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Review

"Bit Standard"- Bitcoin between reality and risks of a "halfway-money"

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This work provides an explanation of the market underlying the evolution due to modern technologies and technical advances, especially in transactions. In this regard, the authors specify the aspect related to the creation of virtual currencies like bitcoin that can circulate thanks to the Blockchain system through miners' work. The authors consider areas related to the warnings on the use and exchange of virtual currencies. The aim is to conceptualize in a graphical way the current operational transaction in bitcoin through the existing exchange platforms. The authors try to attest the fickleness of the disintermediation ideal founding Bitcoin. The analysis purposed could be interesting and useful to provide a kind of interpretation of the phenomenon and a general overview about Bitcoin system.

Key words: Bitcoin, cryptocurrencies, transactions, blockchain, public administration.

INTRODUCTION

According to Hayek and Martino, (1995), a change of ideas and the strength of human beings made the world what it is now. The human desire to change and the aim connected to spasmodic improvement of position and role, in a more faster and insecure society (Bauman, 2013), just apparently certain, brought a group or a single people-dragger to constitute Bitcoin, behind the pseudonym of Satoshi Nakamoto (S.N.). It could be considered a "*myth*" and antithetical new "*American dream*". Today, it is a popular domain between reality and speculation. It could be also considered an old concept, but a new "*money god*" in the digital era. The underlying IT protocol (Blockchain) increases intellectual fervor because of its functionalities. Nowadays the need is to understand motivations, perspectives and risks at the base of technologies that are changing the nature of market and its mechanisms, bringing to light currencies like bitcoin[1]. Ever-expanding markets are changing borders, increasingly becoming similar to huge informative systems (Gallino, 2002).

The aim of the paper was to refute the assumption that bitcoin[2] and other virtual currencies are definable as "*money*".

In practice, people are losing the way, moved by blinded hope of easy potential profit thanks to speculation on virtual currencies. The authors analyzed the phenomenon, both directly the price trend of bitcoin (BTC) and by reviewing literature in the ambit. The work also attempts to trace a fil-rouge with the aim to make understandable the main aspects connected to Bitcoin system. On one hand, the analysis takes place through the monetary and conceptual point of view; on the other hand the authors identify potentialities and risks of a "*deinstitutionalized currency*", finished in its quantitative stock and based on "*miners' work*".

Bitcoin phenomenon changes its shapes and its

[1] The term "bitcoin" refers to the cryptocurrency.

[2] The term "Bitcoin" refers to the system created by Satoshi Nakamoto.

mechanisms extremely fast. The considerable difficulty of studying, analyzing and interpreting rapid growing phenomena, capable of impacting in a transversal and direct way the society led the authors to opt for an exploratory methodology of research. This type of analysis in social research is widely accepted thanks to the intrinsic capabilities in categorizing phenomena that otherwise would be more complex in terms of numerical and quantitative interpretation. The authors decided to orient the contribution towards a theoretical-qualitative approach, which takes knowledge from the direct observation of the phenomenon and from the existing literature with the aim to provide a more general interpretation. This kind of methodology does not pursue the objective to verify hypothesis, a general interest of knowledge development.

On the base of a first general overview on the theme, it should be possible to formulate hypothesis for further and more focused researches.

LITERATURE REVIEW

Background: Concepts on market and money

The connection between the production area and the consumption one traced the base for modern markets birth in Europe. Markets linked essentially to the existence of cities, identifiable as places where exchange made possible the meeting of supply and demand. Thanks to the development of urban systems, markets grow (Marchionatti and Mornati, 2012) and draw feeble borders. Relations between markets and society are crucial points in social research. The authors try to find interrelations between them highlighting markets as models of rational social action. More in detail, markets are self-fulfillment thanks to the act of exchange.

More in general market represents a succession and a multiplicity of rational associations. It could be considered a real community action in the exchange (Sylos-Labini, 1986). Assuming that the individual is a rational maximizer of objectives (Posner, 1997), markets highlight the fact that in it, actors engage rational behaviors moved by the aim of maximizing their own satisfactions through exchange (Le Galès, 2002). These ratiocinating behaviors take place at the micro level (Regini, 2015).

At the origin, the institution-market was a real place (tangible), but the technology cuts the link between producers, intermediaries and buyers (Gallino, 1998).

The physical distance remains unchanged due to the IT facilitators. Nowadays, markets appear dematerialized. This development is due to the technique advances able to transform markets from real places to virtual platforms. Gallino (1998) uses the verb "*to cut*" with a sociological meaning. The authors' interpretation would be more useful contextualizing the teleological meaning oriented to the efficiency of the exchange process and the reduction of physical distances through technological tools.

In the age of Internet, the world wide web is a reflex of the contemporary complex social systems (Davico et al., 2010). It constitutes a fractal geometry (Mandelbrot, 1989) of relationships and connections. To Conceive the market as information system makes possible to understand the reasons and potentialities that revolutionized its nature and its mechanisms since the eighties (Gallino, 2002) with irrepressible progression until today.

Mises (1934) explains what is considered in this contribution. In fact, it is possible to say that where the free exchange of goods and services is unknown, money is not a need and it would not be required. Money would not be necessary, in the way that it is today known. At theoretical level the reasoning appears true, but barter reveals its limits in practice (Smith, 1973). Two direct and indirect kind of exchange could be taken into consideration for the purposes of the authors' interest. The first one is part of the case in which two individuals exchange two quantities of goods for consumption. If the attribution of subjective value to the different goods allows the exchange of each unit for one of the others, a direct mode of exchange would be possible, also in the presence of different individuals and goods. If this hypothesis expressed fails, indirect exchange should emerge, integrating a demand for goods to satisfy consumption needs and a demand for goods that would be exchanged as payment for others. In this way those reputed more tradable gradually could replace the others. Inevitably it would become a medium of common exchange, identified in other words "*money*" (Mises, 1934).

Keynes (1936) praised money for its importance, in fact attributes to it the role-value to be essentially a connection between present and future. Changes in exchange tools and information technology make it possible to shape the future with certain probability based on the evolution in virtual currencies (VCs).

This kind of revolution might be called "*bit culture*". With regard to the nature of money for commodity theorists (Weber, 2014), money refers to a product of the invisible hand (Smith, 1973), which emerges spontaneously in the markets characterized by the barter methodology. The emergence of money was possible thanks to the fact that it could be the most marketable good turned the preferable medium of exchange (Menger, 1892) and capable of clearly improving the efficiency of the trade. The replacement of the meaning of "money - raw materials" with

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the legal tender meaning led to the establishment of the current systems. It is possible to affirm that money pursues the aim to be an optimal solution to the frictions existing in the barter mechanism.

Menger (1925) explains how money arose from a process of minimizing transaction costs, thanks to the capability to pass in a simple way from hand to hand. Money phenomenon presupposes an economic order, in which production is based on the division of labor. This kind of labor could be represented in the "*labor market*" necessary for the correct functioning of the Bitcoin system.

The balance of production and consumption takes place through the market. Bitcoin system turns markets into virtual places in which, the different users exchange goods as a result of negotiation and where the function of money explains the role of exchanges facilitator (Mises, 1934). This function enhanced the birth of money.

Anything, at this point, if used as a medium of exchange with a minimal intrinsic potential of general purchasing power, could be called money. This is true simply because every good would have utility in the perception of someone with the need to acquire something. From this idea took place the ascent of "*disintermediate*" virtual currency as bitcoin is.

According to the limited point of view aforementioned, it is necessary to say that money would resemble a potential tool usable for bartering purposes (Keynes, 1932). This characteristic needs to be emphasized in the bitcoin-universe. In fact, it is an aspect that on one hand supports bitcoin essence, but on the other hand could limit its potentialities.

In a nutshell, money emerged as a unit of account (Gioia and Perri, 2002). As a result, it immediately becomes "*arbiter*" of social relations in exchanging. Money enlarged its perspectives in an extensive manner towards the "*world-system*" (Wallerstein, 1974). Money could be expression of technology and innovation in economic ambit. It fortifies its consistency and its value in the feeble borders of the internationalization, founding itself in a more advanced form, the so called globalization (Magnier and Russo, 2002).

It is possible to say that people discovers new perspectives in exchanges at every step for social life needs. Exchanging tools switched from the past when the salt was the medium of exchange for ancestors to today's virtual currencies (or cryptocurrencies).

Bitcoin and other virtual platforms for creation and exchange of cryptocurrencies took place in a system facilitated by computer technology, online marketplaces and performing networks. Nowadays more than 1100 platforms are on the web (Joshi, 2017), sign of a monetary revolution or with more probability, emotional ferment based on psychological hope of easier profit.

Money holds the peculiarity to be accepted in a universal manner against goods and services or medium of debts extinction. An essential characteristic beyond money is the generalized trust (Pavanelli, 2003) to be accepted as a medium of exchange. The three money functions are considerable as intermediary, value measurement (numerical or unit of account), value reserve (Caloia, 2008). In literature two different points of views on money are identifiable: jourists and economists.

Money as a mere medium of payment and therefore of obligations extinction does not satisfy the economic vision, but only the jurists one. Money could be considered medium of payment in teleological view of its capability to be mainly a medium of exchange (Mises, 1934).

In fact, as affirmed by John Richard Hicks (1967): "*money is what it does*". For this reason it is a convention and /or a State creature (Dequech, 2013). Money is undoubtedly one of the main social technologies, constituted for human being by human beings in continuous development. Nowadays it moves the globalized world (Ingham, 2016).

Bitcoin: Origins

Braudel (1993) considered money as able to establish itself wherever; can change shape, but not its function. History teaches that money appears as a powerful indicator thanks to the way it runs, loses its vigor or for the fact that it lends itself to be an object of desire. Money seems an old technique, but it surprises man (Braudel, 1993).

Money induces people to talk about it and to show its various shapes. Nowadays, bitcoin, framed as crypto-currency, becomes object of desire, reveals its fluctuating characteristics, its virtues and its risks. In every society, money causes imbalances due to its intrinsic forces. States try to create economic institutions to face these forces. Bitcoin could be an exogenous intervention, a shock that imposes changing (Regini, 2015).

Literature defines Bitcoin and its motivations as a cryptographic payment and registration system (Amato and Fantacci, 2018). It is not possible to ignore the dictates of its creator Satoshi Nakamoto (S.N.), veiled by this pseudonym. In 2008 he became a promoter of a revolution with a huge resonance all over the world. Bitcoin, moreover, is not only limited to be an IT protocol thanks to Blockchain. In fact, Blockchain could be con-sidered the most persistent character at the expense of the haughtiest and disruptive aspect, but unrealistic one, that features bitcoin as money. Bitcoin aims to impose it presence on the market to supersede the intermediation in a system based on trust and made by weights and balances.

The authors take distance from judgmental notes, which in this introductory phase could mislead the reader from his own interpretation, but it is necessary to report a paragraph in which Satoshi Nakamoto (2008) expressly states his hope through the so called "*White paper*".

"*Commerce on the Internet has come to rely almost exclusively on financial institutions serving as trusted third parties to process electronic payments. While the system works well enough for most transactions, it still suffers from the inherent weaknesses of the trust based model. Completely non-reversible transactions are not really possible, since financial institutions cannot avoid mediating disputes. The cost of mediation increases transaction costs, (…) These costs and payment uncertainties can be avoided in person by using physical currency, but no mechanism exists to make payments over a communications channel without a trusted party. What is needed is an electronic payment system based on cryptographic proof instead of trust, allowing any two willing parties to transact directly with each other without the need for a trusted third party"* (Nakamoto, 2008).

Thanks to these words, Nakamoto became a promoter of what he wants to make known as a "*disintermediate revolution*". He tried to make free users from intermediation costs, through his "*messianic message*". At first, in this way he tried to allow money transfer and consequently every kind of data, in a direct way between peers (P2P). This purpose could be able to subtract power at the "*third parties order*".

On the wave of the economic crisis and the criticisms on monetary governance, Bitcoin shows itself to the world as an innovative counter-proposal. Satoshi Nakamoto's aim is to present himself as a creator of a new way to exchange; an alternative to what exists. In fact, in the real economy, bitcoin strives to be money, but it could be considered as just a computer-based-code system without legal tender.

The following paragraph explains the first aspect; the last part of the contribution tries to explain the second one.

Bitcoin mechanism

Now popular definitions of Bitcoin/bitcoin are payment system and "money" (Amato and Fantacci, 2018). Bitcoin system was born as a finite stock. It appears in this way concerning its actual configuration, and it will remain finite. It appears as a predestined quantity of scarce good, determined in 21 million units of "*virtual coin*".

Unavoidable "*pseudo-currency*", which in order to be able to circulate requires a "*material extraction*". We intend materially, because the energy expenditure to extract (create) coins is significant; about 30 terawatt hours per year, more than Ireland's energy consumption. A single transaction would use enough electricity necessary for ten American homes in terms of energy (ANSA, 2017). The functioning mechanisms of bitcoin, in other words, is based on an open source software (Walch, 2015).

It is a tool that allows users to produce bitcoins. It would be possible to exchange coins in legal tender currencies through ad-hoc platforms, after the creation mechanism (mining activity).

The aforementioned cryptocurrency is ideally "*mined*", but materially produced. The assumption appears true because of the reason that its production costs are higher. For mining activity are necessary assets as personal investments to ensure the subsequent production of new "*coins*". The "*production process*", obviously inspired by "*gems extraction*", bases the pillars on a system of reward for "*miners*"[3] (workers).

In details, every time a user sends bitcoins to another user, the system composes a cryptographic puzzle. Network nodes provide the validation system. Miners' network solves the problem and decrypt transfers. This kind of mechanism certifies transactions adding new blocks to the system (chain of blocks). Every added block is the proof of evidence that the transaction is signed into a "*ledger*", keeping track of it (Weber, 2014).

Obvious difficulties are present in the mechanism due to the time consuming process; every 10 min the system is able to release a certain amount of new bitcoins (Deshpande et al. (2017). Users, or interested parties, invest in increasing computing power to participate to the network of nodes in order to compete in production and in some cases to cooperate. In this regard, mine-pooling actions are becoming practices for creating new bitcoins, widely recommended to coin new cryptocurrencies (Guttmann, 2014).

Therefore, it could be possible to shape bitcoin as a "*currency*" without a State legitimization and without a master, "*de-institutionalized*" and "*self-coined*" by the network nodes (users).

Due to the main characters expressed, the Blockchain protocol (shaped in our contribution as IT protocol) links the nodes to each other on the net. Nowadays, it is possible to guarantee anonymity, or better "*pseudonymity*" to exchange bitcoin on Blockchain platforms (De Biase, 2016).

Multiple faces of bitcoin

On one hand, the economic aspect related to Bitcoin is the main that today provokes greater excitement and emphatic enthusiasm for the potentialities in bypassing actual systems of forced fiduciary intermediation. On the other hand, the ascent of Bitcoin is due to the deviant features of the "*speculative dream*".

Another aspect would create "*rational exuberance*" (Tapscott and Tapscott, 2016) related to further applications. Additionally it is possible to recognize the exciting dark side in the actual Bitcoin Blockchain model.

The dark side concerns the possibility to create pseudonym identities. Plausibly it could be the most

[3] Miners are volunteers. Thanks to their hardware and computing potential (processors installed in today's computers) would facilitate the necessary decryption actions, more generally for the transmission of data and specifically for payments between users.

dangerous aspect. In fact, it would create a vehicle for the "*deep web*" and illicit activities connected to it.

The authors treat in detail this issue in the following paragraphs, but at this moment, the aim is to stimulate interest and guide to understand the different faces of a dado that includes various factors: high expectations, large risks and considerable potentialities.

Readapting with other words and rethinking a Hayekian thought in today's epoch, as a new cycle of history, the sense of power over the future and the unconditional trust in possibility of improving people destiny, increase ambition in human beings. People have total right to be ambitious (Hayek and Martino, 1995), but on one hand the world is going towards an unjustified continuous metamorphosis. These changing, if not regulated or managed, could lead to the so called process of "*creative destruction*" (Schumpeter, 2013). By contrast, the Weberian view remains true: possible would not be achievable without impossible attempts (Benevolo, 1999).

Assuming these words, in light of a hypothetical new historical phase in monetary field, the first transaction in bitcoin, took place on January 3rd 2009. It was called "*genesis block*" (Capoti et al., 2015). In this way Satoshi Nakamoto began his mining activity, an operation that the authors analyze in the following paragraph on its salient and peculiar traits.

A year after the genesis block over 32.000 blocks had been added to the original, producing a total of 1.624.250 bitcoins (cryptocurrency) (Guttmann, 2014). On December 26th, 2014, North Carolina State Wolfpack and the Cavaliers of Central Florida University challenged each other. The online presale was restricted. Tickets were available through bitcoin payment. This significant event exemplifies the rise of virtual currencies on the market (Kiviat, 2015).

Work for bitcoin: Mining activity

Bitcoin system increases interest for its future applications in different fields. Bitcoin functionalities are focused on keeping track of information and self-compiling process related to all transactions, thanks to the mechanism explained in the paragraph. Bitcoin is known as a register based on Blockchain technology, or in a more simpler words, a database distributed in chained blocks. Miners' activity focuses, through Bitcoin system, in verifying transactions and adding other block-groups to those existing (Capoti et al., 2015). The authorization of the transactions is not provided by centralized bodies, but thanks to a rewarding system (Amato and Fantacci, 2018), competitive and decentralized, that ideally tries to reproduce a "*labor market*".

Adam Smith (1973) took into account labor, in a conceptual way, as the true measure of the exchange value of all goods.

The assumption provided by Smith (1973) led the authors to consider that a miner, as an individual worker, receives a certain amount of bitcoins as a reward for each added block, ensuring the well operation of the mechanism. In other words the amount of bitcoin received as reward by miners, could represent a payment for work.

The initial reward was 50 bitcoins, but every 4 years it reduces the amount about 50% and in any case every 210.000 blocks (Capoti et al., 2015). Bitcoin intended as payment system, appears "*without transaction costs and commissions*". The cost-free mechanism is made possible thanks to the fact that a sum of new coins issue covers the costs. Costs are attributed to the miners. In fact, they support decryption costs and authentication activities.

In the authors' point of view, this kind of labor market would be the first price of bitcoin, as the original purchase currency with which to pay for all things (Smith, 1973). It is possible to consider this kind of first price as the only true value of bitcoin and no other value should be attributed to it.

Nowadays, thanks to a virtual reconstruction of an "*economy in the economy based on work*", Nakamoto made possible to obtain, in Bitcoin system 25, bitcoins for each block undermined. Anyone could be a "*miner*", and technically could coin "*virtual currency*" (i.e. bitcoin). The open-source software is user-friendly; the only effort would be the "*work*" and investments in increasing the power contribution. The main character of Bitcoin system engages the self-updating algorithmic parameter able to increase the difficulty in reaching the solution of the cryptic framework to compensate for the growth of computing power (Guttmann, 2014).

The interesting aspect refers to the finished stock of 21 million units of "*virtual coin*". The majority of bitcoin production took place in the first two years. In 2024, about 94% of the total stock will be on market. From 2024 to 2140 the overall offer will be finally completed (Capoti et al., 2015). Paradoxically, the "*bitcoin rush*" becomes faster both on the supply side and on the demand one thanks to the system based on a finite stock, able to function due to a "*labor market*" based on inversely proportional incentives for the "*miners*". This could be the reason of the establishment for numerous exchange platforms on the web and the rise of bitcoin.

In practice, these platforms are intermediaries. Intermediaries undermine Nakamoto's ideal of disintermediation in exchanging, creating a kind of "*bit-standard*", explained in following paragraph.

Hundreds years ago, in choosing which metal to use for coins, the dilemma was between gold and silver. These metals are similar for the intrinsic features and equally useful for human desires' satisfaction (Mises, 1934). In the digital era emerges the dilemma between the proponents of virtual currencies and the detractors.

Legal money, electronic money and bitcoin in the light of the Eurozone

The theoretical effort of this work, at this stage, is to explain

why economic agents accept virtual currency (bitcoin) as a medium of payment. In terms of governance analysis, monetary systems are based on market governance, under the influence of state hierarchies (central banks, regulation and supervision) (Weber, 2014). The main long-term objective of central banks is price stability. In this regard, it should be noted that the Treaty of Maastricht (Mishkin and Eakins, 2012) at art. 4 A, establishes a European System of Central Banks (ESCB) and a European Central Bank (ECB) (European Union, 1992).

Art. 105 c.1 of the Treaty reports the main objective of the ESCB in the maintenance of price stability. According to this orientation, the leaders of governments around the world are working to reach this objective (Mishkin and Eakins, 2012). Similarly, the ECB forms the core of the ESCB, which is responsible for ensuring the success of the above mentioned objective (price stability) (European Union, 1992 art. 127) and supporting the general economic policies of the Union (European Union, 1992 art. 282).

From the 1st January 2002, the Bank of Italy and the other 11 National Central Banks (NCBs) of the European Union (EU) countries adopted the euro and start issuing (Bank of Italy, 2015). By carrying out the usual functions of an issuer bank, the ECB and the NCBs issue the single currency banknotes and coins. Thus, euro banknotes and coins are legal tender in the euro area (Bank of Italy, 2015). Why is money accepted in social relationship?

The main answer focuses on the fact that money acceptance is due to the generalized trust and expectation that others will accept it. This mechanism could represent a self-fulfilling prophecy (Merton, 1973), made sure by the protection of third parties (national or supranational) that embody the consecration of the legally regulated social commitment (Barcelona, 2000).

The aforementioned concept is one of the missing parts of Bitcoin system. In fact, the authors purpose that bitcoin is limited just to be a self-fulfilling prophecy (Merton, 1973) without legal protection. In practice, at the same time bitcoin reinforce itself thanks to mass media ferment, but tends to reduce its potentiality because of its fluctuations.

The totality of transactions takes place daily through the intentions of the vast audience of economic actors. All transactions currently present in the economy are carried out by means of intentions meeting (Kokkola, 2010). It could be understandable that payment systems become an interposed condition within the relation of exchange.

Bitcoin is not very different from a system based on barter. It finds one of its fortunes as IT protocol. It could be able to provide guarantees for transactions with good levels of certainty and security (Nofer et al., 2017; Khan and Salah, 2018). On the other hand, in light of the payment systems definition, Bitcoin lacks a notion, in particular: the presence of intermediation (interposed condition). In this way the aspect that wants to change (intermediation), it could become the first risk able to nullify its legitimacy, but not its existence.

Modern economy, included the euro area, bases its functioning on fiduciary currency. Central Bank provides for Euro zone the declaration of legal tender and coin issuing. Legal currency has the power to extinguish money obligations (Bank of Italy, 2015), in practice is legally recognized. The only form of legal currency is the one issued by a central bank. In fact, it bases its founding pillars on the mechanism of generalized trust, previously identified as self-fulfilling prophecy, in addition to a stable value over time and legal recognition.

Cryptocurrency indicates the set of instruments managed and organized by banks and other authorized intermediaries to provide payment services: checks, bank transfers, direct debits, payment cards (Bank of Italy, 2015). In this context, virtual currencies take place.

The authors highlighted the intrinsic features of a legal tender currency and the aim to provide guarantee systems that permits issuance and circulation. The authors provided also a definition for payment systems.

In order to ensure an exhaustive overview, the authors point the attention on the electronic money. E-money could be confused with cryptocurrency or virtualcurrency, but these terms identify different cases.

European Banking Authority (2014), Bank of England (2014), Bank of Italy (2015) and FinCEN (2013) traced risks of these currencies through warning documents ad-hoc published.

"*Electronic money*", or e-money, is the term used in practice to refer different types of payment in electronic manner. The Directive 2009/110/EC, implemented in Italy by Legislative Decree 45/2012, defines electronic money as electronically stored monetary value, including magnetic storage, represented by a credit towards the issuer that is issued to carry out payment transactions. This turns out to be the result of a process undertaken with a press release of the European Commission on 29/07/1998, which stated the aim of the future use of electronic money (Guerrieri, 2015).

The peculiarities of e-money have been identified through the electronic memorization value, in its representation of a credit towards the issuer and in its issue to allow payment, transfer and withdrawal of funds. Important feature is the acceptability tout court as a medium of payment. In fact, it distinguishes legal tender currencies form the bitcoin and other virtual currencies in the actual conformation.

It could be erroneous to define virtual currencies or cryptocurrencies as e-currency (or e-money). Unfortunately, this term is used in the common language to identify the similar, but different cases of rising phenomena.

Regarding electronic money, the text of art.8 c.4 of the Commission Recommendation dated 30th July 1997 n. 489 transmits responsibility to the issuer for the loss due

to transactions by use of electronic payment tools. For example the case could take place when an incorrect execution of the operation and the deriving loss is attributable to a failure of the tool used. The text excludes the issuer from the responsibility if the default caused by the holder voluntarily (Recommendation 97/489 / EC).

The main elements aforementioned, clearly distinguish the e-currency from virtual-currency or cryptocurrencies (bitcoin). The first case is legally recognized as an electronic manner of money detection. The second one outlines the absence of any type of guarantee. In fact, virtual currencies and the sub set of cryptocurrencies are unregulated.

The organizational system beyond bitcoin and other cryptocurrencies guarantees their use and circulation, but not their value and acceptability. It delegates the attention and the responsibility to the individual. The use of this kind of money as medium of exchange is frequently improper. In fact, it could be considered similar to cash, but without legal basis, able to circulate in a P2P (peer to peer) market that attributes huge and fluctuating values to a good (bitcoin) with zero value (Cheah and Fry, 2015). Its use value would appear to be the exchange value and no more (Amato and Fantacci, 2018).

It could be possible to assume that, users fix and estimate bitcoin values on emotional perceptions. In any case, its value remains true solely as long as users decide to shift their preferences to other interests. The authors purpose a plausible consequence of an imitative trading that follows the overshoot in prices and vice versa.

Bitcoin, intended as money, reaches vertiginous peaks due to its intrinsic ability to move what Alan Greenspan defines the irrational exuberance (Greenspan, 1996) of speculation. At least, bitcoin is a finite and unchangeable quantitative stock that creates possibility of anonymity / pseudonymity for illicit activities and subversive motivation. Bitcoin attempts to acquire the capability to reserve of value (relative), due to the convertibility in legal tender currencies. It impacts the real economy in transversal way, reaching a considerable success due to its pioneering first mover aspects (Schilling, 2010).

DISCUSSION

"Bit standard"

The amount of "*virtual coin*" established by Nakamoto in Bitcoin system captures academic attention (Amato and Fantacci, 2018; Capoti et al., 2015; Guttman, 2014). Twenty-one million is the quantity fixed and predetermined, hypothetically to reconstruct a virtual mine. It seems to be an exhaustible deposit, which does not give the benefit of doubt, nor hope on the discovery of new sources. Bitcoin seems to be a scarce and irreproducible good. It could be possible to define bitcoin as a "*stand-alone good*", an "*independent conventional entity*". Bitcoin as currency, due to its nature, could be represent an "*item for collectors*" or a kind of "*virtual commodity*". At theoretical level, Bitcoin appears similar to the system that in the participating countries guaranteed a free convertibility of gold in foreign currencies, and vice versa of domestic currency in gold. This mechanism is known as Gold standard (1815) (Demattè and de Sury, 1992). In fact, as currency, bitcoin is tradable and exchangeable due to the innumerable platforms on the web that permits an immediate convertibility at low cost in legal tender currencies. This kind of system could be called "Bit standard", in which bitcoin as "representative" value would be exchanged in other legal tender curriencies (Figure 1).

The aim is not to technically explain the functioning of the Gold Standard. The authors want to raise interest on the conceptual similarity between Gold Standard and Bitcoin mechanism.

The conceptual similarity and the overview proposed made it possible to assume bitcoin: as a "*good*" could re-propose a system of direct exchange based on barter; as a "*payment system*" it is valid until people accept it for payments with the expectation that it will continue to be accepted; and as a "*reserve of value*" it cannot "*break the chains*" because of the limit for convertibility into legal currencies and the congenital instability of its structure.

Risks of a "Deep-coin"

The Financial Crimes Enforcement Network (FinCEN, 2013) edited the interpretative guide on the connections of virtual currencies and the "*deep-web*" to clarify the applicability of the relevant regulations to the people who create, obtain, distribute, exchange, accept or transmit virtual currencies. It is possible to read in the guide, that a person who creates units of convertible virtual currencies and uses them to buy real or virtual goods and services is a user and is not breaking the law. By contrast, a person who creates units of convertible virtual currency and sells those units to another person to reach real currency or its equivalent is engaged in the so called MTB (money transmitting business).

The common use of VCs and in detail bitcoin is linked with purchases on markets, before October 2013, reachable by the Tor.Silkroad network, one of the many access portals to the "Deep-web"[4]. A potential money laundering tool, an anonymous and illegal digital network market, reachable by downloading an application capable of masking IP addresses, facilitating access to sites with .onion domain and not the classic .it, .com,. org, which the simple web users know.

Silkroad stopped its activity on 3 October 2013 because of the intervention of the FBI, with noteworthy legal and media repercussions (Guttmann, 2014). The

[4] The Deep-web is the dark side of the Internet that can only be reached with specific software

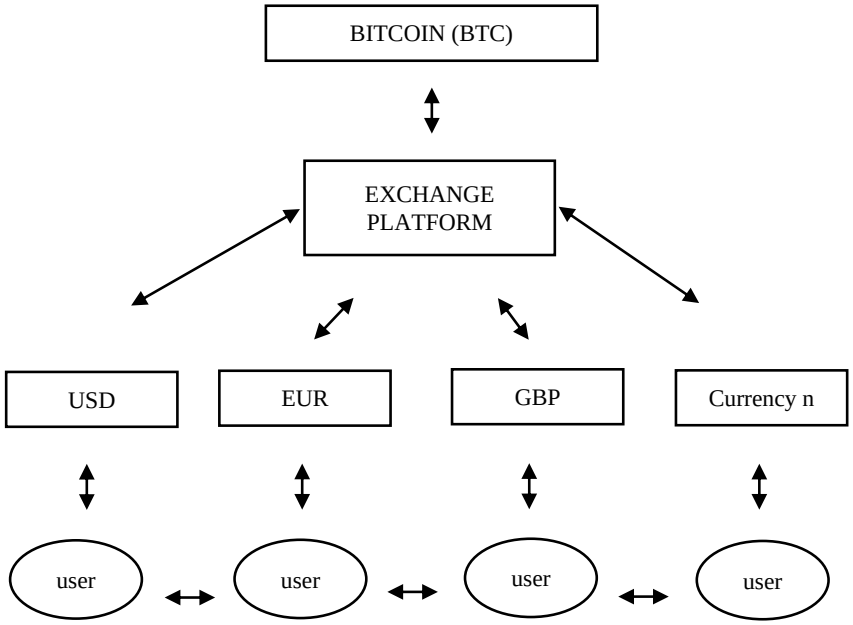

Figure 1. "Bit standard model"

authors leave the technical aspects to specialists, assuming that the construction of an economy in the economy, or better parallel and multi-dimensional economies, have been facilitated by the advent of VCs and special marketplaces, in which Silkroad was just a known case in the jungle of a huge network. These kinds of markets made possible the meeting of not recommendable purposes of supply and demand, through virtual currencies like bitcoin. In practice, VCs masked by wonderful ideals and mediatic ferment about their potentialities. These potentialities are not excluded, but the current use hides deeper meanings, identifying VCs as "*Deep-coins*" of submerged markets.

In the Italian practice, the Ministry for the Economy and Finance is working to detect the phenomenon drafting a decree scheme to regulate operation in VCs. The obligation to communicate to the Ministry the operations made in VCs includes commercial operators who accept virtual currencies in selling goods, services or other benefits. The forecast of the obligations mentioned above are compliant with the anti-money laundering regulations and the prevention of financial crimes (Source: MEF).

Institutional warnings

According to the bitcoin disruptive emergence, authorities worked to warn the population through the publication of documents specifically written on the use of VCs.

In 2014 the European Banking Authority defined VCs (bitcoins) as digital representations of money (also considered as commodities) that are not distributed by a central bank or an authority. They are considered without legal tender by any jurisdiction. They are not fixed necessarily to a traditional currency (dollar, sterling, and so on...), but are accepted, in some cases, as a medium of payment, they can be transferred, sold or exchanged electronically. Characteristic of the VCs is that they can be converted into one of the traditional currencies, even if they are not a direct representation of FCs (Fiat currencies). The EBA / op /2014/08 document, better identified as "EBA: Opinion on virtual currencies" (European Banking Authority, 2014), makes a list of the advantages and risks associated with the use of VCs.

The advantages are: i) reduction of transaction costs, ii) absence of an intermediary, iii) absence of regulation, iv) transaction speed, but focuses on the fact that many of these advantages are only hypothetical and not real, which at the current state of development of these tools remain at potential level.

On one hand, the risks identified shows traits in common with traditional financial instruments, while others are specific. The EBA warned users against risks of the quick loss of value. There are problems related to the authorization of transactions, conversion to FCs (Fiat currencies), also the absence of protection for payments or against the theft of credentials (European Banking Authority, 2014) from the cybercriminals' attacks to digital wallets. These cyberattacks have been identified under the name of Trojan.-Win32.CryptoShuffler.gen or Win32.DiscordiaMiner and others (Rus, 2017).

The EBA recognized other risk, for example insolvency of the "system administrators" and another one related to unexpected tax and implications linked to money laundering, etc. (European Banking Authority, 2014).

The year after, Bank of Italy intervened and published a warning document on the use of VCs. The scheme provided seems to recall the document published by EBA. Bank of Italy (2015) defined virtual currencies as digital representation of value, used as a medium of exchange or for investment purposes, which could be transferred, archived and electronically negotiated. VCs would not represent the common currencies in legal form, as widely stated above. Because of the absence of legal tender, people are not obliged by law to accept VCs in exchange of extinction of monetary obligations, but if accepted, VCs could be used to buy goods or services. Bank of Italy shared with the EBA's opinion to discourage banks and other supervised intermediaries from buying, holding or selling VCs (Bank of Italy, 2015).

Bank of England (2014) actively participated in the drafting of a document identified by the title: "Innovations in payment technologies and the emergence of digital currencies". In it, Bank of England explained that payment and money systems are intrinsically connected. They evolve together and this connection remains evident in the responsibilities of central banks, including the role of guarantor of both currency stability and payment systems. The Bank of England focused the attention on the risk of a direct use of VCs in relation to the misleading interpretation of e-money. Therefore, in the document it could be recognized the nature of the risk of fraud according to the payment systems. In fact, payment systems show two connotations: centralized and decentralized. In the second case, the risk of direct loss of digital currencies (VCs) is higher than deposits (electronically) through contracts with commercial banks, as aforementioned. For example, in the case of bitcoin and other similar currencies, once lost the private key is not recoverable to access the digital wallet. By contrast, for internet banking purposes, the contractual party (that is, bank) could recover or restore the personal password. In this sense, a digital wallet (that is, bitcoin digital wallet) becomes much more similar to a physical wallet containing physical currency (Ali et al., 2014) and easily subjected to fraud and implicitly to the non-recoverability of content.

Bitcoin virtues

Bitcoin phenomenon and the media fervor around it are constantly increasing. Blockchain appears on the background, but by contrast, it could be the real innovation. The IT protocol, capable to eliminate the intermediation currently present in transaction flows, in co-evolution connected to the advent of the "smart contracts", could redraw organizational traits, especially for public sector. Blockchain stands not just as a connection between bitcoin, but it appears as a fundamental infrastructure for further applications. The need of control connects bitcoin, its feeble legal basis, its security problems and institutional warnings. Beyond the uncertainty that afflicts bitcoin, the fundamental technology could be blockchain, able to build possibilities and developments.

In light of a new IT evolution for public administration and a fourth industrial revolution, the blockchain protocol could be considered for its "*disruptive power*". Blockchain process could be the same for communications, transmission of documents etc. both in private and public sector. In the second frame, it could provide a good solution for a direct certification of informative flows. Blockchain could provide the accuracy and efficiency of payment processes and consequently invoicing, minimizing disputes arising from errors (Alarcon and Ng, 2018). In the literature, blockchain assumes takes on many facets in term of purposes and uses. Its potentialities extending can be extended from cryptocurrencies to areas such as automatic machine to machine transactions, , asset tracking, supply chains banks and insurance, , e-voting, automated access control and sharing, digital identity transaction and healthcare data certification (O'Leary et al., 2018; Tarr, 2018; Iansiti and Lakhani , 2017; Azaria et al., 2016).

LIMITS AND FUTURE DEVELOPMENT

Bitcoin has been capable in enhancing interest from smaller communities in view of the request of the municipality of Berceto (Parma, Emilia-Romagna, Italy) to issue its own digital currency (Benedetti, 2018), to bigger examples like Sweden, United Kingdom (Jadeluca, 2017) and Venezuela (Ciai, 2017). Africa is looking for adoption of virtual currency. The South African Reserve Bank said that it want to issue a national digital currency based on Blockchain technology; for example "*eCFA*" in Senegal, the digital version of the West African Franc (Caboz, 2017). Markets bring with them the aim of collect together durably or at least periodically, interested parties that can influence price formation (Menger, 1925). Bitcoin does exactly that, but replaces physical places with virtual platforms and any exchange goods used in barter with a hypothetical money-good (bitcoin).

As stated in an interview with Nobel Prize winner Joseph Eugene Stiglitz (2017), the only cause Bitcoin success is the elusive potential and absence of supervision. Stiglitz (2017) shaped bitcoin as a bubble that will give exciting moments when it goes up and down. Explanatory methodology could be extremely useful in interpreting rapid growing phenomenon as the one studied. Explanatory Research is useful to help the researcher in finding problems less studied or growing. The main objective of explanatory research is to increase the knowledge on a specific ambit. The aim is not to provide exhaustive results, but to frame phenomena, the reason for their occurrence, possible interpretations and potential future perspective. The explanatory approach of the research aims to explain the phenomenon studied

through description of risks and virtues related to Bitcoin system. On one hand, the historical and general overview based on the observation of the phenomenon and literature provide a first step in the research. In fact, the suggestions purposed are not considerable as results, but the basis of the interpretation process. On the other hand, the qualitative setting could frame the bitcoin system, but the lack of statistical force intrinsically embedded in this approach, could represent a limit. It could be possible to recognize other limitations in subjectivity and variability. Quantitative and qualitative analysis could trace future perspectives; thanks to theoretical frameworks and empirical data.

CONCLUSION

The authors provided a general and critical overview on Bitcoin system through an explorative analysis of the phenomenon. The aim is not to deny the existence of potentialities inherent in bitcoin or in any case, in VCs, but to create a fil-rouge, including an historical perspective connected to the theoretical concept of market and its development. The authors attempt to interpret the bitcoin system in light of its risks and virtues, providing suggestions for further application of the Blockchain technology.

In fact, bitcoin was born from the idea of encouraging speed of direct exchanges and inclusion for the certification of flows on the blockchain, but in practice, it disregards itself and the ideals of its creation, favoring inequalities, intermediation of convertibility, fraud and illicit uses, guaranteed by the not immediate identification of users. Bitcoin has no intrinsic nominal value, other than the market value attributed by small groups of users on a growing trend governed by emotional variables between supply and demand. Bitcoin would be unequally distributed and unequally distributable. The aim of bitcoin creation is to speed up and disintermediate exchanges. By contrast, it becomes similar to a financial product, governed solely by logic of "*bet*". The intrinsic instability is one of the reasons that do not allow it to be"*real money*", but solely"*half-way money*". Therefore, as all novelties, it presupposes risks and pheno-menological problems. For this reason, authorities, academics and policy makers should observe the phenomenon and manage risks.

CONFLICT OF INTERESTS

The authors have not declared any conflict of interests.

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Does the IFRS 15 impact earnings management? Initial evidence from Italian listed companies

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The purpose of the present work was to gauge the extent of the impact on earnings management derived from the adoption of International Financial Reporting Standards (IFRS) 15 as well as detecting whether the impact will be similar in different industries. To provide empirical evidence that earnings management is more frequent in some industries and less frequent in others by means of a statistical analysis, a sample of Italian listed companies in the period 2001-2017 was observed. Specifically, companies belonging to two sectors were selected: "Telecommunications" and "Utilities". The Jones Model was applied. The statistical analysis brought to light that earnings management practices are "commonly adopted" in the "Telecommunications" industry, which is consequently highly impacted by the introduction of IFRS 15. That being said, the lesson learned from this study is that the implementation of the new principle, written to discipline the accountancy of revenues, and its consequences, must be carefully analyzed and monitored by the regulators, as well as correctly adopted by managers, as the determined revenues could have an impact on the pre-existing earning management practices. The scientific contribution of the present research also concerns the predictions on the behavior of managers that can be foreseen considering the agency theory; therefore, knowing *ex-ante* in which industries earnings management has a high impact, provides the option to foresee the hypothetical moves of the managers in the implementation of IFRS 15.

Key words: earnings management, discretionary accruals, IFRS 15, telecommunications, utilities.

INTRODUCTION

Since 1973, there has been a worldwide trend to standardize the accounting principles. Over the last few years, the need to harmonize accounting rules has risen in Europe too. As a result, the European Commission started issuing directives to the member states. The objective of the European Union (EU) is to facilitate the development and efficiency of European financial markets. The application of different accounting standards in each Member State has, in fact, in the past determined a low degree of comparability of financial reporting among companies located in different European States, constituting a deterrent in the development of these markets. The European accounting legislation (that is Directives n. IV and VII, respectively on the subject of the

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annual financial statements and consolidated financial statements), which is applied differently in each member State, was no longer adequate to ensure this objective.

In this regard, the European Union Parliament decided to promote, and progressively to make mandatory, for the fiscal years starting after 1 January 2005, the adoption of International Accounting Standards (IAS/IFRS), elaborated by the International Accounting Standards Committee (IASC) – initially by a group of professional accountants, and subsequently by a board called International Accounting Standards Board (IASB), which is an internal committee of the global organization for accountancy (International Federation of Accountants – IFAC).

The European Union decided to focus its attention on IAS/IFRS as an answer to its previously set ideas, such as (Preface to IFRS, 2018):

1. "*develop [...] high quality, understandable and enforceable global accounting standards [...], that require high quality, transparent and comparable information [...] to help participants in the world's capital markets and other users [...]*";
2. "*promote the use and rigorous application of those standards*";
3. "*bring about convergence [...]*".

These are also the reasons why IAS/IFRS achieved such an extraordinary success persuading almost 100 Countries to adopt them (Ball, 2006).

Moreover, many studies showed that adopting IFRS, firms act optimally and promote financial reporting quality and investor interests (Fields et al., 2001). Other researches, some with empirical evidence, show that the adoption of the IFRS reduces the level of earnings management (Rudra and Bhattacharjee, 2011; Cai et al., 2008) since this set of standards limits the management's opportunistic discretion (Barth et al., 2008) and, consequently, the adoption of IFRS decreases the use of discretionary accruals (Guenther et al., 2009).

In this scenario, the current, major change in the IAS/IFRS' panorama is represented by the adoption of two new standards as IFRS 9 *"Financial instruments"* and IFRS 15, titled "*Revenue from contracts with customers*". These standards have become mandatory from the 1st January 2018. The present work focuses on IFRS 15, because, it can be considered one of the crucial issues for companies, considering that revenues are both easily examined and one of the primary earnings subject to discretion (Stubben, 2010).

The aim of the present work was to evaluate the impact of IFRS 15 on earnings management and question whether the level of impact will be different according to the industrial sector of the entities.

In the past, the Big-Four companies (KPMG, Ernst and Young, Deloitte and PricewaterhouseCoopers) have hypothesized that a different level of impact of IFRS 15 could exist considering specific features of the industries, which directly influence the revenues, however the impact of this on earnings management remains unverified.

Therefore it seemed useful to provide empirical evidence in specific industries where earnings management is more frequent, followed by an attempt to evaluate the benefit obtained from the correct and adequate introduction of the IFRS 15. The paper is structured as follows. The next section reviews academic literature on the impact of IAS/IFRS adoption on earnings management and its possible future effects within different industries. The following section is dedicated to explaining the empirical research; in detail, the background research is presented, such as the literature and information necessary to create the basis for the research, the methodology used for the analysis is described, the variables, the sample and the regression used as well as the findings and an initial discussion about the results. The paper ends by reporting the main conclusions and explaining the limitations.

LITERATURE REVIEW

The adoption of accrual-based accounting is considered necessary because it is able to provide a complete picture of the financial transactions of the business, recording all period transactions. The system, being based on a complete record of the financial matter, discloses correct profit or loss for a specific period; above all when compared to a cash-based system, in which transactions are recorded only when cash is received or paid, accrual accounting could be considered less vulnerable in a real management practices perspective since monetary flows systems are easier to manage. This is one of the reasons why IFRS are based on accrual accounting.

The latter point is widely agreed upon in the main literature. Goldman and Brashares (1991) believe that a full-accrual accounting system emphasizes the transparency of financial statements and allows a faithful representation of corporate performance; similarly, Vinnari and Näsi (2008), argue that the adoption of accrued-based system, such as the IAS/IFRS system, is able to limit the use of creative accounting. The term "creative accounting" refers to the use of the flexibility in accounting principles in order to manipulate the presentation and/or valuation of financial statement items (Jameson, 1988). Consequently, budget editors can show stakeholders whatever they find more convenient, hiding the company's actual performance. Given that such practices rely on the interpretation of accounting principles, it remains very difficult to establish when they are bound to illegality (Amat et al., 1998).

Considering that IFRS are standards elaborated on an

accrual basis, the adoption of these principles is widely supported by mainstream literature, even though each author provides a different reason, i.e. Corsi and Mancini (2010) highlight its superiority over, for example, the Generally Accepted Accounting Principles (GAAP), which are not “rigorous” enough, leaving high degrees of freedom in implementing earnings management policies. Jeanjean and Stolowy (2008) assert that implementing IFRS simplifies the comparison of companies’ financial performance across different countries.

Focusing on earnings management has brought to light the ongoing debate in literature started in 1980, when many authors started developing models to highlight the persistence of the phenomenon (Healy, 1985; De Angelo, 1986; Jones, 1991; Dechow et al., 1995; Dechow and Dichev, 2002; Tutino and Pompili, 2017). Two main earnings management categories can be identified:

1) *Accruals* management, related to the possibilities offered by the accounting standards (professional judgments), aiming at “obscuring” or “masking” true economic performance (Dechow and Skinner 2000),
2) *Real activities* manipulation, occurring when managers undertake actions that change the timing or structuring of an operation, investment, and/or financing transaction in an effort to influence the output of the accounting system (Gunny, 2010).

By relating the IAS/IFRS and the earnings management some authors have realized that the quality that would place IAS/IFRS above local GAAP is the reduction in costs for investors to assess the quality of the information reported in IFRS compliant financial statements. In fact, the greater comparability of the financial statements would make it possible to identify any earnings management action in a timely manner, reducing the possibility of opportunistic behavior by managers. Mechelli and Cimoni (2012) highlight the ability of the IAS/IFRS to fill in local legislative gaps relating to particular events that must be reported in the financial statements. For example, the presence of “gaps” in enforcement mechanisms could weaken, or even nullify, the positive effects of the new standards.

Other authors such as Leuz and Verrecchia (1999), Ashbaugh and Pincus (2001), Leuz (2003) pointed out that the greater disclosure required applying the IFRS for the financial statements preparation would result in reduction of opportunistic behavior.
Nevertheless, different and conflicting conclusions resulted in many investigations carried out in this specific field.

Barth et al. (2008), observing the quality of “budget numbers” before and after the adoption of IFRS on a sample of 327 companies that opted for voluntary implementation between 1994 and 2003, a lower earnings management was found, along with a greater value relevance and a timelier recognition of losses following the introduction of international accounting standards, translating into higher quality financial statements than those prepared with local GAAP. Daske et al. (2008), examining the economic consequences of adopting IFRS on a sample of 3.800 first-time adopters in 26 different countries, found a positive correlation between the introduction of IFRS, market liquidity and the market valuation. Differently, Armstrong et al. (2010) analyzed the potential impact on stock market price with the adoption of IFRS. The results showed a positive correlation underlying a positive (negative) market reaction with the increase (decrease) in the probability of IFRS adoption. The combination of these results shows that, at least for early adopters, companies could benefit from the adoption of IFRS. Iatridis (2010) drew similar conclusions observing a sample of listed companies in the UK: the adoption of IFRS is able to reduce the possibilities of earnings management as it leads to a timelier and value relevant recognition of losses.

While with the exact opposite idea, Capkun et al. (2016), showed that early adopters of IFRS had incentives to increase the transparency of their reporting in order to attract outside capital, and, therefore, earnings management (smoothing) went down after voluntary IFRS adoption, while those firms that waited until IFRS reporting became mandatory in EU countries lacked incentives for transparent reporting, leading to increases in earnings management (smoothing) after mandatory IFRS adoption. Meaning that IAS/IFRS standards that went into effect in 2005, permit greater flexibility in application and thus contribute to greater earnings management. A similar conclusion can also be found in Ugrin et al. (2017) where the authors demonstrated that a uniform association between IFRS adoption and earnings management across countries does not exist, in fact sometimes, IFRS create an environment that allows for financial manipulation. Similarly, another contribution elaborated by Ewert and Wagenhofer (2005) found a significant increase in income-increasing earnings management after IFRS adoption amongst firms based in countries that are more power distant, uncertainty avoidant, individualistic, short-term oriented, and indulgent.

Therefore, from a theoretical point of view, there are no doubts about the benefits of the IAS/IFRS adoption.

Following the same path of the literature, an attempt was made to find any evidence on the potential different impact of IAS/IFRS observing different industries (Daske et al., 2013; Munter, 2016). The rationale for the investigation emerges following the mandatory adoption, starting from 1 January 2018, of a specific accounting standard related to the revenue components valuation: IFRS 15.

The impact of the adoption of this new IFRS may have a significant effect on the financial statements of many entities as the amount of revenues and contract costs

Table 1. IFRS 15 and Impact on Financial Statement Quality: The "Big-Four" Expectations.

Sector	KPMG [a)]	EY[b)]	Deloitte[c)]	PWC[d)]
Insurance	Medium	Medium/Low	N/A	N/A
Building and construction	Medium	Medium/High	Medium	Medium
Retail and consumer goods	Medium	Medium	Medium	Medium
Licensors*	Medium/high	N/A	Medium	Medium
Real estate	Medium	N/A	Medium	Medium
Technology	Medium	N/A	Medium/Low	High
Telecommunication	High	High	High	High
Energy (mining, oil and gas)	Medium	Medium	Low	Low
Transport	Medium	N/A	N/A	Low

a) KPMG (2016, May), "Revenue - Issues in depth", available at www.kpmg.com.
b) Ernst and Young (2016, April), "Revenue from contracts with customers, A summary of IFRS 15 and its effects", available at www.ey.com.
c) In this case the papers of each sector were analyzed and the relative judgment was taken from the analysis of each. The key element to arrive at the aforesaid judgment was the level of risk of error associated with the steps of the IFRS 15 model.
d) PriceWaterhouseCoopers (2014, June), "IFRS 15: implementation challenges", available at from www.pwc.com.
* media, life science, franchisors.

and/or the timing of their recognition may differ significantly from current practice. The application of the new standard will have effects on all IFRS adopter entities and on the most significant item of their financial statements that is revenues.

To understand whether the impact of this new principles will be the same on all industries, the specific sectors guide lines was used, which is available on the web sites of the Big-Four.

Table 1 summarizes what has been analyzed. In particular, the opinions provided by the "Big-Four" are consistent, with the exception of specific industries like "Technology" and "Energy". The Telecommunications sector is the most affected, while an average impact is expected for the other sectors.

Referring to the North American Industry Classification System (NAICS) used in this work (NAICS is the standard used by Federal statistical agencies in classifying business establishments for the purpose of collecting, analyzing, and publishing statistical data), the Energy sector can be considered as a subsector of the Utilities sector. Which, in fact, is made up of companies operating in the following areas (i) electric bulk power transmission and control; (ii) fossil fuel electric power generation; (iii) natural gas distribution; (iv) other electric power generation (Table 1).

In this regard, several studies have been conducted on the "Insurance" and "Banking" industries (Firoz et al., 2011; Agostino et al., 2011; Post et al., 2007; Helfenstein et al., 2004; Bischof, 2009); other studies analyzed the companies in the "Manufacturing" industry (Colwyn and Luther, 2005). Currently few researches are focused on the impact of the adoption of IAS/IFRS on earnings management in the "Telecommunications" and "Utilities" industries.

EMPIRICAL RESEARCH

Background

As previously stated, this paper proposes a comparative analysis aimed at highlighting the amount of discretionary accruals present in two different industries with a different degree of sensitivity to the application of IFRS 15: "Telecommunications" and "Utilities".

The objective of the analysis is to understand whether the application of IAS/IFRS could increase the quality of accounting information and decrease the earnings management policies. In this regard the Agency Theory approach must be considered (Jensen and Meckling, 1976) in accordance with the shareholders need to delegate the management considering specific skills and knowledge (Zanobio, 2012), showing that the Agency Theory makes several predictions regarding the managers of behavior (Iatridis, 2010).

The need for this analysis arose observing the numerous changes made over the last few years by the international standard setters aimed at improving the set of accounting standards whose continuous process of updating has led to the introduction of the IFRS 15. The new accounting principle provides rules for revenues recognition that are profoundly different from the ones provided by the IAS 18, regarding the definition of revenues' amount, contract costs and the timing of their recognition.

The application of the new standard will have significant effects on the financial statement of entities adopting IFRS (Ballarin, 2017), but not limited to the revenues items. The following analysis will be explained, being based on the earnings management model proposed by Jones (1991), it aims at identifying the status of Italian listed companies, until 2017. The analysis, concurrently with the analysis of the "Big-Four", compares the Telecommunication and Utilities industries, respectively identified as a high sensitive and a medium/low sensitive industry to the introduction of the new IFRS 15.

The statistical activity focuses on the analysis of the context of the application of the new IFRS 15, considering that revenues, albeit not considered as subject to manipulation are subordinate to the new principle, and play a fundamental role with regard to earnings management practices, as a proxy for the measurement of the conditions of the companies.

Establishing the introduction of IFRS 15 and the potential impact on earnings management opportunities can provide indications to a large number of stakeholders (such as shareholders, policy makers, auditors, etc.) providing them with indications of manipulation in the financial statements of specific industries.

Methodology

Accrual Model

The discretionary share of total accruals has been used in order to identify a proxy to take earnings management into account. In fact, the "accruals management" analysis perspective has been adopted in this paper.

The Jones Model (Jones, 1991) has been adopted in order to identify the amount of total accruals, distinguishing between discretionary and non-discretionary accruals, using the discretionary part as a proxy for measuring the presence and extent of earning management practices. The manipulation of the balance data sheet can be carried out through different methods, including the use of discretionary accruals, changes in accounting treatments and changes to the capital structure: the present analysis focuses exclusively on the use of accruals. In agreement with Jones (1991), the amount of total accruals has been calculated as the variation in Non-Cash Working Capital before the Income Tax Payable minus Total Depreciation and Amortization Expense.

The Change in Non-Cash Working Capital Before Income Tax Payable was calculated as the Change in Current Assets, Net of Cash and Short-Terms Investments minus the Change in Current Liabilities Net of the Current Share of Long-Term Loans and the change in the Payable Income Taxes.

The total accruals formula is reported below:

$$TA_t = [\Delta CurrentAssets_t - \Delta Cash_t] - [\Delta CurrentLiabilities_t - \Delta CurrentMaturitiesofLongTermDebt_t - \Delta IncomeTaxesPayable_t] - DepreciationandAmortizationExpense_t \quad (1)$$

According to Jones (1991) and De Angelo (1986), total accruals and relative year by year variations can be broken down as below:

$$\Delta TA_t = (TA_t - TA_{t-k}) = (DA_t - DA_{t-k}) - (NDA_t - NDA_{t-k} \quad (2)$$

Where,

TAt = Total Accrual at the time "t"
TAt-k = Total Accrual at the time "t-k"
DAt = Discretionary Accrual at the time "t"
DAt-k = Discretionary Accrual at the time "t-k"
NDAt = Non-Discretionary Accrual at the time "t"
NDAt-k = Non-Discretionary Accrual at the time "t-k"

The previous subdivision of total accruals, in agreement with De Angelo (1986), is based on the assumption that change of non-discretionary accrual is almost non-existent; therefore, the difference in total accruals is exclusively due to changes in discretionary accruals levels.

The Jones model, therefore, is based on the assumption that at the period "t" there is no earning management and, therefore, the difference in total accruals between the period "t" and the period "t-k" is necessarily due to the existence of non-discretionary accruals, showing a potential presence of earnings manipulation.

In order to verify the relationship between the economic conditions of the companies and the level of accruals, Jones (1991) introduces the following equation:

$$TA_{i,t}/A_{i,t-1} = \alpha[1/A_{i,t-1}] + \beta_{1i}[\Delta REV_{i,t}/A_{i,t-1}] + \beta_{2i}[PPE_{i,t}/A_{i,t-1}] + \varepsilon_{i,t} \quad (3)$$

Where, *$TA_{i,t}$ = Total Accrual at the time "t" for company "i"; $A_{i,t-1}$ = Total Asset at the time "t-1" for company "i"; $\Delta REV_{i,t}$ = Revenues at the time "t" minus revenues at the time "t-1" for company "i"; $PPE_{i,t}$ = Gross Property, Plan and Equipment at the time "t" per for company "i"; $\varepsilon_{i,t}$ = Error term in year "t" for firm "i"*

α, β = Statistical coefficient for independent variables; I = 1,….., N firm index and t = 1,….., T_i year index for the years included in the estimation period for firm i.

The inserted dependent variables have the following meaning:

- The PPE are included in order to monitor the non-accrual quota deriving from the recognition of discretionary write-downs; furthermore, the Depreciation has been included in the calculation of the total accruals;
- Revenues were mainly included as indicator of the economic conditions of the companies. Furthermore, as for PPE, the manipulation of Revenues is linked to the change in non-cash working capital used to calculate total accruals".

The error term obtained by the regression of Equation (3) can be explained as follows:

$$\varepsilon_{i,p} = TA_{i,p}/A_{i,p-1} - (\alpha[1/A_{i,p-1}] + \beta_{1i}[\Delta REV_{i,p}/A_{i,p-1}] + \beta_{2i}[PPE_{i,p}/A_{i,p-1}]) \quad (4)$$

The Equation (4) expresses the level of discretionary accrual for each year "p" and was used to determine their amount in the companies in the observed industry.

Comparison Model

As described above we use the discretionary part of accruals as a proxy for measuring the presence and extent of earning management practices. Specifically, in accordance with Jones (1991) the following equation to define the level of discretionary accruals has been used:

$$\varepsilon_{i,p} = TA_{i,p}/A_{i,p-1} - (\alpha[1/A_{i,p-1}] + \beta_{1i}[\Delta REV_{i,p}/A_{i,p-1}] + \beta_{2i}[PPE_{i,p}/A_{i,p-1}]) \quad (4)$$

It should also be emphasized that the Jones Model does not consider revenues as an element that is subject to discretionary accrual, but rather as a control variable explaining the variation of discretionary accrual linked to the varying conditions in which firms operate. In light of this, considering the exclusion of the analysis of revenue manipulations that is assumed to be present and significant, the model is aimed at investigating the *presence* and *persistence* of earning management practices, not directly carried out on the revenue component in the industry observed.

Once the amount of discretionary accruals for the selected samples has been determined, the two selected industries were compared using the "Welch's t-test" (or unequal variances t-test). This statistical test is conducted by comparing the squared averages of the identified discretionary accruals and it is used to test the hypothesis that two populations have equal means.

Variables

The following Table 2 shows all the variables observed for each company and used in order to define discretionary level of accruals using Equation 4.

Table 2. The set of variables.

Labels	Meaning
$\Delta CASH_t$	Change in cash and cash equivalents between year t and year t-1
ΔCA_t	Change in current asset between year t and year t-1
ΔCL_t	Change in current liabilities between year t and year t-1
ΔDCL_t	Change in current portion of long term debt between year t and year t-1
ΔTAX_t	Changes in Tax Payable between year t and year t-1
DEPt	Depreciation for year t
ΔREV_t	Changes in Revenues between year t and year t-1
PPE_t	Property, Plant and Equipment for year t
TA_t	Total asset for year t

Sample

The initial sample, which has been extracted from DataStream, consists of 88 Italian listed companies, operating in 17 different sectors, observed during the 2001-2017 period. The sectors chosen for the analysis were selected from the studies carried out by the "Big-Four". A specific analysis focused on industries mostly affected by the new IFRS in term of measurement, recognition and disclosure of revenue rules.

Using this analysis as a template for selecting the industries, the "Telecommunications" industry was chosen, predicting it would be highly affected by the introduction of IFRS 15, while for the "Utilities" industry the IFRS was expected to have low impact. The "Telecommunications" industry consists of companies operating in the following areas: (i) motion picture and video production; (ii) newspaper publishers; (iii) software publishers; (iv) television broadcasting; (v) wired telecommunications carriers.

The "Utilities" industry consists of companies operating in the following areas (i) electric bulk power transmission and control; (ii) fossil fuel electric power generation; (iii) natural gas distribution; (iv) other electric power generation.

As reported by the "Big-Four" analysis, the "Telecommunication" industry presents the following areas as highly impacted by the advent of IFRS 15:

(i) Contract modifications;
(ii) Accounting for handsets and other separate performance obligations;
(iii) Significant financing components;
(iv) Allocation of revenue on a relative standalone selling price basis;
(v) Revenue recognition on a portfolio basis; and
(vi) Costs incurred to obtain a contract.

Referring to the "Utilities" industry (power, oil & gas and etc.), the "Big-Four" focus on the following areas:

(i) Contract evaluations to determine if in scope of IFRS 15, leases, financial instruments or another standard;
(ii) Production sharing contracts and concession arrangements;
(iii) Fixed and provisionally priced arrangements;
(iv) Contracts for the delivery of commodities over multiple periods;
(v) take-or-pay, minimum capacity or long term supply contracts.

Following the choice of the two observed industries, the final sample is made up of 23 listed companies, distributed as follows:
1) 13 operating in the Telecommunication industry,
2) 10 operating in Utilities industry.

Considering the availability of the information for the considered period, the total observations are 303 firm-year.

RESULTS

Statistical tests were conducted, with the support of "R" software, to investigate the existence of a significant difference between the extent of the discretionary accruals for the companies in the "Telecommunications" industry compared with those operating in "Utilities" industry.

First of all, the equation 4 was regressed (OLS) introducing an intercept for statistical purpose and the results were utilized to estimate the discretionary portion of the accruals. The Appendixes 1 to 7 reports some descriptive statistics made to represent the extent and the distribution of the total and discretionary accruals in the two industries among the considered period.

Then, as mentioned above, the differences existing between the two sub-samples were tested. In order to do so, the "Welch's t-test" was conducted, also known as the unequal variances t-test, a two-sample location analysis which is used to try the hypothesis that two populations have equal means. In order to carry out these statistics, the squared averages of the identified discretionary accruals were compared. The use of the accruals squared allows for the comparison taking into account their magnitude without considering their positive or negative sign.

Table 3 synthesizes the results of the analysis. As can be seen from the reported results, the difference between the averages of the two industries is very significant (p-value <0.05) meaning that the discretionary accruals show a higher average impact in the Telecommunication industry compared with the value reported for Utilities sector.

Given these results, it is possible to affirm that the Telecommunication industry is more affected by earnings management behavior than the Utilities industry. This must be read together with the analysis made by the Big-

Table 3. Summary of results.

Test	Industries	
	Telecommunications	**Utilities**
Mean	0.013875809	0.004870635
T: 3,2533		
DF: 216,13		
P-value: 0,001324		

four in order to better analyze and understand the possible impact related to the application of the IFRS15.

DISCUSSION

The results show that within the industries influenced by the introduction of the IFRS 15, the Telecommunications one is more impacted by earnings management practices than the Utilities. The different levels of earnings management within the diverse industries is confirmed by the papers found in the literature. As for the Telecommunications industry, some authors deem it worth studying due to the existing degree of earnings management variation across industries (Lee et al., 2008); at the same time, the "Utilities" industry has a strictly regulated accounting data, (Healy and Wahlem, 1999) which could be considered one of the reasons why earnings management is less evident if compared with others sectors.

These results must also be analyzed simultaneously with the results carried out by the "Big-Four" reports on the impact of IFRS 15 in order to draw appropriate conclusions for the stakeholders, and the policy makers' perspective must be taken into consideration. As stated above the "Big-Four" analysis shows that the "Telecommunication" industry presents some areas that are highly impacted by the advent of IFRS 15 (for example accounting for handsets and other separate performance obligations; significant financing components; allocation of revenue on a relative standalone selling price basis; revenue recognition on a portfolio basis) and given the results obtained from the analysis it is possible to affirm that these aspects could be responsible for the level of earnings management.

Therefore, the introduction of the IFRS 15 should benefit the industries where earnings management is more frequent such as the Telecommunications industry.

It must be mentioned that the Jones model, used as the basis to calculate total accruals and discretionary accruals, does not consider the discretionary component of revenues, which are instead used as a proxy to define the economic conditions of sample companies. From the existing literature on the topic it is however possible to assume that revenues are widely affected by earnings management policies, since they are often the basis for determining the annual bonuses.

Conclusion

High quality accounting standards have been introduced by IASB and FASB in order to improve worldwide quality of financial reporting. Existing evidence allows for the assertion that these accounting standards are able to reduce the level of earnings management (Rudra and Bhattacharjee, 2011; Cai et al., 2008; Mechelli and Cimoni, 2012) and, consequently, decrease the use of discretionary accruals (Guenther et al., 2009).

Given this scenario, the present study, starting from the introduction of IFRS 15 "Revenue from contracts with customers", looked for evidence of earnings management in a sample of Italian public firms and, specifically, knowing that the possible effects of the introduction of IFRS 15 could be different in each industry, in the present study was considered the Telecommunications industry, as considered highly influenced by the IFRS 15, and Utilities industry, that is considered an industry low impact.

Given these results, based on the earnings management model proposed by Jones (1991) - whose goal is identifying the total amount of accruals, distinguishing between discretionary and non-discretionary, using the discretionary part as a proxy for measuring the presence and extent of earnings management practices – this study was conducted with the first aim to identify the *status* of Italian listed companies in terms of earnings management, before the introduction of IFRS 15. In order to do so the study considered the aforementioned industries, hence two samples impacted by the IFRS 15 to different extents.

Once the findings on the amount of discretionary accruals were obtained, the analysis proceeded with a comparison between the two industries selected.

The analysis demonstrated that the Telecommunications industry is impacted by earnings management practices to a greater extent than the Utilities industry. These results should be analyzed simultaneously with the results from by the "Big-Four" analysis concerning the impact of the introduction of IFRS 15. Albeit in this project the revenues are not considered as an object of manipulation, they are one of the factors that can affect the level and extent of the discretionary accruals. That said, the implementation of the principle, and its consequences, must be carefully analyzed and monitored by the regulators, as the determined revenues could have an impact on the pre-existing earnings management practices.

As previously mentioned, the scientific contribution of the present research concerns the possibility to predict the behavior of managers by considering the Agency Theory (Iatridis, 2010); therefore, knowing *ex-ante*, which

industries have highly influenced earnings management, makes it possible to predict the hypothetical moves of the managers in the implementation of IFRS 15.

LIMITATIONS AND FUTURE RESEARCHES

At present the research presents some limitations. A first limitation is related to the small numbers of industries observed, which are, in essence, only two. Even though the total number of observations is high, all companies analyzed belong to only two industries. The analysis could be extended to a greater number of industries and companies in order to provide a more complete overview of the presence and the persistence of earnings management policies in different Italian companies' typologies.

A second limitation is related to the consideration of the revenues as a non-discretionary component. Regarding this specific topic, a part of the literature disregarded this limit (Dechow et al., 1995); other authors adopted a different approach, building models in which revenues are definitively considered but not all accruals are considered (Stubben, 2010).

In the next steps of the analysis, the results deriving from the application of these models in the analyzed sectors will be presented.

CONFLICT OF INTERESTS

The authors have not declared any conflict of interests.

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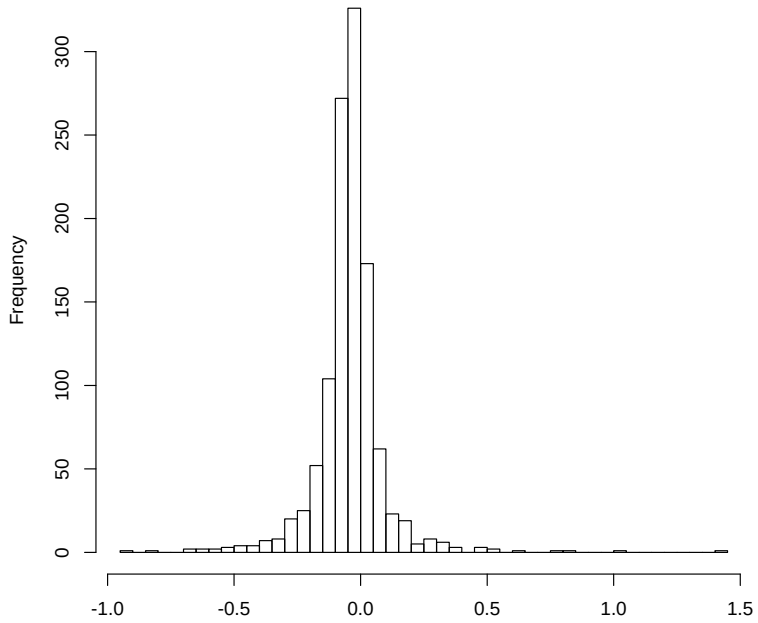
APPENDIX

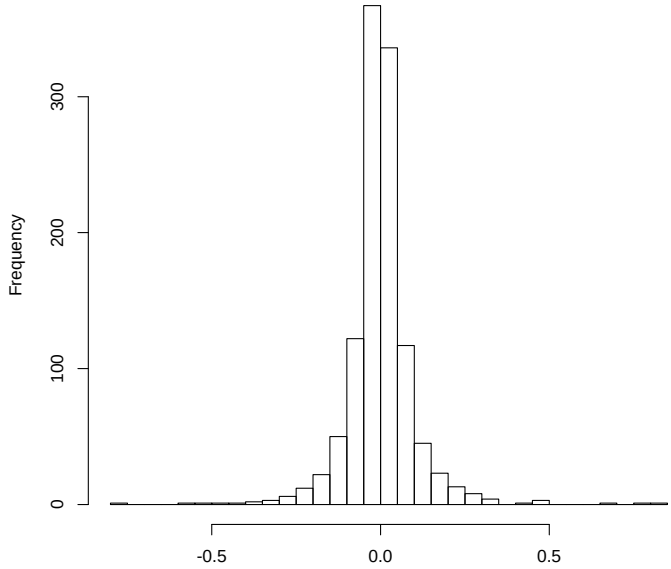
This appendix is provided with the aim of supplying some details regarding the extent of the Total Accruals and the Discretionary Accruals in the Telecommunication and Utilities industries, as well as on their distribution in the considered period (2001-2017). Hence, the following histograms report the frequency of the accruals while the boxplots report the minimum, maximum and mean value of the accruals for each year.

The following graphic shows the frequency of the Total Accrual for the full sample among the period 2001-2017.

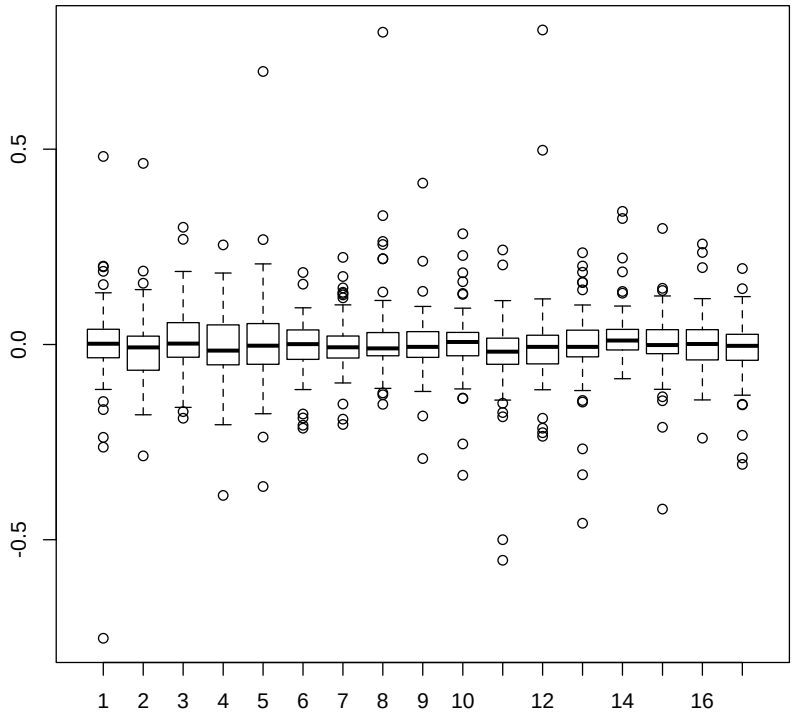


Graph 1. Frequency of total accruals.

The following graphics shows the frequency of the Discretionary Accruals for the same sample and period and their distribution for each year.

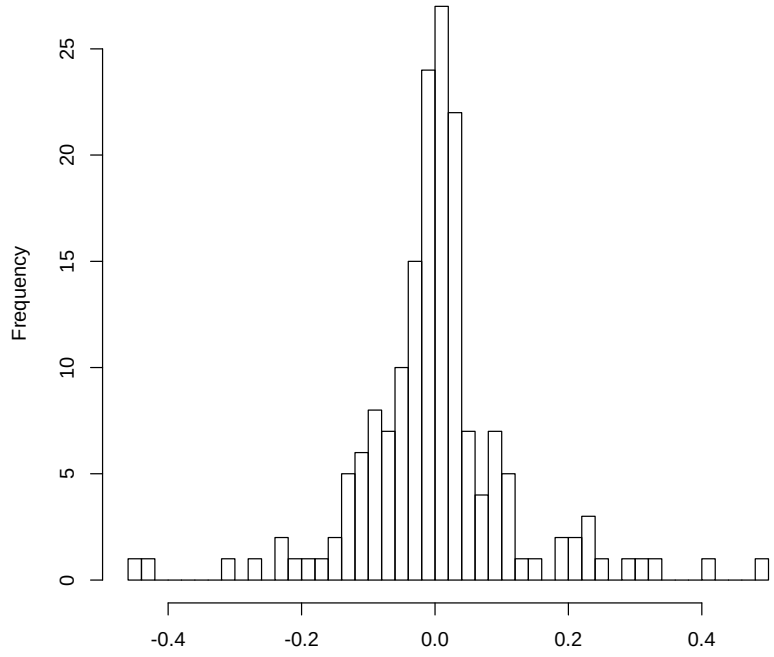


Graph 2. Frequency of discretionary accruals.

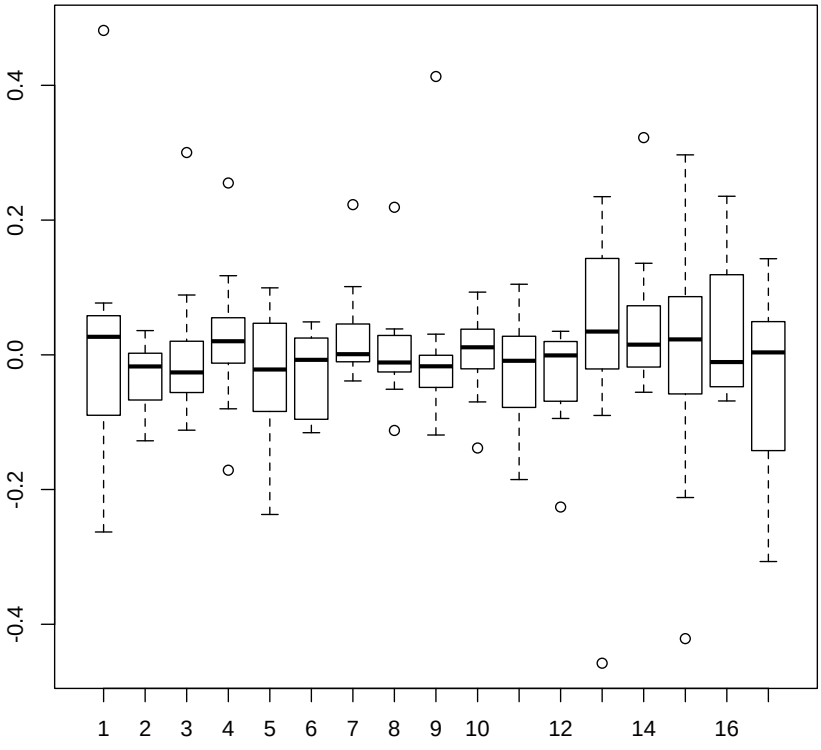


Graph 3. Distribution of Discretionary Accruals.

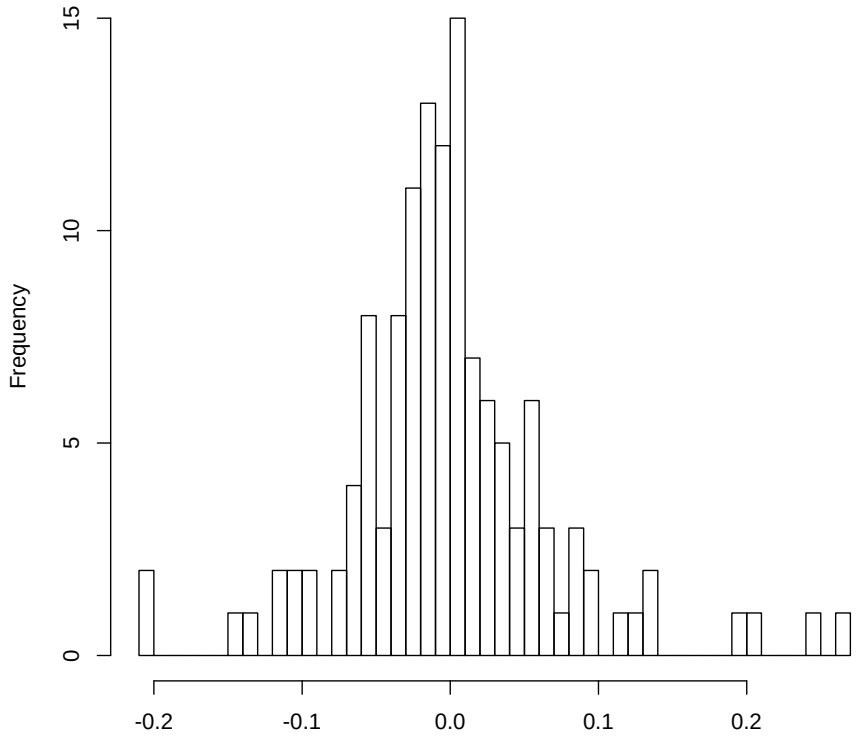
With specific reference to the two different industries Graphs 4 and 5 show the frequency and distribution of Discretionary Accruals for Telecommunication industry and Graphics 6 and 7 show the frequency and distribution of Discretionary Accruals for the Utilities industry.



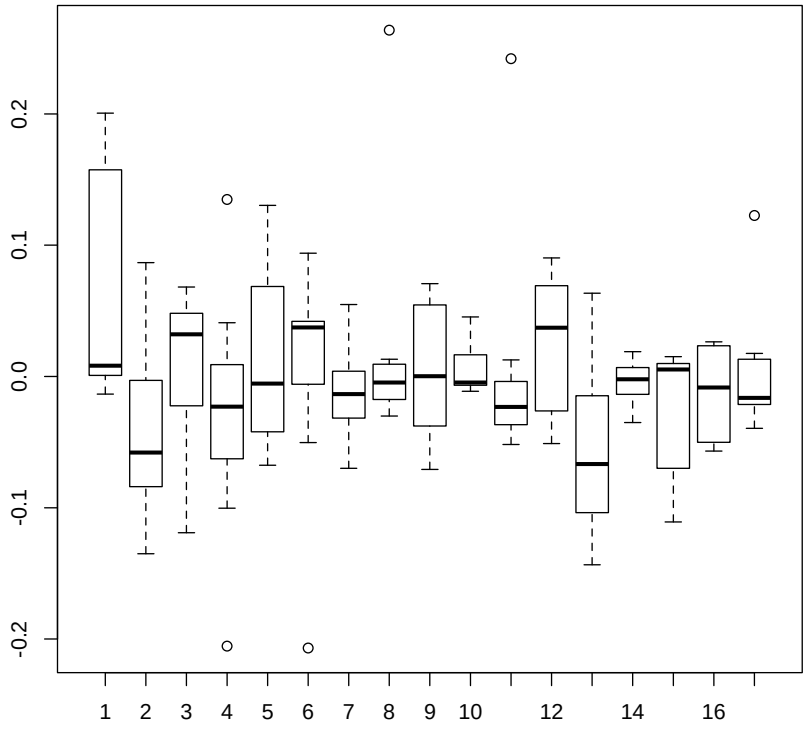
Graph 4. Frequency discretionary accruals – telecommunication.



Graph 5. Distribution of discretionary accruals – telecommunication.



Graph 6. Frequency of discretionary accruals – utilities.



Graph 7. Distribution of discretionary accruals – utilities.

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Dividend policy and financial performance: a study of selected deposit money banks in Nigeria

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This study investigates the relationship between financial performance and dividend policy for a sample of fifteen Deposit Money Banks quoted on the Nigeria Stock Exchange 2009 to 2014. Panel data regression analysis was used as the method of analysis, and the model was estimated using the Pooled Least Squares estimation technique. The study revealed that there is a positive and significant relationship between dividend payout ratio and financial performance. On the contrary, there is a negative and insignificant relationship between dividend yield and financial performance. The study recommends that since there is a positive and significant relationship between dividend payout ratio and financial performance, firms should strive to maintain healthy and a stable dividend policies. This could be attained by investing in projects that give positive Net Present Values, thereby generating huge earnings, which can be partly used to pay dividends to their equity shareholders. It is also recommended that since dividend yield is not affected by financial performance, investigations should be made to ascertain other factors that affect dividend yield.

Key words: Dividend policy, financial performance, earnings per share, panel data regression analysis.

INTRODUCTION

Dividend policy is one of the most controversial issues in modern corporate finance. Black (1976) argues that "the harder we look at the dividend picture, the more it seems like a puzzle, with pieces that just don't fit together". This mystery led to the emergence of a handful of competing theoretical and empirical research to explain why companies pay or do not pay dividends. After decades of non-stop research, dividend policy is still listed as one of the top ten crucial unresolved issues in the world of finance in which no consensus has been reached (Brealey and Myers, 2003).

Dividend represents a distribution of earnings to the shareholders of a company. Dividend or profit allocation decision is one of the four decision areas in finance. The other three are financing, investment, and working capital management decisions.

As noted by Ross et al. (2002) companies view the dividend decision as quite important because it determines what funds flow to investors and what funds are retained by the firm for investment. Dividend policy can also provide information to stakeholders concerning the company's performance. According to Swee et al. (2007), the investments made by a firm determine the future earnings and future potential dividends; and

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dividend policy influences the cost of capital In making these interrelated decisions, the goal is to maximize shareholder wealth. Ibenta (2005) asserted that equity capital entitles shareholders to dividend payment.

The financial management has the responsibility of ensuring equity and fairness in apportionment of any benefit to the various shareholders. Dividend decision entitles striking a balance between future growth of the firm and payment of current dividend to firm's shareholders. The ability of a bank to pay dividends will depend to a large extent on its financial performance.

Statement of problem

Several theories have been proposed to ascertain whether there is a relationship between dividend policy and firm value (including financial performance), but there have not been any consensus to this. Miller and Modigliani (1961) for instance objected to the relevance of dividend policy, and thus, concluded that it does not affect firm value or financial performance.

A study by Amidu and Abor (2006) shows that dividend policy influences firm performance measured by its profitability. The results showed a positive and significant relationship between return on assets, return on equity, growth in sales and dividend policy. Howatt (2009) also stated that positive changes in dividends with positive future changes in earnings per share. However, Lie (2005) argues that there is limited evidence that firms that pay dividend experience successive performance improvements.

Haven reported by Arumah (2012) that some banks quoted in the Nigeria Stock Exchange have failed to meet the requirement of paying dividend on a yearly basis for a number of years, and also considering the fact that based on the statutory requirement of Companies and Allied Matters Act (CAMA, 1990) as amended, payment of dividend should be on the basis of net profit for the period. The questions are; is it that the financial status of these organizations did not favour the payment of dividend during these periods? Is there any relationship existing between the financial performance and the dividend policies made by banks in Nigeria.

The study therefore comes in to fill the void by establishing whether there is a relationship between dividend policy and financial performance among listed Deposit Money Banks in Nigeria.

Objectives of study

The general objective of this study is to examine the relationship between dividend policy and financial performance of Deposit Money Banks. The specific objectives are;

1. To examine the relationship between dividend payout ratio and financial performance.
2. To analyze the relationship between dividend yield and financial performance.

Research questions

The research questions are;

1. Is there any significant relationship between dividend payout ratio and financial performance?
2. Is there any significant relationship between dividend yield and financial performance?

Research hypotheses

This study is guided by the following hypotheses:

$\mathbf{H_{01}}$: There is no significant relationship between dividend payout ratio and financial performance.
$\mathbf{H_{02}}$: There is no significant relationship between dividend yield and financial performance.

Scope of study

This study is aimed towards establishing the relationship that exists between dividend policy and financial performance of the deposit money banks. The study is conducted on 15 out of 21 deposit money banks in Nigeria, and will cover a period of six (6) years. The choice of the 15 banks is based on the ability to obtain comprehensive and complete data that will be used for this research work. The rationale behind using a 6 year period is to capture the period after the consolidation and recapitalization of banks in Nigeria, which took effect on 1st January, 2005, and could be viewed as the beginning of a new dawn in the banking sector. Thus, this work will cover a period of 2009 and 2014.

Significance of study

The role of dividends has motivated many areas in which research have been done. This study however focuses on examining the relationship between dividend policy and the positive or negative response they trigger on the enterprise in terms of financial performance. The study will be of help to various groups as follows:

This research work will enable companies' employees to predict the future performance of their companies so as to reconcile their expectations with conviction.

One of the significance of this study is that students of management sciences department and other like

departments would find this piece meaningful as it will compliment what they have learnt or studied on dividend decisions and financial performance as far as corporate finance is concerned. It will help them understand how dividend policy and financial performance relate, and could give them an insight and/or guideline on how to go about certain studies within the confinement of dividend policy. It will serve as a reliable reference for corporate finance managers when at cross road or faced with difficulties on issues bordering on dividends. It will guide them in policy formulation.

This study will be of relevance to both prospective and current investors. Current investors will need to discern if dividends are a signal that dividends will continue to flow in the future. The relationship between dividends and financial performance of the firm will help the investors make informed decision on whether to dispose their shares or to buy more so as to benefit in future from the firm. The result of this research will also help potential investors in making decisions on where to invest their money. In case of positive relationship between dividend policy and financial performance of the firm, potential investors will pursue investments in companies that have been paying out huge dividends.

In addition, the relationship obtained between dividend policy and financial performance will be of importance to economists seeking to understand and appraise the functioning of the capital markets. This study will also assist financial analysts in giving timely and relevant advice to their clients. The financial analysts will be able to advise their clients on companies to invest in and those not to invest in. They will also be able to advise companies whether or not to pay dividends and if to pay, how the payments are to be made.

LITERATURE REVIEW

The main objective of this study is to examine the relationship between dividend policy and financial performance of Deposit money banks. This section reviews the extant literature related to the phenomenon of interest. In particular, the section presents the conceptual and theoretical framework. It also reviews selected prior studies related to the subject matter.

Conceptual framework

Bannock (1998) noted that a dividend is expressed as a percentage of the nominal value of a share or an absolute amount per share. Richard and Stewart (2003) noted the direct compensation and servicing of share capital involved in dividend paid to shareholders, adding that dividend policy is a trade-off between retained earnings and paying out cash as well as issuing new shares. Where there is no cash, a scrip issue or bonus share is given.

Chandra (2002) sees dividend policy as that which determines the proportion of earning paid to shareholders by way of dividends and what proportion is ploughed back in the firm for reinvestment purpose.

Lasher (2000) defined dividend policy as the rationale under which a firm determines what it will pay in dividends. It encompasses both the amount paid and the pattern under which changes in amount occur over time. That is, it entails striking a balance between future growth and payment of current dividends to firm's shareholders.

In the study own understanding, dividend policy is the decision arrived by participants involved in the dividend decision process on how and when the amount or percentage will be allocated to shareholders as returns on their equity investment and the portion reserved for precautionary, speculative or transactionary motives.

Investopedia (2014) defined financial performance as a subjective measure of how well a firm can use assets from its primary mode of business and generate revenues. This is the financial status of a firm over a period of time on the basis of certain criteria like Return on Assets, Returns on Investments, Earnings Per share, acid ratio, etc. These measures are used to verify the extent to which resources of the firm are adequately utilized to create an acceptable financial stand.

Determinant of dividend policy (Constraints on paying dividend) and measures

Most companies understand that most shareholders have a desire to receive dividends. However, company's decision regarding what to pay as dividend depends on a number of factors. These factors as proposed by Akinsulire (2006) are;

1. Legal: Company law allow the payment of dividend only out of distributable profits that is; profits arising from the use of the company's property, even though it is a wasting asset; revenue reserves; realized profit on a fixed asset sold, but where more than one asset is sold, the net realized profit on the assets sold; calculated on conventional accounting principles. It is forbidden to distribute dividend out of capital (Section 379 – 382 of CAMA).
2. Government regulation: Government, through some guidelines restricts the amount of dividend payable to shareholders by restricting dividend payment to a certain percentage of the profit after taxation. However, from 1988, dividend payment has been deregulated.
3. Statutory requirement: Some companies are required to transfer a given percentage of profit before tax (PBT)/ profit after tax (PAT) to statutory reserves. For example, insurance companies; Life – 10% OF PBT or 1% of total

premium whichever is higher; Nonlife – 20% of PBT or 3% of total premium whichever is higher.
Banks; 30% of PAT if statutory reserve is less than minimum paid up capital, 15% of PAT if statutory reserve is less than minimum paid up capital, 10% of PBT to SME reserve.
4. Liquidity: Regardless of other considerations, a company will be unable to pay a dividend if cash is not available to do so. It may however, sometimes borrow for example, by bank overdraft, for this purpose.
5. Share valuation: It has become part of the stock market that investors favour a company if its dividends are basically stable over time. A gentle upward movement is to be desired but violent fluctuations in either direction are not. These factors often lead many companies to adopt a very cautious dividend policy.
6. Internal re-investment opportunities: If external finance is not available or only available by incurring significant transaction costs, then the payment of dividends may mean foregoing worthwhile investment opportunities. Dividend may have to be restricted to provide financing for such investments.
7. Access to capital market: A company can raise new debt or equity from the capital market if it is not liquid enough to pay its dividend. The greater companies access to capital market, the greater its ability to pay dividend.

The measures of dividend policy are basically two:

1. Dividend yield: This relates the dividend paid to the price of the stock:

$$\text{Dividend yield} = \frac{\text{Dividend Per Share}}{\text{Market Price Per Share}}$$

The dividend yield is significant because it provides a measure of that component of the total return that comes from dividends, with the balance coming from price appreciation.
2. Dividend payout ratio: According to Lasher (2000), this is the ratio of the dividends paid to earnings. In the study own understanding, it is the proportion paid to the shares of the entire shareholders or each shareholder depending on their shareholdings in the firm. It is given as;

$$\frac{\text{Dividend per share}}{\text{Earnings per share}}$$

Dividend paying methods

1. Residual method: In this case, dividends are only paid after the firm's capital needs have been met. Companies that use the residual dividend policy method chose to rely on internally generated equity to finance any new projects. These companies usually attempt to maintain a balance in their debt/equity ratio before making any dividend distributions, which demonstrates that they decide on dividend only if there is enough money left over after all operating and expansion are met.
2. Stable method: Stability or regulatory of dividends is considered as a desirable policy by the management of most companies' shareholders. The fluctuation of dividend created by the residual policy significantly contrasts with the certainty, which stable dividend policy method provides. Stable dividends have a positive impact on the market price of the share of a firm. Many financial managers strive to maintain steady dividend policies. No management of a company is willing to increase dividend if they are not certain of maintaining that increase over time (in the future).
3. Hybrid method: This is the combination of both residual and stable dividend policy approaches. In this case, the company tries to view the debt/equity ratio as a long term rather than a short term goal. The hybrid method is more common in firms today. Here, companies will generally have one set dividend, which is a set as a relatively small portion of yearly income, and can be easily maintained. On top of this, these companies will offer extra dividend paid only when income exceeds general levels.

Conclusively, firms are expected to adopt only one of these three methods of dividend payment.

Determinants of financial performance and measures

There are two broad approaches used to measure bank performance, the accounting approach, which makes use of financial ratios and econometric techniques (Ncube, 2009). In this study, both the accounting approach and the econometric approach will be used. Financial performance measures cut across different major classifications. These different financial measures as stated by Thukaram (2009) are stated as follows:

Theoretical framework

Most financial management literatures growing in its interest suggest two schools of thought on dividend policy and these schools bring up arguments on the relevance and irrelevance of dividend policy. It is worthy to state that this argument would lead us to understanding the impact of dividend policy on firm's financial performance. These two major schools of thought stated by Akinsulire (2006) are; theories (school) which consider dividend decision to be irrelevant; and theories (school) which consider dividend decision to be an active variable in firm's attainment of goals.

Empirical studies

Velnampy et al. (2014) did a research work on dividend

policy and firm performance with evidence from the manufacturing companies listed on the Colombo Stock Exchange. The drive for this research was to find out the correlation between dividend policy and firm performance of listed manufacturing companies in Sri Lanka.

The analysis was for a period of 5 years, 2008 to 2012. Here, dividend payout and earnings per share were used as measures of dividend policy while, returns on equity and returns on assets were used as determinants of firm performance. Correlation, regression and descriptive statistics were used to test these variables. After the analyses were run, it was discovered that determinants of dividend policy are not correlated to the firm performance measures of the organization. Regression model showed that dividend policies do not affect companies' ROE and ROA (Appendixes 1 to 8).

Farsio et al. (2004) argued that no significant relationship exist between dividends and earnings in the long run and studies that support this relationship are based on short periods and therefore misleading to investors. They proposed three circumstances that would render the long-term correlation of dividends and future earnings irrelevant. First, they pointed out that an increase in dividends may lead to a decline in funds that are to be reinvested by the firm. Firms that pay high dividends without considering investment needs may therefore experience lower future earnings. There is thus a negative relationship between dividend payout and future earnings (financial performance). However, Mutie (2011) did a work in Nairobi on the relationship between prior period dividends and financial performance of firms listed at the Nairobi stock. The rationale behind the study was to determine the relationship between prior period dividends and the financial performance of firms listed at the Nigeria Stock Exchange (NSE).

Gul et al. (2012) did a work on the relationship between dividend policy and shareholders' wealth in Pakistan. They studied the impact of dividend policy on shareholder's wealth, which was the general objective. The specific objectives were; to examine the relationship between wealth of shareholders and dividend payout; the impact of variation in dividend policy on the wealth of shareholders of dividend-paying and non-paying companies and; examine the impact of retained earnings and past performance in the existence of dividend policy on wealth of shareholder's.

Seventy-five companies listed in "Karachi Stock Exchange", were used as sample size for this study for duration of six years, from 2005 to 2010 using multiple regression and stepwise regression. Shareholder's wealth was used as the dependent variable, which was measured as market price per share, whereas, the explanatory variable dividend policy is measured as dividend per share.

Furthermore, Lagged Price earnings ratio, Retained Earnings and Lagged Market Value of equity were used as explanatory variables. Data was collected from company's annual reports, Karachi Stock Market and State Bank of Pakistan. The findings in this research work were that the difference in average market value (AMV) relative to book value of equity (BVE) is highly significant between dividend-paying companies and non-paying companies. Retained earnings have insignificant influence on market value of equity.

Kajola et al. (2015) did a work on ''dividend payout policy and firm financial performance: evidence from Nigerian listed non-financial firms''. This work analyzed twenty-five non-financial firms listed on the Nigerian Stock Exchange between 2004 to 2013. Panel data methodology was employed and pooled Ordinary Least Square (OLS) was used to estimate the coefficients of explanatory and control variable. The return on asset (ROA) served as a surrogate for the dependent variable, profitability, while Dividend Pay-out ratio proxied for dividend policy and was the only explanatory variable.

Control variables include firm size, asset tangibility and leverage. Regression result reveals a positive and significant relationship between dividend payout policy (DPO) and financial performance (ROA). It was recommended that companies should endeavor to put in place robust dividend pay-out policy that would encourage investments in projects that give positive Net Present Value.

METHODOLOGY

This section is centered on the methodology that was adopted in this study. It addresses issues relating to the research design, population and sample, data sources, description of variables in the models, model specification, and method of data analysis.

Research design

These banks include; Access Bank Plc, Eco Bank Plc, Guarantee Trust Bank Plc, First Bank Plc, United Bank of Africa Plc, Wema Bank Plc, Zenith Bank Plc, Unity Bank Plc, Union Bank Plc, First City Monument Bank, Diamond Bank, Fidelity Bank Plc, Stanbic IBTC Plc, Skye Bank Plc, and Sterling Bank Plc. These banks were selected based on availability of their audited financial statements while those whose audited financial statements were not available were not selected.

Sources of data

The data used for this study were secondary data from audited financial statements of 15 sampled banks listed on the Nigerian Stock Exchange between 2009 and 2014. This data is reliable because annual reports undergo series of procedures before approval. Other Sources of Data were text books, journals, internet, and Nigeria Stock Exchange publications.

Variable measurement

Independent variable: The independent variable in this research is

Return on Equity.

Return on equity (ROE): It shows the relationship between net profit available to equity shareholders and the amount of capital invested by them. Mathematically,

$$ROE = \frac{\text{PROFIT AFTER TAX}}{\text{SHAREHOLDERS EQUITY}}$$

Dependent variables: The dependent variables are;

1. Dividend payout ratio: This is the proportion of earnings available, which shareholders actually receive as dividend. This is expressed as:

$$DPR = \frac{\text{DIVIDEND PER SHARE}}{\text{EARNINGS PER SHARE}}$$

2. Dividend yield: It shows the percentage of dividend paid per share to market price per share.

$$DY = \frac{\text{ANNUAL DIVIDENDS PER SHARE}}{\text{MARKET PRICE PER SHARE}}$$

Control variables: These include;

1. Firm size: Total asset is the proxy for the firm size.
2. Total debt (TD): This is the total liabilities owed by a firm in a particular period of time. It encompasses both short and long-term liabilities. Mathematically;

TD = Short-term liabilities + Long-term liabilities

These variables already stated are represented in Table 1.

Model specification

In determining the relationship between dividend policy and financial performance of deposit money banks in Nigeria, two simple models stated in general form estimated are as follows:

$$DPR = f(ROE, CTR) \quad (1)$$

$$DY = f(ROE, CTR) \quad (2)$$

These equations will be represented in econometric form as stated as follows:

$$DPR_{it} = \beta_0 + \beta_1 ROE_{it}, + \beta_2 CTR_{it} + e_i \quad (3)$$

$$DY_{it} = \alpha_0 + \alpha_1 ROE_{it}, + \alpha_2 CTR_{it} + \mu_{it} \quad (4)$$

Where; ROE is return on equity
CTR represents the control variables, which are firm size (SIZE) and total debt (TD)
DPR is Dividend Payout Ratio
DY is Dividend Yield
$\beta_1, \beta_2, \alpha_1,$ and α_2 represent coefficients of parameter estimates.
β_0 and α_0 are constants
e_{it} and μ_{it} are the error terms, which account for other possible factors that could influence but not included in the models.

Method of data analysis

Panel data analysis was used as the method of analysis and the model was estimated using the Pooled Least Squares estimation technique. The data was analyzed with the aid of computer software called the Econometric View 3.1.

RESULTS

Data analysis

The analysis examines data from Returns on Equity that was used as proxy for financial performance (Tables 1 and 2). The descriptive statistics show that the dependent variable DPR on the average is not significantly affected by ROE with a mean value of 0.1987.

The standard deviation with a high value for ROE reveal that there is significant divergence from the average in explaining variation in DPR, also the values for skewness 2.5472 for DPR and -2.8894 for ROE shows that variation in DPR is significantly explained by ROE. This is because the skewness values between DPR and ROE are symmetrically distant apart from each other. Also the Kurtosis value of 14.8883 shows high divergence from the average value in determining the extent to which ROE explained DPR. Conclusively, at 5% level of significance, with high Jarque-Bera statistics, the probability values revealed that the data are normally distributed. Hence we can use them for analysis in explaining changes in DPR (Table 3).

The descriptive statistics revealed that the mean value of the dependent variable on the average is relatively low with a value of 4% showing the inability of the independent variable to explain changes in dividend yield. The standard deviation value of ROE also revealed a very high value as different from DPR. This shows the presence of outliers resulting from divergence of ROE in the model. The skewness value confirmed the behaviour of the parameter of standard deviation. Also, the Kurtosis value of ROE with a value of 14.8882 lower than that of DPR shows that the model of dividend yield in explaining the firm's dividend policy is not statistically significant. The Jarque-Bera value shows that the data are normally distributed because the values are significant at 5% level of significance.

From the results of the regression in Table 4, there is a positive relationship between Return on Equity (ROE) and Dividend Payout Ratio (DPR). This implies that a percentage change in Return on Equity will result in an increase in Dividend Payout Ratio by 0.6%. Again, when ROE is zero, there will be changes in DPR to the tune of 80.52% resulting to factors extraneous to the model.

The coefficient of determination (R^2) of 0.026801 indicates that 2.7% of variations in Dividend Payout Ratios are explained by the independent variable, while the remaining 97.3% is explained by other variables not included in the model. The adjusted R^2 of 0.021208 shows that with adjustment in the independent variable, they can account for 2.1% variation in Dividend Payout

Table 1. Data for variables used in the study.

BANKS	Profit after tax	Total debt	Return on equity	Firm size	Dividend yeild	Dividend payout ratio
Access	22,885,794,000	490,034,284,000	12.38202687	674,865,041,000	0.086092715	4.609929078
Access	12,931,441,000	544,455,766,000	7.085534193	726,960,580,000	0.075789474	3.6
Access	13,660,448,000	760,130,148,000	7.350790242	945,966,603,000	0.104166565	0.657894094
Access	36,353,643,000	1,278,130,252,000	15.29879588	1,515,754,463,000	0.060787646	3.459925789
Access	26,211,844,000	1,458,912,015,000	10.69077025	1,704,094,012,000	0.088541662	7.391303941
Access	39,941,126,000	1,707,799,944,000	14.56877004	1,981,955,730,000	0.054743927	2.076493799
Diamond	-4,883,466,000	494,003,180,000	-4.425084586	604,361,884,000	0.136203881	2.880311488
Diamond	6,522,455,000	431,521,401,000	5.580416087	548,402,560,000	0.000841639	0.014027322
Diamond	-22,187,848,000	630,443,953,000	-23.98115286	722,965,977,000	0.077319642	-0.98039285
Diamond	23,073,427,000	951,820,842,000	21.50037066	1,059,137,257,000	0	0
Diamond	29,754,522,000	1,216,627,647,000	21.5139757	1,354,930,671,000	0	0
Diamond	22,057,198,000	1,544,609,656,000	10.72503926	1,750,270,423,000	0.03354478	1.299860213
Eco	-4,588,000,000	282,128,000,000	-1.626212216	355,662,000,000	0	0
Eco	1,619,000,000	379,919,000,000	0.426143467	454,239,000,000	0	0
Eco	-2,291,000,000	1,033,931,000,000	-0.221581518	1,102,027,000,000	0	0
Eco	7,805,000,000	1,171,687,000,000	0.666133532	1,325,315,000,000	0	0
Eco	11,658,000,000	1,304,183,000,000	0.893892958	1,460,811,000,000	0	0
Eco	29,733,000,000	1,574,528,000,000	14.98684436	1,172,922,000,000	0	0
FCMB	669,371,000	331,954,034,000	0.522427503	460,081,094,000	0	0
FCMB	7,322,322,000	395,437,666,000	5.438613507	530,073,488,000	0.000266667	0.004444447
FCMB	-115,667,744,000	475,900,304,000	-98.54675757	593,273,465,000	0.003414634	0.019718309
FCMB	12,559,592,000	759,422,893,000	9.595479857	890,313,606,000	0	0
FCMB	6,027,752,000	160,668,000	4.590071722	131,482,189,000	0	0
FCMB	5,396,908,000	792,874,000	4.126782675	131,570,290,000	0.120481928	1.111111111
Fidelity	2,296,799,000	374,789,896,000	1.775319712	504,163,720,000	0.019831137	0.099948931
Fidelity	6,105,000,000	345,437,000,000	4.42224669	481,614,000,000	0.05204461	0.7
Fidelity	5,959,000,000	603,158,000,000	4.37037037	739,508,000,000	0.094598794	0.666696261
Fidelity	17,924,000,000	752,905,000,000	11.10154532	914,360,000,000	0.061138085	0.225816476
Fidelity	7,721, 000,000	917,762,000,000		1,081,217,000,000	0.078089633	0.77800412
Fidelity	13,796,000,000	1,013,914,000,000	7.969453125	1,187,025,000,000	0.065533016	0.339952522
First Bank	35,074,000,000	1,316,368,000,000	9.968339141	1,667,422,000,000	0.052242759	0.518722431
First Bank	26,936,000,000	1,616,523,000,000	7.905263621	1,957,258,000,000	0.043699927	0.722891566
First Bank	47,462,000,000	2,089,971,000,000	12.58124715	2,463,543,000,000	0.067795918	0.84506179
First Bank	71,144,000,000	2,398,498,000,000	19.1156872	2,770,674,000,000	0.050889416	3.669640427
First Bank	70,631,000,000	3,710,000,000,000	22.92462537	311,811,000,000	0.061349693	0.462962963
First Bank	75,175,000,000	306,782,400,000	17.76989318	3,490,871,000,000	0.136365682	0.521746957
GT Bank	23,848,061,000	861,435,748,000	12.65311648	1,019,911,536,000	0.006337136	0.060606061
GT Bank	36,511,628,000	861,594,957,000	17.79598306	1,066,762,763,000	0.005630631	0.060606061
GT Bank	47,803,138,000	1,374,644,487,000	20.60418434	1,608,652,646,000	0.058227212	0.460554216
GT Bank	85,263,826,000	1,451,436,740,000	29.58971088	1,620,317,223,000	0.047826088	0.379310355
GT Bank	85,545,510,000	1,574,719,144,000	25.95066625	1,904,365,795,000	0.057364915	0.53264605
GT Bank	93,431,604,000	1,757,077,986,000	25.34403537	2,126,608,312,000	0.171530875	1.36250708
Skye	1,130,000,000	691,025,000,000	1.204010527	622,164,000,000	0.095955114	0.538764372
Skye	9,308,000,000	566,310,000,000	8.704190318	674,064,000,000	0.004959659	0.06235
Skye	6,640,000,000	783,754,000,000	6.086047918	892,856,000,000	0.068119891	0.5
Skye	12,697,000,000	963,223,000,000	11.74690993	1,071,311,000,000	0.11627907	0.520833333
Skye	15,865,000,000	996,221,000,000	13.17526886	1,116,636,000,000	0.068181818	2.158273381
Skye	9,741,000,000	1,077,680,000,000	7.382173956	1,209,633,000,000	0.112790487	0.461573376
Stanbic IBTC	6,258,000,000	256,423,000,000	8.302707866	331,796,000,000	0.055865922	1.212121212

Table 1. Cont'd

Stanbic IBTC	7,811,000,000	295,053,000,000	10.07104269	372,312,000,000	0.042391304	0.928571429
Stanbic IBTC	4,048,000,000	467,977,000,000	10.72261072	542,272,000,000	0.04875	1.772727273
Stanbic IBTC	5,300,000,000	1,005,000,000	8.256995077	72,508,000,000	0	0
Stanbic IBTC	8,332,000,000	3,555,000,000	11.59702697	75,401,000,000	0.037470726	0.963855422
Stanbic IBTC	13,136,000,000	2,681,000,000	17.99698589	75,671,000,000	0	0
Sterling	-6,660,406,000	183,498,833,000	-30.08042546	205,640,827,000	0.793650794	-1.886792453
Sterling	4,178,493,000	233,259,036,000	15.87543954	259,579,523,000	0	0
Sterling	6,686,473,000	463,474,622,000	16.32714142	504,427,737,000	0	0
Sterling	6,953,593,000	533,583,546,000	17.74107907	580,225,940,000	0.057390715	0.225649856
Sterling	8,274,864,000	644,339,000,000	14.19046891	707,797,000,000	0.043636999	0.209793264
Sterling	9,004,973,000	739,824,141,000	10.62969097	824,539,426,000	0.073818898	0.446428571
UBA	12,889,000,000	1,331,938,000,000	6.866113713	1,400,879,000,000	0.009250694	0.166666667
UBA	2,167,000,000	1,244,160,000,000	1.154317371	1,432,632,000,000	0.054644809	0.625
UBA	-16,385,000,000	1,485,407,000,000	-9.634948077	1,655,465,000,000	0.015798384	0.076513743
UBA	47,375,000,000	1,712,748,000,000	21.50310689	1,933,065,000,000	0	0
UBA	46,483,000,000	1,957,879,000,000	17.90990144	2,217,417,000,000	0.056180818	3.546165139
UBA	40,083,000,000	2,056,925,000,000	14.21720763	2,338,858,000,000	0.116281233	4.098436885
Union	-71,052,000,000	1,175,140,000,000	-133.6946091	921,230,000,000	0	0
Union	118,016,000,000	1,053,643,000,000	-86.84415795	845,231,000,000	0	0
Union	-86,667,000,000	664,203,000,000	-48.26631767	843,763,000,000	0	0
Union	3,951,000,000	836,094,000,000	2.204995982	1,015,278,000,000	0	0
Union	11,666,000,000	694,313,000,000	6.070319126	882,097,000,000	0	0
Union	11,788,000,000	692,813,000,000	6.031364322	888,258,000,000	0	0
Unity	-15,855,855,000	249,614,407,000	-220.7207232	256,798,085,000	0	0
Unity	12,415,473,000	261,068,700,000	28.11905756	306,221,933,000	0	0
Unity	2,434,979,000	329,349,214,000	5.47062275	373,839,303,000	0	0
Unity	6,180,061,000	344,262,498,000	12.00998716	395,720,180,000	0	0
Unity	-22,582,339,000	375,416,650,000	-80.04334157	403,629,290,000	0	0
Unity	10,692,476,000	337,041,116,000	14.02034604	413,305,111,000	0	0
WEMA	-2,094,692,000	188,284,837,000	4.603808329	142,785,723,000	0	0
WEMA	16,238,533,000	188,307,351,000	109.4441662	203,144,627,000	0	0
WEMA	-7,649,477,000	215,517,487,000	-113.8134994	222,238,550,000	0	0
WEMA	-5,040,629,000	244,426,282,000	-80.41677814	245,704,597,000	0	0
WEMA	1,596,531,000	289,477,324,000		330,872,475,000	0	0
WEMA	2,373,498,000	338,793,633,000	5.422826736	382,562,312,000	0	0
Zenith	18,365,000,000	1,244,813,000,000	5.42567869	1,573,169,000,000	0.033333333	0.548780488
Zenith	33,335,000,000	1,439,044,000,000	9.513033155	1,789,458,000,000	0.056628914	7.142857143
Zenith	41,301,000,000	1,797,056,000,000	11.10191201	2,169,073,000,000	0.076612903	7.196969697
Zenith	95,803,000,000	1,998,883,000,000	21.87268124	2,436,886,000,000	0.008209338	0.524590164
Zenith	83,414,000,000	2,406,071,000,000	17.64919957	2,676,693,000,000	0.006386861	0.573770492
Zenith	99,455,000,000	2,911,112,000,000	19.39801875	3,423,819,000,000	0.009505703	0.593220339

Source: Author's compilation from annual reports and account of various banks for various years. The variables used in this work are: Return on Equity (ROE), Dividend Yield (DY), Dividend Payout Ratio (DPR), firm Size (SIZE), and Total Debt (TD).

Ratio.

The regression result shows that ROE at 2.189037 is statistically significant in explaining changes in DPR at 5% significant level from the probability column that reveals 0.0299. The F-statistic of 4.791882 with a P-value of 0.029926 shows a high level of statistical significance at 5% level of significance. This is in consonance with the works of Mutie (2011), Ouma (2012), Yegon et al. (2014), Adederin and Alade (2013), Kajola et al. (2015) and Gul et al. (2012), but contrary to the works by Osegbu et al.

Table 2. Descriptive statistics of dividend payout ratio (DPR) and ROE.

Parameters	DPR	ROE
Mean	0.806607	0.198721
Median	0.188230	9.108612
Maximum	7.391304	109.4442
Minimum	-1.886792	-220.7207
Std. Dev.	1.623727	39.95235
Skewness	2.547237	-2.889395
Kurtosis	9.744122	14.88828
Jarque-Bera	261.9351	640.6609
Probability	0.000000	0.000000
Observations	88	88

Source: Research result using E-View 3.1.

Table 3. Descriptive statistics for dividend yield (DY) and ROE.

Parameters	DY	ROE
Mean	0.044962	0.198721
Median	0.017815	9.108612
Maximum	0.793651	109.4442
Minimum	0.000000	-220.7207
Std. Dev.	0.090581	39.83803
Skewness	6.505018	-2.889395
Kurtosis	53.76420	14.88828
Jarque-Bera	20139.28	1281.322
Probability	0.000000	0.000000
Observations	176	176
Cross sections	2	2

Source: Research result using E-View 3.1.

Table 4. Regression result of dividend payout ratio model.

Dependent variable: DPR
Method: Pooled least squares
Date: 08/05/15 Time: 13:33
Sample: 1 90
Included observations: 88
Total panel (balanced) observations 176

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.805285	0.120743	6.669398	0.0000
ROE	0.006653	0.003039	2.189037	0.0299
R-squared	0.026801	Mean dependent var		0.806607
Adjusted R-squared	0.021208	S.D. dependent var		1.619081
S.E. of regression	1.601820	Sum squared resid		446.4541
F-statistic	4.791882	Durbin-Watson stat		1.094640
Prob(F-statistic)	0.029926	-	-	-

Source: Research result using E-View 3.1. (DPR = 0.805285 + 0.006653*ROE).

Table 5. Regression analysis on dividend yield model.

Dependent variable: DY				
Method: Pooled least squares				
Date: 08/05/15 Time: 13:45				
Sample: 1 90				
Included observations: 88				
|Total panel (balanced) observations 176				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
C	0.044951	0.006845	6.566771	0.0000
ROE	5.84E-05	0.000172	0.338765	0.7352
R-squared	0.000659	Mean dependent var		0.044962
Adjusted R-squared	-0.005084	S.D. dependent var		0.090581
S.E. of regression	0.090811	Sum squared resid		1.434905
F-statistic	0.114762	Durbin-Watson stat		2.084850
Prob(F-statistic)	0.735195	-	-	-

Source: Research result using E-View 3.1. DY = 0.044951 + 0.0000584*ROE.

(2014) and Ijaiya et al. (Undated).

From Table 5, there exists a positive relationship between returns on equity and dividend Yield. This implies that a percentage change in Returns on Equity will result to an increase in Dividend Yield by 0.00584%. In addition, when ROE is zero, DY will be 0.044951.

The regression results show that the independent variable, ROE is not statistically significant in explaining the changes in the dividend yield judging from the result of the F-Statistics values of 0.114762 at 5% level of significance. The coefficient of determination and the adjusted coefficient of determination were not both significant in explaining the systematic variation in the dependent variable in that for the R^2, the value 0.000659

The t-test used to test the significance of the independent variable shows that at 5% level of significance, ROE with a value of 0.338765 was not statistically significant in explaining the changes in dividend yield as seen in its probability value of 0.7352, which is above 5%. This agreed with the findings of Farsio et al. (2004). However, this contradicts the findings of Mutie (2011), Ouma (2012), Yegon et al. (2014), Adederin and Alade (2013), Kajola et al. (2015) and Gul et al. (2012). Considering that the result of the regression model using dividend payout ratio turned out to be more appropriate in explaining the variables, and that dividend yield is not appropriate, control variables was inputted in both models to ascertain whether the variables are sensitive to these controls variables.

From the Table 6, a positive relationship still exists between return on equity and dividend payout ratio after controlling for SIZE. However, ROE was not significant in determining DPR after controlling for size as shown in Table 6. The implication of this is that the impact of financial performance as a determinant of DPR is sensitive to SIZE (Table 7).

Also, ROE was also not significant in determining DPR after controlling for debt. This implies that the amount of debt obligation a firm has affects it financial performance which ultimately affects its DPR. Table 8 shows that ROE was not significant in determining DY after controlling for SIZE. This implied that the effect of financial performance is sensitive to SIZE (Table 9).

Also by controlling for debt, it was also found that ROE was not significant in determining DY a proxy for dividend policy. This also shows the extent of the sensitivity of ROE to the firm's debt obligation. Since the financial performance of the firm is influenced by the firm's debt obligations and the nature, type and conditions for the various debt contracts, the firm will have to ensure optimal capital structure which will optimize the benefits from the use of debt.

Testing and evaluation of hypotheses

The hypotheses are hereby tested as:

H_{01}: There is no significant relationship between dividend payout ratio and financial performance

The F-test of 4.7918 with a probability value of 0.0299 shows that the model for DPR is statistically significant in explaining dividend policy, this shows overall statistical significance of the model. Also, the t-statistic for ROE of 2.1890 with a probability value of 0.0299 shows that return on equity is statistically significant in determining the changes in dividend policy as proxied by dividend payout ratio. Hence we reject the null hypothesis that there is no significant relationship between dividend

Table 6. Regression result of dividend payout ratio model on inclusion of a control variable (SIZE) alongside the independent variable ROE.

Dependent variable: DPR
Method: Pooled Least Squares
Date: 08/05/15 Time: 13:37
Sample: 1 90
Included observations: 88
Total panel (balanced) observations 264

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.041690	0.159133	0.261984	0.7935
ROE	0.003283	0.002400	1.367774	0.1726
SIZE	7.31E-13	1.24E-13	5.900440	0.0000
R-squared	0.141339	Mean dependent var		0.806607
Adjusted R-squared	0.134760	S.D. dependent var		1.617541
S.E. of regression	1.504609	Sum squared resid		590.8647
F-statistic	21.48090	Durbin-Watson stat		1.191831
Prob(F-statistic)	0.000000	-	-	-

Source: Research's results using e-view 3.1 (DPR = 0.041690 + 0.003283*ROE - 0.000000000000731SIZE).

Table 7. Regression result of dividend payout ratio on inclusion of a control variable (total debt) alongside the Independent variable.

Dependent variable: DPR
Method: Pooled least squares
Date: 08/05/15 Time: 13:38
Sample: 1 90
Included observations: 88
Total panel (balanced) observations 264

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.179999	0.156693	1.148738	0.2517
ROE	0.004206	0.002421	1.737005	0.0836
TD	6.86E-13	1.37E-13	4.993361	0.0000
R-squared	0.111665	Mean dependent var		0.806607
Adjusted R-squared	0.104858	S.D. dependent var		1.617541
S.E. of regression	1.530387	Sum squared resid		611.2843
F-statistic	16.40407	Durbin-Watson stat		1.235652
Prob(F-statistic)	0.000000	-	-	-

Source: Research's results using E-View 3.1 (DY = 0.179999 + 0.004206*ROE + 0.0000000000000686*TD).

payout ratio and financial performance and accept that there is significant relationship between financial performance proxied by return on equity and dividend policy proxied by dividend payout ratio.

H_{02}: There is no significant relationship between Dividend Yield and Financial Performance

On the contrary to the first hypothesis, the F-test of 0.1148 with a probability value of 0.7352 shows that the model for DY is not statistically significant in explaining dividend policy, this shows that on the overall, the model for DY is not statistical significant. Also, the t-statistic for ROE of 0.3388 with a probability value of 0.7353 shows that return on equity is not statistically significant in determining the changes in dividend policy as proxied by dividend yield. Hence we accept the null hypothesis that there is no significant relationship between dividend yield and financial performance and reject that there is

Table 8. Regression result of dividend yield on inclusion of a control variable (SIZE) alongside the independent variable ROE.

Dependent variable: DY				
Method: Pooled least squares				
Date: 08/05/15 Time: 13:46				
Sample: 1 90				
Included observations: 88				
Total panel (balanced) observations 264				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
C	0.040803	0.009599	4.250682	0.0000
ROE	4.01E-05	0.000145	0.276739	0.7822
SIZE	3.97E-15	7.48E-15	0.531284	0.5957
R-squared	0.001739	Mean dependent var		0.044962
Adjusted R-squared	-0.005911	S.D. dependent var		0.090495
S.E. of regression	0.090762	Sum squared resid		2.150032
F-statistic	0.227296	Durbin-Watson stat		2.077540
Prob(F-statistic)	0.5957	-		-

Source: Research's results using E-View 3.1 (DY = 0.040803 + 0.0000401*ROE + 0.00000000000000397*SIZE).

Table 9. Regression result of dividend yield on inclusion of a control variable (Total Debt) alongside the independent variable ROE.

Dependent variable: DY				
Method: Pooled least squares				
Date: 08/05/15 Time: 13:47				
Sample: 1 90				
Included observations: 88				
Total panel (balanced) observations 264				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
C	0.046752	0.009297	5.028780	0.0000
ROE	6.54E-05	0.000144	0.455434	0.6492
TD	-1.98E-15	8.15E-15	-0.242403	0.8087
R-squared	0.000884	Mean dependent variable		0.044962
Adjusted R-squared	-0.006772	S.D. dependent variable		0.090495
S.E. of regression	0.090800	Sum squared residence		2.151873
F-statistic	0.115470	Durbin-Watson stat		2.091241
Prob(F-statistic)	0.890992	-		-

Source: Research's results using E-View 3.1 (DY = 0.046752 + 0.0000654*ROE – 0.00000000000000815*TD).

significant relationship between financial performance as proxied by return on equity and dividend policy proxied by dividend yield.

Conclusion

This study observed that return on equity was significant in determining dividend policy but when controlled for debt and size it was not significant and also that dividend yield was not significant in determining dividend of Deposit Money Banks quoted in the Nigeria Stock Exchange.

This study was structured into five chapters. section one gave an introduction of the work to be done; stated the problem that propelled this research work, which is that about 41 companies listed in the Nigeria Stock Exchange have not been paying dividend for years. Some were running into 36 years without paying dividend to their shareholders. This was supported by a report identifying four banks as being among this category. The

question ‘Why is this so?’ propelled this study.

The objectives (both general and specific) were stated; established research questions for the study including hypotheses; stated the scope of the work and its significance. These gave this work its foundation and guide. In the attempt to complete this work, it was necessary that works done by scholars on dividend policies in relation to corporate performances be identified to ascertain their findings using same or similar variables. The variables used were return on equity, dividend payout ratio, dividend yield, total debt and size. Fifteen banks out of 21 Deposit Money Banks in Nigeria were selected using purposive sampling method to do this analysis. Pooled least square regression was used with the help of computer software called EView 3.1. The results generated by the analysis form the basis for either accepting or rejecting the hypotheses. The following are the findings of this study;

1. There is positive and significant relationship between dividend payout ratio and financial performance of Deposit Money Banks in Nigeria measured as Return on Equity.
2. There is a negative and insignificant relationship between dividend yield and financial performance of Deposit Money Banks in Nigeria measured as Return on Equity.

Based on the forgoing discussions, financial performance strongly and positively affects dividend payout ratio. It therefore shows that financial performance is relevant in ascertaining dividend payout ratio. Thus, in this case, dividend policy is relevant as asserted by Brigham (1995) and Kale and Noe (1990) as against that proposed by Miller and Modigliani (1961). Financial performance on the other hand, has a negative impact on dividend yield, which is also very insignificant.

RECOMMENDATIONS

Following from the findings of the research, we recommend as follows:

1. Since dividend yield is not affected by financial performance, investigations should be made to ascertain other factors that affect dividend yield.
2. Since firm size and debt are variables that can affect the financial performance of the firm, the firm should establish policies that will ensure proper use of debt and ensuring optimal debt level for the firm. The managers of the firms should also formulate policies that will ensure efficiency and effectiveness of the firm’s assets to bring about profitability for the firm.

SUGGESTIONS FOR FURTHER STUDIES

For the purpose of future research, researchers should study the relationship between prior year dividend policy and Firm Value of banks in Nigeria, where firm value will be dependent on dividend policy. The researcher also recommends that since dividend yield is not affected by financial performance, investigations should be made to ascertain other factors that affect dividend yield. Again, there should be an extension to the time frame of data used in the analysis for a period of like 10 to 15 years, preferably, 5 years before consolidation, and 10, and above years after consolidation. Just as Farsio et al. (2004) who asserted that those who supported significant relationship between dividend policy and financial performance are those based on short periods and therefore misleading to investors. In addition, more banks should be included in subsequent study, other than 15 banks, and if possible, analysis should be done on all the 21 banks in Nigeria. This work was limited to the Nigeria environment, further studies could adopt same number of banks, same number of years, same variable, same method of analysis, estimation, and software for analysis, estimation should be done using Pooled Least Squares (OLS), but examination should be extended beyond the geographical boundaries of Nigeria.

CONFLICT OF INTERESTS

The authors have not declared any conflict of interests.

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Appendixes

Appendix 1. Descriptive statistics of dividend payout ratio and the independent variables.

Parameters	DPR	ROE
Mean	0.806607	0.198721
Median	0.188230	9.108612
Maximum	7.391304	109.4442
Minimum	-1.886792	-220.7207
Std. Dev.	1.623727	39.95235
Skewness	2.547237	-2.889395
Kurtosis	9.744122	14.88828
Jarque-Bera	261.9351	640.6609
Probability	0.000000	0.000000
Observations	88	88

Source: Research's results using E-View 3.1.

Appendix 2. Descriptive statistics for dividend yield and independent variable.

Parameters	DY	ROE
Mean	0.044962	0.198721
Median	0.017815	9.108612
Maximum	0.793651	109.4442
Minimum	0.000000	-220.7207
Std. Dev.	0.090581	39.83803
Skewness	6.505018	-2.889395
Kurtosis	53.76420	14.88828
Jarque-Bera	20139.28	1281.322
Probability	0.000000	0.000000
Observations	176	176
Cross sections	2	2

Source: Research's results using E-View 3.1.

Appendix 3. Regression result of dividend payout ratio.

Dependent variable: DPR
Method: Pooled least squares
Date: 08/05/15 Time: 13:33
Sample: 1 90
Included observations: 88
Total panel (balanced) observations 176

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.805285	0.120743	6.669398	0.0000
ROE	0.006653	0.003039	2.189037	0.0299
R-squared	0.026801	Mean dependent variable		0.806607
Adjusted R-squared	0.021208	S.D. dependent variable		1.619081
S.E. of regression	1.601820	Sum squared residence		446.4541
F-statistic	4.791882	Durbin-Watson stat		1.094640
Prob(F-statistic)	0.029926	-	-	-

Source: Research's results using E-View 3.1.

Appendix 4. Regression analysis on dividend yield

Dependent variable: DY				
Method: Pooled Least Squares				
Date: 08/05/15 Time: 13:45				
Sample: 1 90				
Included observations: 88				
Total panel (balanced) observations 176				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
C	0.044951	0.006845	6.566771	0.0000
ROE	5.84E-05	0.000172	0.338765	0.7352
R-squared	0.000659	Mean dependent variable		0.044962
Adjusted R-squared	-0.005084	S.D. dependent variable		0.090581
S.E. of regression	0.090811	Sum squared residence		1.434905
F-statistic	0.114762	Durbin-Watson stat		2.084850
Prob(F-statistic)	0.735195	-	-	-

Source: Research's results using E-View 3.1.

Appendix 5. Regression result of dividend payout ratio on inclusion of a control variable (SIZE) alongside the independent variable ROE.

Dependent variable: DPR				
Method: Pooled Least Squares				
Date: 08/05/15 Time: 13:37				
Sample: 1 90				
Included observations: 88				
Total panel (balanced) observations 264				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
C	0.041690	0.159133	0.261984	0.7935
ROE	0.003283	0.002400	1.367774	0.1726
SIZE	7.31E-13	1.24E-13	5.900440	0.0000
R-squared	0.141339	Mean dependent variable		0.806607
Adjusted R-squared	0.134760	S.D. dependent variable		1.617541
S.E. of regression	1.504609	Sum squared residence		590.8647
F-statistic	21.48090	Durbin-Watson stat		1.191831
Prob(F-statistic)	0.000000	-	-	-

Source: Research's Results Using E-View 3.1.

Appendix 6. Regression result of dividend payout ratio on inclusion of a control variable (total debt) alongside the independent variable.

Dependent variable: DPR				
Method: Pooled Least Squares				
Date: 08/05/15 Time: 13:38				
Sample: 1 90				
Included observations: 88				
Total panel (balanced) observations 264				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
C	0.179999	0.156693	1.148738	0.2517
ROE	0.004206	0.002421	1.737005	0.0836

Appendix 6. Contd.

TD	6.86E-13	1.37E-13	4.993361	0.0000
R-squared	0.111665	Mean dependent variable		0.806607
Adjusted R-squared	0.104858	S.D. dependent variable		1.617541
S.E. of regression	1.530387	Sum squared residence		611.2843
F-statistic	16.40407	Durbin-Watson stat		1.235652
Prob(F-statistic)	0.000000	-	-	-

Source: Research's results using E-View 3.1.

Appendix 7. Regression result of dividend yield on inclusion of a control variable (SIZE) alongside the independent variable ROE.

Dependent variable: DY				
Method: Pooled Least Squares				
Date: 08/05/15 Time: 13:46				
Sample: 1 90				
Included observations: 88				
Total panel (balanced) observations 264				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
C	0.040803	0.009599	4.250682	0.0000
ROE	4.01E-05	0.000145	0.276739	0.7822
SIZE	3.97E-15	7.48E-15	0.531284	0.5957
R-squared	0.001739	Mean dependent variable		0.044962
Adjusted R-squared	-0.005911	S.D. dependent variable		0.090495
S.E. of regression	0.090762	Sum squared residence		2.150032
F-statistic	0.227296	Durbin-Watson stat		2.077540
Prob.(F-statistic)	0.5957	-	-	-

Source: Research's results using E-View 3.1.

Appendix 8. Regression result of dividend yield on inclusion of a control variable (total debt) alongside the independent variable ROE.

Dependent variable: DY				
Method: Pooled Least Squares				
Date: 08/05/15 Time: 13:47				
Sample: 1 90				
Included observations: 88				
Total panel (balanced) observations 264				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
C	0.046752	0.009297	5.028780	0.0000
ROE	6.54E-05	0.000144	0.455434	0.6492
TD	-1.98E-15	8.15E-15	-0.242403	0.8087
R-squared	0.000884	Mean dependent var		0.044962
Adjusted R-squared	-0.006772	S.D. dependent var		0.090495
S.E. of regression	0.090800	Sum squared resid		2.151873
F-statistic	0.115470	Durbin-Watson stat		2.091241
Prob.(F-statistic)	0.890992	-	-	-

Source: Research's results using E-View 3.1.

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