Meaning of Treasury Single Account Policy

A TSA can be defined as a unified structure of government bank accounts enabling consolidation and optimum utilization of government cash resources. It separates transaction level control from overall cash management. In other words, a TSA is a bank account or a set of linked bank accounts through which the government transacts all its receipts and payments and gets a consolidated view of its cash position at the end of each day.

It can be argued that this is a second order effect if the government has issued debt to offset its extra borrowing (as the debt will do the draining). Arrangement for government transactions is based on the principle of fungibility of all cash irrespective of its end use. While it is necessary to distinguish individual cash transactions (e.g., a typical revenue and/or expenditure transaction of a government unit) for control and reporting purposes, these objectives are achieved through the accounting system and not by holding and/or depositing cash in transaction-specific individual bank accounts. This enables the ministry of finance to delink management of cash from control at a transaction level.

In a nutshell, a Treasury Single Account is a public accounting system under which all government revenue, receipts and income are collected into one single account, usually maintained by the country's Central Bank and all payments and disbursements are done through this account as well. The purpose is primarily to ensure full disclosure and accountability of government revenue, enhance transparency and avoid misapplication / misappropriation of public funds. The maintenance of a Treasury Single Account further help to ensure proper cash management by eliminating idle funds usually kept with different commercial banks and in a way enhance reconciliation of revenue collection and payment.

#### 2.3. Key Principles of TSA system

The key principles of TSA are founded on three pillars which are elucidated briefly hereafter.

1) The government banking arrangement should be unified, to enable ministry of finance oversight of government cash flows in and out of these bank accounts and allow complete fungibility of all cash resources, including on a real-time basis if electronic banking is in place. Although a TSA structure can contain ledger sub-accounts in a single banking institution (not necessarily a central bank), and can accommodate external zero-balance accounts (ZBAs) in a number of commercial banks,these separate accounts should be integrated with a top account (called the TSA main account) usually at the central bank for netting off their balances (usually at the end of each day) to get the consolidated cash position.

- 2) No other government agency should operate bank accounts outside the oversight of the treasury. Institutional structures and transaction processing arrangements determine how a TSA is accessed and operated (see Section II). The treasury, as the chief financial agent of the government, should manage the government's cash (and debt) positions to ensure that sufficient funds are available to meet financial obligations, idle cash is efficiently invested, and debt is optimally issued according to the appropriate statutes. In some cases, debt management including issuance of debt is done by a Debt Management Office (DMO)
- The TSA should have comprehensive coverage, i.e., it should ideally include cash balances of all government entities, both budgetary and extrabudgetary, to ensure full consolidation of government's cash resources.

#### 3. Theoretical Framework of Analysis

In public policy, Incrementalism refers to the method of change by which many small policy changes are enacted over time in order to create a larger broad based policy change. This was the theoretical policy of rationality developed by Lindblom to be seen as a middle way between the rational actor model and bounded rationality, as both long term goal driven policy rationality and satisficing were not seen as adequate. Put differently, Incrementalism is a theory developed out of the realization that truly rational decision making is practically impossible given the complexity of the policy environment. That is not to say that policy actors do not have the intent to be rational: their decisions are goal orientated and there are processes followed to achieve those goals. But there are many factors that work against scientific rationalism. Eme and Chukwurah, 2015) identified three reasons for departures from complete rationality in decision making. Firstly, rationality requires that all alternatives are known beforehand; yet in reality, only a few alternatives can ever be specified. Secondly, rationality requires a complete knowledge of the consequences resulting from each alternative; yet the complexity of most policy problems make this impossibility. Thirdly, imagining future consequences implies some level of value judgment in the decision; yet values can never be anticipated or completely defined (Simon, 1997:93). Simon introduced the idea of "bounded rationality"

in decision making: humans desire true rationality, but due to cognitive limitations and the incompleteness of knowledge, decision making behavior is "satisficing" rather than maximizing benefits over costs. Charles Lindblom adopted Simon's ideas about decision making and applied them to the policy process.

Lindblom claimed that policy makers "muddle through" by making incremental adjustments to policies rather than engaging in a comprehensive and rational process and articulating clearly defined policy goals. Instead, successive comparisons are made to already existing policies and policy makers seek agreement where they can or where they have specific knowledge. Political agreement is emphasized as a strategy, rather than clearly defining policy goals, policy instruments and criteria to measure success. Incrementalism is a result of several issues (Lindblom and Woodhouse, 1993). Incrementalism is commonly employed in politics, engineering, software design, planning and industry. Whereas it is often criticized as "fire fighting", the progressive improvement of product designs characteristic, e.g., of Japanese engineering can create steadily improving product performance, which in certain circumstances outperforms more orthodox planning.

The advantages of incrementalism over other formal systems is that no time is wasted planning for outcomes which may not occur.

First, while democratic political systems provide much opportunity for political exchange, ensure significant liberty and wide participation in policy-making, they are cumbersome and troublesome in a number of respects: elections are inefficient and lack dynamic feedback for real-time public input; the public vote on superficial characteristics; political leaders have little accountability; partisan concerns result "safe" policy areas that maximize re-election possibilities; and the system allows more opportunity to delay policy rather than advance it. These issues reduce policy responsiveness, that is, the ability of a political system to translate citizen need into policy action.

Second, human cognitive ability cannot fathom the very large number of variables and interrelationships that constitute policy decisions: Cause and effect relationships are not apparent; consequences of actions are not predictable; irrational preferences, selfishness, fears, desires and values are not apt to 'modelling' or analysis; regardless of analytical power, conflicting beliefs negate the possibility of a single solution; expertise and absolute truth are subjective and value orientated; and while analytical methods are possible, they lack responsiveness and require high level agreement in problem definition.

Third, many policy tasks are essentially delegated to administrative agencies, interest groups, and businesses, especially in technically complex policy areas. Certain interest groups and businesses bring significant organizing ability, financial resources and technical expertise, thus exerting significant influence over policy making as decision makers in the executive and legislative branches rely heavily upon the advice of these experts. On the other hand, bureaucrats may bring technical expertise, but tend to favor continuation of existing practice, stability and policies that favor the organization.

Theoretically, there are several issues with incrementalism as policy theory. Disadvantages are that time may be wasted dealing with the immediate problems and no overall strategy is developed. Eme and Chukwurah (2015) identified them as follows: While it predicts the type of policy change based on certain assumptions about the system and the individual, it falls short of the policy theory criteria specified by Blomquist (2007): incrementalism lacks a detailed description of collective action, institutions, and the boundaries and scope of the theory. In fact, there is justification for labeling incrementalism as more descriptive metaphor rather than scientific theory. The idea seems conceptually intuitive, yet it cannot predict the degree of incrementalism in any policy area (Smith and Larimer, 2009), and there is little agreement over how to operationalize the "increment" other than by examining budget change.

Assuming that an increment can be operationalized, there is no objective standard to determine a value for what counts as an increment and what does not. (See Howlett and Ramesh page 147 on policy change types). Incrementalism relies upon a relatively stable policy landscape, rather than situations where significant new information, problem redefinition or crisis is introduced (Howlett and Ramesh, 2003). Therefore, it cannot account for agenda change as agendas exhibit sharp discontinuous changes in crises, elections, and when new technologies emerge (Kingdon, 1995). In the same sense, incrementalism cannot predict the end of policies. Empirical evidence suggests that policies are subject to relatively frequent punctuations, as expressed in the punctuated equilibrium model developed by Baumgartner and Jones (1993). Finally, as Lindblom advanced the idea of incrementalism as a normative solution, there are several normative critiques identified. Incrementalism does not incorporate ambitious policy goals, but instead encourages "aiming low." It promotes short-sighted decision making that may have adverse long term consequences (Howlett and Ramesh, 2003), for example, Scott (2010) uses incremental policy making to explain the unfortunate decisions made in Vietnam, Afghanistan and Iraq, which prolonged both exit and victory. A good example would be in small changes that make way for a bigger overall change to get past unnoticed. A series of small steps toward an agenda would be less likely to be questioned than a large and swift change. An example could is the TSA policy that is been pursued and implemented in Nigeria.

#### 4. Treasury Single Account Policy in Nigeria

Treasury Single Account (TSA) is one of the financial policies implemented by the federal government of Nigeria to consolidate all in financial / cash flows from all the Agency of Government, i.e. ministries, departments and agencies (MDAs) in the country by way of deposit into Commercial banks traceable into a single account at the Apex bank of the country i.e Central Bank of Nigeria. The compliance has become a compulsory policy that all the revenue generating MDAs must comply with. These MDA's have been mandated to channel their earnings into a single account to be domiciled with the Central Bank of Nigeria (CBN).

The enforcement of TSA marks the beginning of MDAs' retirement of revenues due to the Federal Government into a unified account maintained by the CBN, since 2015. The payment of government revenue into multiple bank accounts operated by MDAs in commercial banks, as obtained under the old order, was discouraged as it is clearly against the Nigerian Constitution which, in Sections 80 and 162, directed that all federally-collected revenues should be paid into the Federation Account. It was a flagrant breach of the constitution that underscores the rot in the management of the country's finances. It is heartening that this will now be history, going by the efforts of the new administration to implement the TSA policy that was reportedly first recommended by the Federal Government's Economic Reform and Governance Programme in 2004, but dumped in 2005, following intense pressure from the banking and financial

industry. TSA also forms part of the Public Financial Management reforms which falls under Pillar 3 of the National Strategy for Public Service Reforms towards Vision 20:20:20. The Public Financial Management reforms were designed to address impediments to effective and efficient cash management. The February 2015 deadline for the compliance and implementation of the TSA initiative failed. This is because of the continuous Pressure from the Banking and Financial Institution operating in the countrycontinues to mount. The implementation of the TSA policy no doubt revealed/exposed the weaknesses of the Financial and Banking sector in the Nigerian economy, as well as on the reasons of a likely negative impact on the economy as often advanced by the financial / banking institutions which is to their own advantage. Recently, it was also reported that the implementation of TSA would adversely affect liquidity in the banking system and end up putting pressure on interest rates and availability of credit to the economy.

Accordingly, Eme and Chukwurah (2015), the nation's banks would be losing about N2 trillion deposits to the CBN with the implementation of the Treasury Single Account TSA all with the aim of discouraging the government from implementing and enforcing the constitutional mandate for public financial management. Meanwhile, the report on accounts of banks with CBN shows that as at beginning of September (2015) quarter banks' total public sector deposits was N1.3 trillion (Central Bank of Nigeria (2015) page37) but additional net flows from Federation Accounts Allocation Committee (FACC) when added makes it greater. (Okwe et.al, 2015:53, Eme and Chukwurah, 2015). Accordingly, this measure is specifically to promote transparency and facilitate compliance with sections 80 and 162 of the 1999 Constitution. Henceforth, all receipts due to the Federal Government or any of its agencies must be paid into TSA or designated accounts maintained and operated in the CBN, except otherwise expressly approved.

Again, TSA is a unified structure of government bank accounts enabling consolidation and optimal utilization of government cash resources. It is a bank account or a set of linked bank accounts through which the government transacts all its receipts and payments and gets a consolidated view of its cash position at any given time. This constitutional compliance ends the previous public accounting situation of several fragmented accounts of government revenues, incomes and receipts, which in the recent past has caused the loss or leakages of legitimate income meant for the government. The TSA is therefore a process and tool for effective management of government's finances, banking and cash position. In accordance with the name, it pools and unifies all government accounts through a single treasury account.

The advantages and benefits of the TSA are numerous as well as compelling to adopt.

- 1) The consolidation into a TSA paves way for the timely capture and payment of all due revenues into government coffers without the intermediation of multiple banking arrangements.
- This prevents revenue leakages in terms of revenue loss and mismanagement by operators of all revenue-generating agencies.
- 3) With this comes better cash management practices since the Treasury can at all times have an overall view of government's cash position, as against the fragmented positions of different Ministries, Department and Agencies (MDAs), which need to be laboriously pooled together to get the overall picture.
- 4) This will reduce the cost of borrowing by government and its agencies, as the government will likely be liquid at most times of the year. As hypothetically illustrated and simplified further; take the example of the practice before the TSA, MDA 'A', based on budgetary releases could have surplus cash (meaning cash that is not immediately required) in its bank accounts whilst, MDA 'B', which needs immediate cash for urgent transactions is cash starved and has little or nothing in its account. Although, MDA 'B' has approvals in the budget for transaction, it has no immediate cash. MDA 'B' is likely to borrow from a bank at an interest to carry out the urgent assignment, thereby incurring costs to Treasury, whilst treasury finances lie idle in MDA 'A'. This would no longer happen under an effective TSA policy.

Prior to the implementation of the TSA, government was incurring finance cost on debit balances in some MDA's accounts while it was earning close to nothing on the credit balances of other MDAs. With the TSA, the net balances on all the MDA accounts will now reside with the Central Bank; hence, the government will avoid incurring interest costs when it has positive net position. Treasury Single Account as a unified structure of government bank account enabling consolidation and optimal utilization of government cash resources. It is a bank account or a set of linked bank accounts through which the government transacts all its receipts and payments and gets a consolidated view of its cash position at any given time. A TSA therefore is considered a prerequisite for modern cash management and is an effective tool for government to establish oversight and centralized control over government's cash resources. In other words, the TSA provides a number of other benefits and thereby enhances the overall effectiveness of a Public Financial Management (PFM) system.The establishment and compliance to a TSA should, therefore, receive priority in any PFM reform agenda.

#### 5. Policy Implication of TSA

It is obvious that the primary benefit of a TSA policy implication is the mechanism it provides for proper monitoring of government receipts and expenditure. In the Nigerian case, it will help to block most if not all the leakages that have been the bane of the growth of the economy. Under a properly run TSA, this is not possible as agencies of government are meant to spend in line with duly approved budget provisions. The maintenance of a single account for government will enable government monitor fund flow as no agency of government is allowed to maintain any operational bank account outside the directive of government.

Deposit money banks stand to be affected by the implementation of TSA. This is because of the fact that public sector funds which constitute a large chunk of commercial banks deposit will decline. Indeed, it is estimated that commercial banks held about N2.2 trillion public sector funds at the beginning of sector quarter of 2015. The impact of this quantumamount of money leaving the Banking system can be imagined. The banking system is usually awashed with liquidity and as soon as this public sector funds dries up through withdrawal by the states, liquidity tightens again with interbank rates going up. Of major impact will be the movement of commercial banks. It will further reduce borrowing from government and also accelerate the provision of infrastructure for its people and economic growth.

#### 6. Recommendations and Conclusion

It is therefore recommended that:

- 1) Government should continue to maintain, enforceand strengthenup the TSA policy.
- 2) Proper public education and enlightenment should be adequately embarked upon and pursued.
- Funds accrued via this policy should be properly channeled at providing basic infrastructural facilities such as good transport networks, energy, health, education and housing among others.
- 4) Breach of the TSA policy directive should be sanctioned and penalized.
- 5) This policy could be extended to non- governmental organizations of interest to government in order to cub some of their excesses.

Finally, the implementation of this policy is critical towards curbing financial leakages, excesses as in public finance, it eliminates financial indiscipline and ensure adequate fund flow that will be channeled to critical sectors of the economy. Thus guiding government in its spending and receipts towards accelerating the rate of national growth and development.

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## DID MANAGER BEHAVE OVERCONFIDENTLY?

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#### Abstract

This research examines the hypothesis of manager overconfident on financing decision. According to previous research, the manager of higher growth firms tends to have overconfidence to use higher financial leverage on their financing decision, that causes the declining of its performance in the future. The empirical results of this research show that higher growth tends to have higher financial leverage and reduced performance in the future. Nevertheless, higher financial leverage on higher growth is not implied overconfident behavior. Instead, higher financial leverage is a rational decision on financing higher growth firms. This research also gives a different evidence of the firms' financing behavior in Indonesia. This evidence shows that employing higher financial leverage to proof the hypothesis of manager overconfident is appropriately used on firms which have weak growth.

**Keywords**: Sales growth, Debt, Financial leverage, Long-term performance

JEL Classification: G0, G1, G3

#### 1. Introduction

Lehman Brothers Inc. the big company of the United States (US) business' history, announced its bankruptcy, in the middle of 2008. Previously, it had aggressive growth in its business as a result of the glut of available funds and the high growth of US housing

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market (Wiggins, Piontek, & Metrick, 2014). To fulfill the aggressive growth, Lehman Brothers raised its financial leverage. Afterwards, they faced bankruptcy because it could not fulfill its debts payment to the creditor. There was not only Lehman Brothers in this situation, but other important brands, such as General Motors, Blockbuster, Kodak, etc. In 1998, many countries in southwest eastern Asia also suspected financial crisis due to the same cases. That evidence was given insight that using high financial leverage on financing decisions at high growth phase increased bankruptcy risk of the firm.

Many scholars have examined how higher financial leverage caused the bankruptcy of higher growth firms. For example, Ramezani et al. (2002) said that higher growth companies tend to use higher financial leverage on their financing decisions, then faced bankruptcy. For example, Lehman Brothers, Kodak used high financial leverage as a scheme of financing decisions, and after that, they faced bankruptcy because they could not fulfill their debt payments to the creditor. This is well explained by the trade-off theory of capital structure which said that employing higher leverage could increase the bankruptcy risk of the firms (Kraus & Litzenberger, 1973; Scott, 1977). However, this argument is contrary to the other theory of capital structure, such as Modigliani-Miller theory, pecking order theory, and agency theory that said higher debts had given the advantage of making effective cost of capital and minimizing the agency conflict. The different explanation of the phenomenon needs an alternative approach for getting elaboration apparently.

Gombola & Marciukaityte (2007) give a behavioral perspective as an alternative approach to solving this phenomenon. Their research found that the managers of higher growth firms behave overconfidently on taking the risk by using higher financial leverage to run their business. The overconfidence is one of the behavioral bias that would make people irrational on making decisions. Therefore, it would cause on the declining of the firms' long-run performance. However, we found some weaknesses in their research, regarding especially the research method employed. Gombola & Marciukaityte (2007) use three variables: firm growth, financial leverage, and businesses' performance, but they did not employ the systematical relation between variables. Thus, without the relationship between these variables, we could not conclude that applying higher financial leverage was a rash decision. Therefore, this research will confirm and test the hypothesis of manager overconfidence introduced by Gombola & Marciukaityte (2007). It uses the multiple regression analysis with mediation variable which facilitate the relation between firms' growth, financial leverage, and companies' long-term performance. By using this method, our research will give the obvious explanation of the existing manager overconfidence behavior. This paper is divided into three steps. The first one elaborates the theoretical perspective of capital structure, then, conduct the hypothesis of manager overreaction. The second phase develops the research method of analyzing manager overreaction behavior on financing decisions. Finally, the third phase will elaborate the result of this study.

#### 2. Literature review and hypothesis

The theory of capital structure in corporate finance-related to how a company has taken the financing decision, was very dynamic. The primary purpose of financing decision is optimizing the shareholder's wealth (Shyam-sunder & Myers 1999). The way to optimize the shareholder's wealth is by maximizing the stock prices. meaning that the financing decision should optimize the value of the firm. Many scholars proof that the financing decision policy influences the value of the firm (Modigliani & Miller, 1958; Jensen & Meckling 1976; Myers & Majluf 1984; Anderson, Mansi, & Reeb 2003; Su 2004; Gombola Marciukaityte 2007; Kim, Thomas. & Kim. & Pukthuanthong-le 2008; Cogliati & Paleari 2011). Modigliani and Miller were the pioneers who said that using debt in financing decision will enhance the value of the firm by minimizing the cost of the tax.

This research examines different views of how the firms decide on their financing policy. It uses companies' growth as information which has triggered the managers on selected their funding decisions. Then this research also examines how these decisions have effect on firms' long-term performance. The previous research also said that higher growth companies tend to have higher in debt for their financing decision (Myers & Majluf 1984; Campello 2006; Billett, King, & Mauer 2007). Ramezani et al. (2002) and Gombola & Marciukaityte (2007) said that high growth firms need a lot of funds to support their business growth. Afterwards, more top growth companies use larger debts to run their business operation. Therefore, it has impacted to the declining of firms' performance in

the future. Recall to the theory of business life-cycle which said that the declining phase occurred after a higher growth phase. Much of the previous research also found of its evidence (Ramezani 2002; Gombola & Marciukaityte 2007). Thus, the first and the second hypotheseths of this study:

#### **H**<sub>1</sub>: *Firms'* growth positively related to the extent of financial leverage

#### H<sub>2</sub>: Firms' growth negatively related to firms' long-term performance

The high growth firms tend to use a lot of debt for financing their business. In the trade-off theory of capital structure, using a lot of debt in financing decisions would increase firms' market risk. The high market risk will push the potential for bankruptcy, as mentioned by the example in the first paragraph of this paper. Gombola & Marciukaityte (2007) found that the manager of a higher growth firm tends to have overreaction behavior on financing policy. According to the research, the companies tend to have a lot of debt for funding their business. After that, it caused the declining of their long-term performance in the future. Verwijmeren & Derwall (2010) in their research argued that firms with better credit rating have less debt in financial decisions.

Gombola & Marciukaityte (2007) used the concept of manager overreaction to figure out the phenomena of the declining long-term performance of the firms. In their research, the overreaction behavior occurred when the firm had better growth and higher debt in their financing decisions. Weinstein (1980) argued that many decisionmakers tend to use past performance or past experiences for primary considerations in the decision-making process. If the past experiences are good, the decision maker reacts optimistically, even in case of risky decisions. Placing debt as more dangerous financing decisions were different to many scholars who otherwise argued that using debt is rational in the funding decisions (Modigliani & Miller 1958; Jensen & Meckling 1976; (Myers & Majluf 1984; Shyam-sunder & Myers 1999; Anderson et al. 2003).

In this research, we will test the proxy and the systematical analysis of manager overreaction which was introduced by Gombola and Marciukaityte (2007). The main weakness of their research refers to the method to analyze the existing of manager overreaction behavior. They used higher firms' growth and high debt to capture the behavior of manager overreaction. As we have known, the high debt in financing decisions is not always the primary factor which pushed to the potential of bankruptcy. Raharja (2012) found that firms with high debt in financing policy tend to have higher net emission value at initial public offering (IPO). So, this research argues that high debt is not the factor which has affected the declining of firms' long-term performance. Conversely, using debt for financing decisions increases the value of the firm. Therefore, the next two hypotheses:

 $H_3$ : Financial leverage positively related to the firms' long-term performance.

 $H_4$ : Financial leverage not mediated the relationship between the firms' growth and companies' long-term performance.

#### 3. Research method

This research used 2042 firms which have listed and distributed the annual report in Indonesian Capital Market (IDX) from 1999 to 2012. Afterwards, the companies were broken down into four quarters (Q1, Q2, Q3, and Q4), based on their growth performance. Q1 consists of the firms which have the highest growth. Q2 consists of companies which have growth lower than Q1, and so Q3, Q4, respectively. We employed it to figure out the behavior of the firms' characteristics based on its growth.

This research used regression analysis with mediating variable to analyze the relationship of firm's growth, financial leverage and long-term performance on testing the manager overreaction hypothesis. Figure. 1 presents the theoretical framework of the manager overreaction.

Figure 1

Theoretical Framework of Manager Overreaction



Source: authors' representation

Figure 1 shows the financial leverage as a mediating variable of the relation between firms growth and long-term performance. If the financial leverage is the primary factor which has affected the declining of companies' long-term performance, it will significantly mediate the relationship between firms growth and businesses longterm performance. According to Baron & Kenny (1986), employing the regression analysis with mediating variable consists of 4 (four) steps.

**Step. 1** analyzes the relationship of sales growth and debt financing.  $DER_t = \alpha_1 + \beta_2.SALES\_GROWTH_t + \varepsilon$ 

**Step. 2** analyzes the relationship of sales growth and firms' long-term performance.

$$PERF_t = \alpha_0 + \beta_1 \cdot FIRMS\_GROWTH_t + \varepsilon$$

**Step. 3** analyzes the relationship of debt financing and firms' long-term performance.

$$PERF_t = \alpha_2 + \beta_3 . DER_t + \varepsilon$$

**Step. 4** enters the debt financing into Step 1's model.  $PERF_t = \alpha_0 + \beta_4.DER_t + \beta_5.FIRMS\_GROWTH_t + \varepsilon$ 

PERF is firms' long-term performance, it measured by cumulative abnormal return during 3 years after experienced higher growth. DER is the debt to equity ratio, it a proxy of financial leverage. This research use market return as a benchmark on the calculation of abnormal return.

Abnormal Return<sub>i</sub> = Return<sub>i</sub> - Benchmark Return<sub>t</sub>  
Cumulative Abnormal Return (CAR)<sub>i</sub> 
$$\prod_{t=36}^{n}$$
 Abnormal Return (AAR)

The financial leverage accepted to be the primary factor of the declining companies' performance in the future, if the analysis of step 1 to step 3 fulfilled and the coefficient of firms' growth in step 5 to be equal to zero.

#### 4. Results

Table 1 shows the data of debt financing for each quarter in 1999 to 2012. Firms with the highest growth tend to have higher debt, even a lot of debt in financing decisions, because the highest growth firms need more funds to run their high business activity. Table 1 implicitly supported our first hypothesis.

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The	Comp	ariso	n of Sal	les Grow	vth and	Debt to	Equity	Table 1 Ratio
Vaar	Quarti	le Sales	Growth		Debt	to Equity	Ratio	
rear	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
2000	1.96	0.27	0.02	-0.26	2.30	2.89	3.43	3.40
2001	1.56	0.34	0.19	-0.07	2.72	2.88	1.51	2.77
2002	18.13	1.62	-0.37	-0.89	1.26	2.04	3.12	0.94
2003	0.27	0.07	-0.04	-0.18	2.81	2.83	2.00	1.85
2004	20.18	1.62	-0.43	-0.88	9.85	2.16	2.10	2.01
2005	0.78	0.27	0.13	-0.12	1.90	1.11	2.40	2.08
2006	0.90	0.20	0.09	-0.14	1.96	0.94	0.51	1.51
2007	0.42	0.11	0.01	-0.26	2.41	1.06	0.44	2.49
2008	0.57	0.22	0.12	-0.10	2.53	2.66	2.44	1.56
2009	2.78	0.28	0.18	-0.10	2.29	2.12	1.79	1.69
2010	17.70	0.04	-0.12	-0.40	1.54	0.18	0.97	3.39
2011	0.70	0.14	0.04	-0.24	1.48	1.07	1.65	1.81
2012	2.34	0.21	0.10	-0.09	0.97	0.47	1.22	0.57
Σ	68.28	5.40	-0.09	-3.74	34	22.40	23.60	26.07
П	5.25	0.42	-0.01	-0.29	2.62	1.72	1.82	2.01

Source: Indonesian Capital Market Directory (ICMD 2000 - 2012)

Firms which have the highest growth, categorized by Q1, will be used in analyzing whether the highest firms tend to have declining performance in the future. Afterwards, this research analyzes the relationship between financial leverage and firms growth.

Table 2

#### DER as a proxy of financial leverage SALES\_GROWTH as a proxy of firms' growth

		DER
	Constant	2,95***
	SALES_GROWTH	0,03**
***	**	

Note: \*\*\*\* significant at level 5%; \*\*significant at level 10%

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1 11 101 10101	0.000	0, - 0

Table 2 showed the empirical result of the relationship between firms growth and financial leverage. It found that higher growth firms tend to have higher financial leverage. This evidence supports our first hypothesis. It could be understood rationally, higher growth needs more funds to run its higher business activity.

#### Table 3

#### PERF as a proxy of firms' long-term performance SALES\_GROWTH as a proxy of firms' growth

	PERF
Constant	$0,001^{***}$
SALES_GROWTH	$-0,00006^{*}$

*Note:* \*\*\*\* significant at level 5%; \*significant level 15%

Table 3 showed the empirical result of the relationship between firms growth and firms long-term performance. It found the negative and significant relation between firms' growth and firms' long-term performance. It means that higher growth firms tend to have the declining performance in the future.

Table 4 shows analysis of the Step. 3, the analysis of the relationship between debt financing and firms' long-term performance.

#### Table 4

#### PERF as a proxy of firms' long-term performance DER as a proxy of debt financing

		PERF
	Constant	0,01***
	DER	$0,0002^{*}$
***		,

*Note:* \*\*\*\* significant at level 5%; \*significant level 15%

The analysis of Step 3 shows that the result supports our third hypothesis, which said that the debt financing is positively related to firms' long-term performance. It differs from many previous research that said a lot of debt would make the declining of firms' long-term performance (Gombola & Marciukaityte 2007; Verwijmeren & Derwall 2010).

Table 5 shows the analysis of Step 4 on examining the effect of financial leverage as a mediating variable of firms growth and firms long-term performance.

Table 5

#### PERF as a proxy of firms' long-term performance DER as a proxy of debt financing SALES\_GROWTH as a proxy of firms' growth

	PERF
Constant	0,012***
SALES_GROWTH	$0,00008^{**}$
DER	$0.0002^{**}$

*Note:* \*\*\*\* significant at level 5%, \*\* significant at level 10%

The result of Step 4 shows that financial leverage does not mediate the relationship between firms' growth and companies' longterm performance ( $\beta$ 1''' >  $\beta$ 1;  $\beta$ 1''' ≠ 0). It results appropriately with our fourth hypothesis that debt financing does not mediate variable in the relation of firms' growth and long-term performance. In other words, the financial leverage is not the primary factor which influences the declining of companies' long-term performance. Therefore, the empirical result rejected the theoretical framework of Gombola and Marciukaityte. Their conceptual framework could not prove the behavior of manager overconfidence.

Figure 2 shows the descriptive of the unique data of the behavior of firms' financing decisions in Indonesia.



Source: Indonesian Capital Market Directory (ICMD 2000 – ICMD 2012)

Figure.2 shows that firms which have the lowest growth (Q4) tend to have higher financial leverage, rather than Q2 and Q3. Therefore, what did high financial leverage use? The most likely answer is - to finance its liabilities. The use of higher financial leverage on financing liabilities of the firms is a dangerous decision. Hirshleifer (2001) argued that reckless behavior is not only pushed by safe and successful experience. According to the prospect theory, people are more risk taker if getting the loss. Therefore, using higher financial leverage on the highest growth is not a proxy of the existing of manager overconfident. Conversely, it will properly employ on the firms which have the lowest growth.

#### 5. Conclusions

This research tests the hypothesis of manager overconfident, introduced by Gombola & Marciukaityte (2007). According to their research, the manager of higher growth firms tends to behave overconfidently on financing decision by using higher financial leverage. Afterwards, the effect of this ruling is the declining of companies performance in the future. This research argues that there is a weakness of the method in previous research on examining the hypothesis of manager overconfident. Therefore, this study introduces the systematic way that facilitates the systematic relationship between many variables.

The empirical result of this research shows that the higher growth firms tend to have higher financial leverage and reduced performance in the future. Nevertheless, by using the systematic method introduced in this research, the greater financial leverage of the higher growth firms did not indicate the manager reckless behavior. Instead of the irrational decision, the increased financial leverage of more top growth companies will effect on the increasing performance in the future.

This research also shows the different evidence of the firms' behavior financing in Indonesia. Figure.2 indicates that the lowest growth firms tend to have higher financial leverage than Q3 and Q2 companies. Probably, the manager overconfident on the financing decision is more appropriate to the manager of the lower growth firms than to higher growth firms. Instead of rejecting the hypothesis of manager overconfident, this research gives appropriate research method for testing the theory of manager overconfident.

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## THE VIRTUAL CURRENCY AND FINANCIAL BLOCKCHAIN TECHNOLOGY. CURRENT TRENDS IN DIGITAL FINANCE

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#### Abstract

We are currently witnessing a change in the financial system in the world, in the context of the emergence of over 850 virtual coins, coins that are not regulated at national and European level. Yet authorities like European Central Bank, International Monetary Fund, Bank for International Settlements, etc. have published several reports that have highlighted the risks of using such virtual currencies. Considering the context in which these virtual currencies have been issued, at the European level, there is the intention that virtual money to be regulated from the point of view of money laundering or terrorist financing by amending Directive (EU) 2015/849 of the European Parliament and of the Council on the prevention of the use of the financial system for the purpose of laundering money or terrorism financing. To this end, the European Central Bank (ECB) gave its opinion on the proposal for a directive of the European Parliament and of the Council amending Directive (EU) 2015/849 on prevention of the use of the financial system for the purpose of laundering Money or terrorism financing, and amending Directive 2009/101 / EC. The present paper aims at analysing the cryptocurrency issue in the context of current regulations.

**Keywords**: virtual currency, financial blockchain technology, sustainable development.

JEL Classifications: E00, E42, G00, G20

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#### 1. Introduction

Starting from the virtual currency term, defined in EBA (2014)<sup>1</sup>, European Central Bank makes some observations and recommendation concerning this definition. According to ECB opinion, the definition for virtual currencies should be improved by mentioning explicitly that they are not qualified as legal currencies or money from the European Union perspective and also, they should be viewed as means of exchange, rather than means of payment (ECB, 2016).

The press release, published by the National Bank of Romania on March 11, 2015, on the institution's website, revealed a series of risks regarding the use of virtual coins, which emphasized that their acceptance on payment is not legally binding. At the same time, the degree of anonymity regarding the holders of such coins has facilitated the use of such coins for the purpose of financing terrorist activities. Also, the use of virtual coins poses higher risks than traditional payment means, meaning that the virtual currency transferability relies exclusively on the internet and is limited by the capacity of the computer network and the related IT infrastructure of that virtual currency.

Due to this internet dependence, a considerable amount of money has been lost from the accounts of the owners as a result of computer attacks. The high volatility of these coins must be taken into account by potential users. At European and national level there are no official statistics on the issuing, trading and use of virtual currency, therefore the NBR has no information on companies who trades Bitcoin in Romania or other virtual currency.

The main aspects disclosed herein relate to:

✓ Developments at European and international level on regulation and supervision of transactions that are based on virtual currency (and following recent terrorist attacks);

 $\checkmark$  Developing the technology underpinning Bitcoin currency transactions and its potential impact on the financial system;

 $\checkmark$  The national context and the main players on the Romanian market of the Bitcoin currency transactions.

<sup>&</sup>lt;sup>1</sup> The virtual currency is defined as "a digital representation of value that is neither issued by a central bank or a public authority, nor necessarily attached to a fiat currency, but is accepted by natural or legal persons as a means of payment and can be transferred, stored or traded electronically." (EBA, 2014, pp. 5)

#### 2. Materials and Methods

Regarding the methodology of research on financial environment, complexity and diversity of the issues addressed have required the use of methods, techniques, tools, and procedures of scientific investigation and interpretation to which it's attached particular importance:

✓ Documentation, namely, accessing and studying general and specialized bibliography, domestic and foreign, state approach to knowledge issues investigated financial environment and scientific substantiation of the research.

✓ Rational method, used as an instrument of knowledge, reflection, analysis, organization, and ongoing scientific research approach.

 $\checkmark$  Integration of forms, methods, and logic operations research carried out through the use of analysis and synthesis, abstraction and concretization, comparison, generalization, and systematization.

 $\checkmark$  Statistical methods, through the use of descriptive statistics and statistical analysis.

 $\checkmark$  Observation method, carried out systematically and analytically.

 $\checkmark$  Discussions with experts from institutions and national and international institutions, but also the beneficiaries of financial products and services.

 $\checkmark$  Data analysis and interpretation, using graphs, tables, and figures to highlight various developments in financial environment.

Using the classic instruments of scientific research, based on analysis and synthesis, induction and deduction, general and particular, and adding modern methods, authors achieved substantial and pertinent analyses and studies on financial environment main ways, both internationally and especially national. Contributions of authors on investigated issue are highlighted during the research work and theoretical and applicative significance value resulting from the conclusions and proposals that they have formulated and promoted.

The research results are presented using formulas, tables, figures, and graphs. The theoretical information needed for the research was taken from literature and specialized works in the field

of financial environment investigated, from home and abroad. Statistical information and concrete data on how financial environment works were taken from reports and statistics of institutes involved in financial environment in the country and abroad as well as to public bodies and private specialist.

This method of analysis provides a more rigorous substantiation of the decision-making process and also maximum reduction in uncertainty.

#### 3. Results and Discussions

#### 3.1. Recent developments in the field of virtual coins

At the end of 2015, in October, the European Court of Justice ruled Bitcoin virtual currency exemption from VAT, under Directive 2006/112/EC of the European Union of 28 November 2006 on the common system of value added tax. This decision came as a result of a request by the Swedish Tax Authority to the Swedish Supreme Administrative Court, whereby the first demanded that bitcoin purchases and sales transactions be excluded from the VAT exemption. The European Court of Justice has ruled that these purchase transactions represent exchanges of different means of payment (the bitcoin being therefore a means of payment), therefore these transactions should be exempt from VAT under the traderelated clause on coins, banknotes and coins used as legal tender of Directive 2006/112/EC.

Throughout 2015, the bitcoin quote against the US dollar recorded a slightly upward trend, as shown in Chart 1.

Also, market capitalization followed an upward trend as a result of the appreciation of the bitcoin value along with the issue of new currency (Chart 2).

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#### Chart 1 Bitcoin (BTC) Evolution vs. US Dollar (USD) between March 2015 and February 2016 (BitStamp)



#### Chart 2 Evolution of market capitalization of Bitcoin currency (BTC) worldwide in the period March 2015 - February 2016 (US dollars)



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At the international level, currently, the jurisdiction with the most advanced level of regulation of virtual coins is the one in the United States of America. These regulations apply to both trading venues where virtual currencies can be converted into currencies, as well as to administrators of these virtual currencies, or to the mode of charging virtual currency transactions. In September 2015, the United States Commodity Futures Trading Commission (CFTC) said that virtual coins are associated with commodities. Through this decision, the CFTC assumes the responsibility to monitor the futures and option contracts on virtual currencies. This is a very important step in the process of regulating virtual coins across the US, as the CFTC will be able to impose sanctions in line with its attributions. Magister Advisors, a UK company that advises on acquisitions and mergers in technology, organized a survey of the 30 most important companies in the field of virtual currency, especially Bitcoin. According to this survey, it is estimated that over the next 24 months, over \$ 1 billion will be used by global financial institutions for blockchain technology projects. This technology is becoming increasingly appreciated and has come to the forefront of the largest financial institutions such as Bank of America, Citi Bank, Deutsche Bank and Goldman Sachs, who have gathered as part of a project exploring the possibilities of using a blockchain transaction register within the traditional financial sector. Following the terrorist attacks, European ministers meeting in the Council of Justice and Home Affairs (JHA) agreed to extend controls the means of payment can be carried out anonymously and therefore could be used by terrorist organizations to fund attacks. These controls relate to non-bank payment methods such as electronic / anonymous payments, fund transfers, cash carriers, virtual currencies, the transfer of gold and precious metals and prepaid cards, in line with the risks they present. The Digital currencies report of the Bank for International Settlements (BIS, 2015) states that virtual currency schemes still have a low usage and acceptance rate and that the challenges they face could limit their growth in the future. Therefore, their current influence on financial services and the economy as a whole can be considered negligible and it is likely that these virtual currency schemes will remain a product with limited use to the periphery of traditional financial services in the future. On the other hand, in recent years, the technology underlying virtual currency schemes attracted attention with a high degree of applicability of registers distributed value transfers bilateral absence of a trusted third

party. Therefore, certain aspects of the distributed registers technology could improve certain aspects of the efficiency of payment services and financial market infrastructures. In addition, the International Monetary Fund's report on virtual currency (IMF, 2016), presents an overview of the main aspects of virtual currencies and their associated risks, similar to those presented by the European Banking Authority in its Opinion on virtual currencies (EBA, 2014) and by the European Central Bank (ECB, 2015).

## 3.2. Distributed Transaction Log - Bitcoin's innovative technology

Bitcoin based blockchain technology is based on a public register, called the distributed ledger technology, which includes all transactions made with bitcoin currency. Each transaction is validated by multiple computers in this decentralized network, and then added to a validated transaction block. When these transaction blocks are complete, they are added to the registry in a linear, chronological order and cannot be modified or replaced later. Each block consists of the numeric code defining the previous block (code called hash), and so each block of transactions follows the previous block in chronological order within the register. Each computer that performs transaction validation automatically receives a copy of the public record, which includes all bitcoin currency transactions made since its inventory, so far, thus making the transactions traded transparent. However, a level of anonymity of the parties to the transaction remains, as they can only be identified through the code associated with the electronic wallet from which the transaction was made. Former Governor of the FED, Ben Bernanke, said in November 2015 that the bitcoin is "technologically interesting", but it has some serious problems, notably the high volatility of its value and the low acceptance as the currency of payment. This type of affirmation is becoming more and more common among financial specialists, making a distinction between virtual bitcoin and the innovative technology behind it. The innovative element in the decentralized virtual currency schemes is the Bitcoin block of transactions, especially for transactions with virtual currencies whose value is not related to any sovereign currency. The main innovation is the possibility of making peer-to-peer payments in a decentralized network when the level of trust between counterparties or a third party is low. Virtual coins and distributed transaction logs (blockchain) are

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closely linked to most existing schemes, but this integration is not necessarily necessary. The presence of distributed ledger technology could pose a challenge to central banks by reducing their functions or, in an extreme case, even by eliminating the need for a central bank for certain functions (BIS, 2015). For example, it is possible that settlement cannot assume a central register if banks or other entities would agree to use a common register that does not require an entity to centralize transactions, thus allowing each bank to hold a copy of the register common transactions. The International Bank of Regimes analyses how central banks can respond to a potential increase in the use of a distributed transaction log to settle transactions. A situation is even the use of this technology by central banks and the issuance of their own digital coins, with central banks already presenting such opportunities, such as the Bank of England or the Bank of Canada. According to BIS (2015), the digital coins and the underlying technology could have an impact on financial intermediaries and financial markets. Their widespread use will test the role of intermediaries of current actors in the financial system, especially commercial banks. The possible disintermediation that could occur as a result of the spread of digital coins and transaction logs distributed within the financial system would have an impact on the mechanism for saving and accessing credit. This innovative transaction log technology can have major implications beyond payment, as this decentralized mechanism could compete with the current aggregation and clearing system on which most of the financial market infrastructures are based. In particular, it is assumed that distributed transaction logs could affect the system of collateral or the recording of transactions in shares, bonds, derivatives or other assets. Using this technology can induce changes in the trading, clearing and settlement due to deleveraging in the traditional service providers in the various markets and infrastructures. These changes can result in an impact on financial market infrastructures, not just in the retail payment systems, but also on high value payment systems, central depositaries, securities settlement systems or trade repositories. Developing "smart" contracts based on the distributed transaction log may lead to individual margin payment variation payments, which could significantly affect how the system of margin setting and trade clearing works, at present Using net positions and guarantee funds. There are already many cases of using blockchain technology to address complex issues outside the sphere of virtual currency

schemes. For example, the Government of Honduras has collaborated with various companies in the technology sector and has used blockchain technology to create a secure and efficient registry for property titles. Estonia, the country with the lowest level of credit card fraud in the euro area, also uses a blockchain technology to protect banking infrastructure. At the same time, the Monetary Authority of Singapore is in the process of finalizing a decentralized registration system based on blockchain technology in order to prevent double billing in commercial transactions (ESMA, 2015). The Nasdaq OMX group also believes it will become the first major trading exchange to use the underlying Bitcoin technology and the distributed transaction log.

#### 3.3. The national context

In Romania, the BTCXchange trading platform reopened as of August 2015, after being closed in December 2014 for security reasons. The platform offers the possibility of buying and selling bitcoin against the leu, and in November 2015 the trading volume was about 360,000 lei (according to this platform). Also, in June 2015, a new trading platform, called BitcoinXRomania, was launched, at that time being the only such platform in Romania before reopening BTCXchange. At this point, Netopia mobilPay is the largest bitcoin payment processor in Romania. Netopia has implemented the virtual currency payment option for more than 10 websites, including Vola.ro, PcGarage, ComputerGames.ro, F64, Fly-go.ro and Kartela.ro. In Romania, interested people can purchase bitcoin for cash through the ZebraPay and Qiwi terminals network. Together, the two networks have more than 2,500 terminals, making Romania at least at European level the country with the largest national terminal network that allows the purchase of bitcoin coins. Beyond expanding the bittorrent acceptance of merchants, Netopia also targets the exchange platform they will launch later on. In August 2015, Coinzone, one of Europe's largest bitcoin payment processors in Europe, a company with headquarters in Romania, the Netherlands and the United States of America, was acquired by Danish Coinify. Among Coinzone co-founders was Radu Georgescu, one of the important names in the Romanian financial and technological market. The Danish buyer company said that Coinzone's acquisition of Coinify will strengthen its leading position in virtual money platforms in Europe. Virtual coins and the underpinning technologies are of

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increasing interest to financial institutions and regulators. At international level, the opportunities for implementing virtual coinspecific innovations within the traditional financial system as well as the potential regulation and supervision of virtual currency transactions are analysed, should their volume reach a relevant level. The Central Bank will continue to monitor the movements of virtual currencies and their influence on financial stability both from the perspective of the risks associated with the use and trading of virtual currencies and from the perspective of the innovations associated with the virtual currencies and the impact of these technologies on the financial system. Bitcoin is a too unstable currency and vulnerable to speculation to be accepted as an official payment instrument, warns Ewald Nowotny, governor of the Austrian central bank and member of the Governing Council of the European Central Bank (ECB). Governments in several countries around the world are considering ways to regulate and classify the virtual currency, whose value has recently climbed to a historic high of nearly \$ 3,000, Reuters notes. Japan has included the most popular cryptocurrency in the category of legally recognized payment means, part of the government's strategy to boost the economy, including through the use of financial technologies (fintech). But bitcoin is deficient in the chapter that defines a good currency - namely stability, says Nowotny. "Bitcoin is subject to speculation", the ECB official said in an interview with the daily Kleine Zeitung. Transactions with Bitcoin and the over 900 cryptocurrencies in circulation in the virtual space are not regulated by any central authority. Instead, transfers are checked and recorded by a network of thousands of computers worldwide, a protocol called blockchain. Investors and commercial banks have shown themselves increasingly interested in blockchain technology, attracted by the spectacular evolution of bitcoin and other virtual coins, including ethereum, which some analysts have said could compete with assets such as gold. According to a study by the British consultancy firm Magister Advisors, bitcoin could become, by 2030, the six most widely used currency in the world to set up foreign exchange reserves in central banks around the world, along with the euro, the dollar, Pound sterling, yen and Canadian dollar.

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leadership, Blockchain has become the market leader in digital currency and distributed ledger technology. By 2016, Blockchain's software has powered over 100M transactions around the world. Peter is a 2016 World Economic Forum Technology Pioneer and noted thought leader in the FinTech space, having been featured in the New York Times, Wall Street Journal, CNBC, Bloomberg, Fox Business, TechCrunch, and spoken at conferences around the world including TechCrunch Disrupt, Money 20/20, Web Summit, Collision, Wired Money, among many others. Prior to co-founding Blockchain, Peter lived, studied, and worked in the US, Europe, MENA, East Africa, and Asia. When he isn't basking in the glow of a laptop, you can find him either reading or out running, trekking, surfing, and climbing up or skiing down a mountain. If you are working on something hard and want to be in touch - please be in touch; but include a book recommendation. Exchanging value today is an antiquated, cumbersome and costly process Digital assets can revolutionize the status quo. Benefits include the reduction of transactional frictions, the ability to transact across borders, the elimination of counterparty risk assessment, regulatory and monetary policy freedom, access to money for the "unbanked," user anonymity and ledger transparency. Given the long list of benefits as well as the fact that a digital infrastructure is available to most of the modern world, there is a present and growing need for a digital medium of exchange. The future of money is digital – and bitcoin is the first early success of that broad, world-changing vision. The digital revolutions, and the popularity of bitcoin, have made it clear that digital assets have become a noteworthy candidate for alternative asset investing.

This white paper uses bitcoin to illustrate the digital asset market across three dimensions: 1) fundamental market metrics, 2) through the lens of portfolio theory, and 3) an economic analysis of a digital asset's response to events that cause global financial market uncertainty.

First, over the past three years in particular, the bitcoin market has exhibited signs of market stabilization and other characteristics of more mature asset classes, including declining volatility (i.e., risk), increasing liquidity (i.e., the ability for a buyer to readily find a seller at a particular price, and vice versa), and informational efficiency (i.e., a standard feature of established markets, as indicated by independence of returns and its quick price reaction to new information). These favourable trends in fundamental market metrics stem from bitcoin's increasing popularity and accessibility. Second, bitcoin is attractive under modern portfolio theory (MPT) because it offers significant diversification benefits and potentially high returns. The key driver of diversification is low correlation with other portfolio components. Bitcoin has exceptionally low correlation with other traditional asset classes. In addition, bitcoin has established itself historically as a high-risk and high-reward asset, so its inclusion in a portfolio can serve to increase the portfolio's potential returns (and its risk). In 2016, for example, the value of bitcoin increased 122%, from \$432 to \$960 per unit. By comparison, for 2016, the S&P 500 total return was approximately 12%. Indeed, an allocation of bitcoin in a diversified portfolio can significantly improve the portfolio's risk andreward trade-off under MPT. Third, recent economic evidence shows bitcoin may hold the potential to act as a hedge or "safe-haven" in certain investment strategies, as its price movement is positively correlated with the likelihood of uncertainty-inducing outcomes, including the Brexit referendum and the 2016 U.S. Presidential election. Results show that bitcoin's price changed in near lock step with prediction market probability of outcomes that were expected to introduce great uncertainty to global financial markets - that is, a vote to leave the European Union and a Donald Trump presidency. The results suggest that, to some degree, bitcoin represents a hedge opportunity against global financial market uncertainty. Evaluating the still-nascent bitcoin currency from a financial market perspective provides a deeper understanding of the prominent digital asset and how market participants value and interact with it. This evaluation allows one to put a finer point on the definition of this digital asset that isn't quite like anything the world has ever seen. Only the future will tell of bitcoin's ultimate success, but its relationship with the digital revolution and unique and stabilizing financial market performance signal that digital assets - bitcoin or otherwise - area noteworthy alternative investment option with great potential. Furthermore, bitcoin's stability and other investment-worthy qualities prove, along with its increasing user base, that digital assets backed by central banks are not only possible but inevitable.

#### 4. Conclusions

In the early years, the price of bitcoin experienced extreme volatility as indicated by large runs and corrections (or bubbles and

crashes). However, overall, bitcoin was a boon to early investors. Someone who bought at the first of the year in 2013 and held through today, for instance, would have enjoyed an increase in value of 70-fold (6,978%). By comparison, an investment in the S&P 500 increased approximately 1.6-fold (60%) over the same period. Beyond the very high historical returns, how might a potential investor evaluate bitcoin from an ex ante perspective? In other words, what defines a worthy investment, and how does bitcoin measure up? First order market metrics by which to evaluate a potential new investment include:

✓ Basis of value (does the asset have value? what forces determine its price? will such forces endure over time?);

✓ Stability (is volatility reasonably low and steady so that there is some predictability of how wide price swings could be, or does the asset show wild swings in value?);

✓ Liquidity (is the market large enough such that bids to buy are easily met with offers to sell, and vice-versa?);

✓ Informational Efficiency (does bitcoin resemble mature assets by responding to new information in a predictable way, or is it random?), and accessibility (can you invest and how? can it be purchased and traded? are products such as ETFs available that offer divisible investment through the standard channels such as a brokerage?).

As the following sections discuss, the bitcoin market shows favourable trends in these fundamental market metrics.

#### Basis of Value

The future of value is digital. Benefits of digital assets include the reduction of transactional frictions, the ability to transact across borders, the elimination of counterparty risk assessment, regulatory and monetary policy freedom, and access to money for the "unbanked," user anonymity and ledger transparency. Given the long list of benefits as well as the fact that a digital infrastructure is available to most of the modern world, there is a present and growing need for a digital medium of exchange. Bitcoin is the most ubiquitous digital money option, with name recognition and a large network of market participants. What determines bitcoin's price? the forces of supply and demand, as is true for all markets. Its price is driven not by its intrinsic value, but instead by the opinion of buyers and sellers and what they believe to be bitcoin's value. Bitcoin's market value is undeniably linked to the rise of the digital economy and the need for digital money. As demand increases, so does price, all else being equal. Related from Nick O'Connor Publisher, *Exponential Investor* in end of July 2017, "over the coming months, 260,000 stores in Japan will start accepting bitcoin. Japan is embracing cryptocurrencies faster than any other nation. According to TechCrunch the rabid demand for cryptos in Japan and China has fuelled the recent record highs". In this reality the first and important question remain what will be the next steps in financial and banking sectors? "This is a truly global money revolution".

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