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SMES COMPETITIVENESS IN AN INTEGRATED ECONOMY: A PRELIMINARY STUDY FROM INDONESIA

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Abstract: ASEAN Economic Community (AEC) offers both opportunities and challenges to Indonesian Small Medium Enterprises (SMEs). Highly competitive SMEs are likely to exploit opportunities from AEC by expanding their markets and securing raw materials at lower costs. On the contrary, the increasingly intense competition is likely to marginalize less competitive SMEs in their own domestic market. This study aims to analyze the SMEs competitiveness in anticipating AEC. Using 64 SMEs that already export their products or have potentials to export as the sample; this research shows that Indonesian SMEs exhibit a high competitiveness level from the perspective of the production factor, the availability of related and supporting industries factor (especially in relation to the availability of raw and supporting materials), and the demand factor. However, SME owners acknowledge that AEC intensify competition and the government has not provided adequate facilities to improve the SME competitiveness.

Keywords: Competitiveness, Diamond Model, SME, AEC.

JEL classification: F02, F15, Z21.

1. Introduction

Small and Medium Enterprises (SMEs) play a significant role in supporting ASEAN *Economic Community (AEC)* to integrate the economy of the ASEAN countries as indicated by the fact that SMEs contribute significantly to the ASEAN economy. More specifically, about 96% of business entities in ASEAN are SMEs. Further, SMEs also contribute to between 30% and 57% of gross domestic product and employ about 50% until 95% total labor force (Ashariyadi, 2016). Consequently, in AEC 2015 Blueprint, the governments of the ASEAN countries pay greater attention to the development and promotion of SMEs (ASEAN Secretariat, 2015).

SMEs' competitiveness determines their readiness in facing AEC. The ASEAN economy integration offers greater market opportunities that enable competitive SMEs to expand and penetrate to other ASEAN countries' markets. However, competitors from other ASEAN countries are also likely to erode the domestic markets of less competitive SMEs that potentially marginalize these SMEs from their own domestic markets.

The previous discussion about the important role of SMEs in ASEAN economy leads to the issue of the SME competitiveness in Indonesia as the largest ASEAN countries in terms of

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the number of SMEs. Irjayanti et al. (2016) show that Indonesian SMEs are less ready to anticipate AEC. Similarly, Rifai et al. (2016) also indicate that Indonesian SMEs still need to improve the quality of their products and to optimize the use of technology. Even, a 2014 survey of 310 SME owners in the Central Java Province reveals that 41.6% of SME owner respondents have no knowledge about AEC (Bank of Indonesia, 2014). This survey indicates that SMEs are less aware of global issues that potentially affect their businesses. In addition, they devote their resources more to internal issues. Overall, this study describes that Indonesian SMEs are much less prepared in anticipating AEC but does not reveal whether this unpreparedness is related to competitiveness. It is therefore interesting to investigate further the competitiveness of Indonesian SMEs in anticipating AEC.

Previous studies on SME competitiveness use different countries as their research context, such as in Hungary (Tantalo, 2012), Ghana (Ocloo et al., 2014), Bulgaria (Ahmedova, 2015), and Thailand (Pongwiritthon & Awirothananon, 2015). The Indonesian studies mainly focus on specific industries, such as processed food industry (Najib et al., 2015) and furniture industry (Setyawan et al., 2016), or the competitive resources in specific industry cluster (Anton, 2015). These studies are arguably less able to provide a complete description of the competitiveness of Indonesian SMEs especially in relation to the implementation of AEC.

Based on the previous discussion, it is interesting to analyze the competitiveness of Indonesian SMEs that cover various industries, such as wood furniture, TPT, wood processing, food and beverage that have been the Indonesian leading economic sectors. This study uses the "Diamond" Model of Porter (1990) in analyzing the industry competitiveness. This model has been widely used in analyzing the global competitiveness of various industries, such as oil (Galanos & Masanis, 2010); retail (Pawar Veer, 2013), textile (Mboya and Kazungu, 2015), and sports goods (Jhamb, 2016). As the Diamond Model suggests, we will analyze the competitiveness level based on competitive resources that consist of the condition production factors, demands, support from related industries, and competition.

2. Literature review

The Declaration of ASEAN Concord II that will be effective in 2020 stipulates the economic integration of ASEAN that consists of the following countries: Indonesia, Thailand, Malaysia, Singapore, Philippine, Brunei Darussalam, Vietnam, Laos, Myanmar, and Cambodia (ASEAN Secretariat, 2003). However, in the 13th ASEAN Summit Conference in 2007, the ASEAN country leaders agreed to accelerate the implementation of the economic integration or AEC in 2015. It was expected that AEC would create an ASEAN single market and production base that was supported by a free flow of services, investment, capital, and skilled labors. In the AEC 2015 Blueprint, it was mentioned that AEC possess the following four pillars or four key goals: a single market and production base; a highly competitive economic region; a region of equitable economic development; and a region fully integrated into the global economy (ASEAN Secretariat, 2015).

Allen (1963) suggests that the ingredient of an economic integration is eliminating trade barriers between two or more countries. Pangestu and Scollay (2001) also propose that trade; development, politics, and security factors motivate economic integration of developing countries. In a similar vein, Hoekman et al. (2002) emphasize the importance of economic and political factors as the main motives of economic integration. Further, Salvatore (2004) argues that the EU success encourages developing countries to integrate their economy. Meanwhile, enlarging market by expanding the economy of scale and scope, improving resource allocation, and increasing competition to improve economic efficiency and innovation motivate the ASEAN economic integration (Javanoic, 2011).

One can classify the impact of economic integration into two categories (Kosandi, 2012). First, the static effect that refers to the trader and investment effect of economic integration

on the whole members of the economic integration. Second, the dynamic effect that refers to the impact of economic integration on the regional cohesiveness, convergence, regional peace and stability, diplomatic leverage, and convergence to multilateralism. Previous studies have investigated the static effect of economic integration. For example, Dicaprio et al. (2017) empirically find that members of the economic integration enjoy improved distribution gain from trade activities. However, other studies show different results. For example, Mwasha (2007) shows that the economic integration in Africa through East African Community is ineffective in promoting trade and direct investment because of the low level of resources of the member countries. Further, Paulino (2017) indicates that not all member countries of AAC generate benefits from the economic integration. Less developed country members such as Cambodia, Laos, Myanmar, and Vietnam do not gain benefits from accelerated trade growth due to their deficit trade balance.

What are the effects of AEC implementation on the SMEs as the backbone of the economy of ASEAN countries? SMEs face two challenges: (1) improving competitiveness, and (2) capitalizing opportunities from AEC policy of competitiveness improvement. Competitiveness is the implementation of value-creating strategy by a company and not simultaneously implemented by competitors, and this strategy is not easily duplicated (Porter (1985:102). SMEs in member countries need to improve their competitiveness continuously to gain benefits from the economic integration. If SMEs in certain member countries are complacent with their current competitiveness or having low competitiveness, then it is likely that their business continuity will be under threat. Besides, SMEs should be able to make use opportunities from AEC policies that aim to improve competitiveness. As mentioned in the Blueprint AEC 2015, in order to create a competitive region, ASEAN countries will have business policies of business competition and Intellectual Property Rights protection, jointly build infrastructures, reform tax system, and activate e-commerce. SME competitiveness can be analyzed at the firm, sectoral, and national levels (Petrović el all, 2008). SMEs' individual capabilities to penetrate domestic and international markets that depend on their productivities indicate the firm-level competitiveness. At the sectoral level. Porter (1990) offers the Diamond Model to analyze industry competitiveness based on industries' competitive resources that consist of the condition of production factors, demands, related and supporting industries, and competition. The condition of production factors refers to production inputs such as labor, natural resources, capital, and infrastructures. Demand denotes the ability of domestic markets to function as an important element in enhancing competitiveness. Next, related and supporting industries refers to suppliers and customers. Lastly, firm strategy, structure, and rivalry refer to existing strategy and structure of most firms and competition intensity of certain industries. Porter also adds the role of governments in his analysis, not as an industry player, but as a policy maker through their incentive policy such as subsidy, tax, education, strengthening and empowering production factor condition, and enforcing industry standards. Lastly, the national trade balance identifies the national competitiveness.

3. Research Method

This research uses a descriptive analysis method to describe the existing conditions of competitive factors of Indonesian SMEs. The research location is the Central Java Province that contributes a significant number of SMEs in Indonesia and boasts many leading industries.

We select our entrepreneur respondents when they are the owners of SMEs that export their products or have the potentials to export their products so that they have adequate knowledge to assess the impact of the AEC implementation in 2015. This study uses entrepreneurs in various industries to ensure the representativeness of our respondents. We cooperate with the Provincial Office of Industry of the Central Java Province that has

supervisory authority in various industries. Based on the database of the Provincial Office of Industry of the Central Java Province, the discussion with our informant in the Office, and availability of the potential respondents, we get 64 respondents. Of the 64 respondents, 64% of them already export their products while the rest (36%) are still in the category of export potential. Although the respondents involved in this study are relatively small but the respondents are spread across 17 districts / cities and produce various products, ranging from rattan furniture, metal furniture, wooden furniture, cosmetic, plantation products, food and beverage, textile and textile products (TPT), processed woods, to other products.

Characteristics	Number	Percentage
Types of Industries		
Furniture	18	29%
Plantation Products	5	8%
Cosmetics	2	3%
Food and Beverages	5	8%
Processed Woods	11	17%
Textile and Textile Products (TPT)	16	25%
Others	7	11%
Labor Education		
Primary School	2	3%
Junior High School	13	20%
Senior High School	38	59%
Diploma	3	5%
Bachelor	8	13%
Export Activity		
Export Potential	23	36%
Already Export	41	64%

Table 1: Characteristics of Respondents

Source: Field Survey, 2016

Our questionnaire combines open-ended questions with the close-ended ones to enable the interviewers to generate information about SMEs' competitiveness as suggested by the Porter's Diamond Model. The Porter's Diamond Model consists of the condition of production factors, demand condition, competition, related and supporting industries, and government. We operationalize each factor into 4 to 5 question items. We measure each item based on the 5-point ratings of agreement (1= Strongly disagree, 5= Strongly agree).

4. Results and Discussion

4.1. SMEs Market

Our SME owner respondents have extensive export markets, in not only ASEAN countries but also other countries such as Germany, Poland, USA, Saudi Arabia, China, Japan, India, Pakistan, Hong Kong, Australia, Canada, Italy, Mexico, and Dubai. The number of SMEs that export their products to other ASEAN countries increases from 29 in 2014 to 34 in 2015. Similarly, those who export to non-ASEAN countries increase from 27 SMEs to 30.

AEC began to be implemented at the end of 2015, or more precisely, on December 31, 2015. It is expected that AEC increases the inter-country flow of goods within ASEAN region. On average, the export value before AEC is Rp 179,512,227,763.00 and increases to Rp 182,737,793,517.00 after the implementation of AEC. This increase is not significant. Only the processed wood and plantation product exhibits an export decrease while wooden furniture, food and beverage, textile and textile products, cosmetics and other products

exhibit export increases after the implementation of AEC. Import activity is only done by wooden furniture, food and beverage, processed wood, textile and textile products. The average import value before AEC is Rp 113,425,386,819.00 and Rp 111,835,377,057.00 after the implementation of AEC, indicating an insignificant decline. However, the processed woods and TPT exhibit significant import decline.

Panel A. Export of SMEs to ASEAN Countries						
	Before AEC	After AEC	p-value			
Total Industry	179,512,227,763.44	182,737,793,517.51	0.632			
Wooden Furniture	3,676,262,015.06	5,109,271,954.89	0.468			
Food and Beverage	23,557,033,748.89	30,776,785,266.67	0.330			
Processed Wood	73,406,592,050.92	61,119,749,191.00	0.580			
Textile and Textile Products	14,104,188,372.64	18,800,868,650.55	0.178			
Plantation Products	3,075,000,000.00	4,000,000,000.00	0.249			
Cosmetics	13,987,952,785.63	13,368,158,830.00	0.771			
Others	47,705,198,790.31	49,562,959,624.40	0.681			
Panel B. Import of SMEs to A	SEAN Countries					
	Before AEC	After AEC	p-value			
Total Industry	113,425,386,819.69	111,835,377,057.66	0.133			
Wooden Furniture	82,741,304,674.89	91,805,731,554.33	0.211			
Food and Beverage	2,278,660,034.80	1,811,112,400.00	0.324			
Processed Wood	23,604,526,703.33	14,867,453,770.00	0.033**			
Textile and Textile Products	4,800,895,406.67	3,351,079,333.33	0.052*			

Table 2: Import Export Activities Before and After AEC

Source: Field Survey, 2016

Note: **,* = significant at 5%, 10%, respectively

4.2. SMEs Competitiveness

Competitiveness is business entities' capability to survive in the competition against their competitors. In this research context, competitors are those from other ASEAN countries. There are four factors that determine competitiveness, namely production factor condition, demand, competition, related and supporting industries, and government as an external factor.

Our data indicate that SMEs exhibit a high level of competitiveness in anticipating AEC because of two main factors, i.e., low labor costs and easy access to capital. The demand factor, that represents the capability to produce high-quality products and to meet market demands, also exhibits high scores. A high level of international demand, SMEs' capabilities to produce high-quality products, and innovative capabilities of SMEs to meet market demands also facilitate a high competitiveness level from the demand factor.

From the competition factor, SME owners exhibit a low competitiveness score. High competition levels in the export and import markets erode SMEs' competitiveness in the competition factor. However, our respondents mention that they already have certain competitive strategies to compete.

		s - Related Samples		
		Competitiveness Score	Sign	Significance
Ρ	roduction Factor Condition	3.33	+	0.000***
	Availability of Skilled Labor	3.20	+	0.157
	Cheap Labor Cost	3.32	+	0.000***
	Support of Production Facilities	3.59	+	0.243
	and Infrastructure			
	Access to Capital	3.46	+	0.001***
D	emand Factor	3.67	+	0.000***
	A High Level of Domestic Demand	3.26	+	0.243
	A High Level of International		+	0.000***
	Demand	3.70		
	Capability to Produce High-Quality		+	0.000***
	Products	4.07		
	Innovative Capability to Meet		+	0.000***
	Market Demands	3.86		
С	ompetition Factor	2.08	-	0.000***
	A High Level of Competition in the		-	0.000***
	Domestic Market	1.31		
	A High Level of Competition in the		-	0.000***
	Export Market	1.05		
	Possession of Competitive		+	0.000***
	Strategy	3.63		
R	elated and Supporting Industries		+	0.000***
F	actor	3.53		
	Availability of Raw Materials	3.53	+	0.001***
	Ease of Raw Materials Acquisition	3.47	+	0.003***
	Proportion of Local Raw Materials	3.70	+	0.000***
	Availability of Supporting Materials	3.61	+	0.000***
	Ease of Supporting Material		+	0.000***
	Acquisition	3.63		
G	overnment	2.40	-	0.000***
	Development of human resource		-	0.041**
	competence	2.88		
	Advocacy in production		-	0.067*
	technology and design	2.49		
	Advocacy in Access to Capital	2.51	-	0.059*
	Support in Production Equipment		-	0.000***
	Acquisition	2.09		
	Support in Marketing Activities	2.46	-	0.000***

Table 3: Competitive Condition of SMEs - Related Samples Wilcoxon Signed Rank Test

Source: Field Survey, 2016

Notes: ***, **, * = significant at 1%, 5%, and 10% levels, respectively

From the supporting and related industries, SMEs exhibit high competitiveness levels for all items (availability of raw materials, ease of raw material acquisition, the proportion of local raw materials, availability of supporting materials, ease of supporting materials acquisition, and proportion of local supporting materials). However, our respondents perceive the government factor to contribute less to increase their competitiveness. Relatively low scores of development of human resource competence, advocacy in the production technology and design, advocacy in access to capital, support in the acquisition of production equipment,

support in marketing activities, and provision of certain incentives / subsidies indicate the perception.

From Porter's perspective, the interaction of the five factors determines the international competitiveness.

	Production Factor Condition	Demand Factor	Competition Factors	Related and Supporting Industries	Government
				Factor	
Production	1	0.648	-0.336	0.390	0.235
Factor			(0.011)**	(0.003)***	(0.079)*
Condition		(0.000)***			
Demand	0.648	1	-0.381	0.292	0.256
Factor	(0.000)***		(0.003)***	(0.028)**	(0.055)*
Competition	-0.336	-0.381	1	0.376	0.342
Factor	(0.011)**			(0.004)***	(0.009)***
		(0.003)***			
Related and	0.390	0.292	0.376	1	0.044
Supporting	(0.003)***	(0.028)**	(0.004)***		(0.748)
Industries					
Factor					
Government	0.235	0.256	0.342	0.044	1
	(0.079)*	(0.055)*	(0.009)***	(0.748)	

1 abel 4. The Relation Detween Competitiveness Factors-Conelation Analysis

Source: Field Survey, 2016

Notes: () shows the value of significance

***, **, * = significant at 1%, 5%, and 10% levels, respectively

Table 4 shows that SMEs' production factor condition is associated with the demand factor, competition factor, related and supporting industries factor, and government factor. The demand factor is also closely related to the competition factor, related and supporting industries factor, and government factor. Further, the competition factor is also associated with the supporting industries factor and government factor. However, the supporting industries factor exhibits no significant association with the government factor. Mostly, all factors of SME competitiveness interact each other, except for the supporting industries factor and the government factor. These interactions significantly facilitate SMEs in positioning towards AEC. Therefore, we can construct the following map of SME competitiveness:



Figure 1: SMEs Competitiveness in AECSource: Field Survey, 2016

5. Conclusions

After the implementation of AEC, the export-import activities do not exhibit a significant increase relative to the pre-AEC period. These indicate that (1) SMEs survive the ASEAN market after the implementation of AEC, and (2) SMEs cannot significantly improve their competitiveness in the ASEAN market after the implementation of AEC.

Our preliminary study shows that Indonesian SMEs can improve their competitiveness significantly if there are sufficient supports of (a) production factor, in the form of skilled labor, low labor cost, production facilities and infrastructure, and access to capital; b) related and supporting industries to ensure the availability of raw and supporting materials; c) demand factor, related to a high level of the domestic and international market, the capability to produce high-quality products and innovative capabilities to meet market demands. However, SME owners acknowledge that the implementation of AEC increases competition intensity, while the government has not provided adequate support to improve the competitiveness of SMEs.

6. Suggestions

Our observation period is relatively very short and also the sample size is small. Therefore, our findings are subject to some caveats, especially in interpreting the post-AEC export-import performance of SMEs that continuously increase. However, based on the findings, we propose the following policy recommendations to improve the competitiveness of Indonesian SMEs. First, it is necessary for the government to intensify the socialization of AEC implementation and its impact on SMEs because many SMEs are not aware of AEC, let alone the impact of the implementation of AEC. Second, the government should continuously increase the competitiveness of SMEs in anticipating AEC because SMEs consider the role of the government is still limited. The government can support SMEs by improving human resource competence and production technology and design, supporting the acquisition of production equipment, promoting access to capital, facilitating marketing activities, and provision of certain incentives/ subsidies.

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AN INTERACTION BETWEEN MONETARY POLICY, COMMODITY PRICES AND INFLATION IN NIGERIA, 1980-2015

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Abstract: This study evaluates the interaction between monetary policy, commodity prices and inflation in Nigeria using an unrestricted Vector Auto Regression (VAR) model and Cointegration test approaches from 1980 to 2015. The study utilizes data on monetary policy rate (MPR), commodity product export (CPE), rate of inflation (INF), industrial production (INDP) and oil price (OILP) for analysis. The descriptive statistics result for the variables under consideration indicates that all the variables have positive mean values with 36 observations. The Unit root test result indicates that all the variables are stationary and are integrated of order one at 5% level of significance. The cointegration test result indicates at most two cointegrating equations. The impulse response function results indicates that the response of the INF to one standard innovation is positive to its own shock in the short run, it fluctuates and became stable with positive trend along the horizon in the long run. The response of the INF to one standard innovation in the CPE indicates a lower response of negative shock in the initial period with fluctuation, then stabilizes in the long run. The response of the INF to one standard innovation in MPR shows a fluctuation in the short run. but steadily continues its positive trend along the horizon in the long run period. The response of INF to one standard innovation in OILP indicates a negative response in both short and long periods. The variance decomposition result shows that the shock of the INF to itself indicates that it accounts for the most of the variability over all periods, it ranges from 92% in the short run to 55% in the long run. The shock of INF to CPE shows a decreasing pattern from the first guarter, ranging from 0.1 % in the short run to 6.5 % in the tenth period. The shock of the INF to MPR indicates a decreasing pattern in the short run from 2.4%, it increases to 24.35% in the medium run and continues increasing to 32% in the long run. The study therefore recommends that the Federal Government's attention should be focused on non-oil agricultural commodities for future and stable economic growth in Nigeria.

Keywords: Monetary policy, Commodity prices, Inflation, VAR, Cointegration, Nigeria

JEL classification: C40, E31, E44, E52, E58, N17

1.Introduction

The downward trend in the global commodity prices and their implications for inflation and monetary policy across countries have created a great puzzle among researchers. Evans and Fisher (2011) observed that since the mid -1980s, sharp increase and reduction in the prices of commodities had minor effect on inflation, but it had no effect on core inflation which is the measure that excludes food and energy prices. Scrimgour (2014) stated that since commodity prices help to determine a wide range of producer and of course consumer prices, commodity prices response to monetary policy and the effect on inflation is an important aspect of monetary mechanism. Melzer (2011) argued that rising commodity

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prices are inflationary and therefore require a tightening of monetary policy. Also, Meyer (2011) noted that rising commodity prices have sometimes resulted to higher inflation. According to the author, response of monetary policy may therefore not be required. Bruno and Sachs (1985) on the other hand heaped the blame on the 1970s inflationary rise on commodity prices while Barsky and Kilian(2001) argued that it was in response to an anticipated inflation that was brought on by monetary policy that led to a rise in commodity prices. The inflationary consequences of rising commodity prices result in an increase in inflation, but at the same time, have negative consequences on economic activity. Its monetary implications are not clear cut than those of demand shocks (De Gregorio, 2012). In the year 2008, before the advent of the financial crises, price of commodities fell after surging rapidly to an unprecedented level. But from early 2009, the commodity prices was stable and then continued in upwards shift though characterized by relatively high volatility (Anzuini, Lombardi and Pagano, 2012). As commodity prices in general and particularly the price of oil, are the main parts of Consumer Price Index (CPI), their evolution and the forces behind them are the most important factors for conducting monetary policy (Svenson, 2005). In a quest to investigate channels through which monetary policy affect commodity prices, scholars have noted four different channels of monetary policy effect on commodity prices. Among the channels noted include, extraction channel, Inventory channel, financialisation and exchange rate channels (Frankel, 2014). In the extraction channel, prices of non-renewable resources are reduced by high interest rates through an inducing incentive to extract today instead of tomorrow (Hotelling, 1931). This results to the rate by which oil is drilled and how forest is logged. The inventory channel according to Frankel (2014) results in a decreasing desire to conduct an inventory of commodities due to high rate of interest. The Financialisation channel lead to a shift into purchase of treasury bills by portfolio managers thereby abandoning commodity contract which is considered asset class (Hamilton and Wu, 2014). In the exchange rate channel, it is assumed that internationally traded commodities are reduced in domestic terms even though prices have not fallen in foreign currency terms.Therefore high interest rate strengthens the local currency (Frankel, 2006).

1.1.Statement of the problem

In Nigeria, despite the fall in price of crude oil, the Federal Government still receives at least US \$1billion monthly as a share derived from the country's Natural Gas exploration. Despite large amount of money generated and other resources from the country's natural gas. Nigeria has not invested requisite equity to boost earnings from gas exploration (Utomi, 2014). The future of the nation's economy the author noted apart from agriculture, could be anchored on gas utilisation if the Federal Government would be more serious with the gas master plan. Even as Nigeria prides itself as gas province with oil, with about one hundred and eighty seven trillion cubic feet of proven gas reserve, there has been a continuous delay since 1999 in harnessing the huge gas reserve. Also, the implication of the country's reluctance to diversify its commodity exports has resulted to loss of revenue due to oil price fall. As a result, the naira exchange rate has continued to depreciate against the US dollar (Utomi, 2014). Commodity price shock generates mostly a wealth effect, exchange rate as well as aggregate demand shocks. The issue becomes how to manage monetary policy to smooth the commodity price and inflationary shocks (De Gregorio, 2011). As crude oil prices continue to plummet, the Nigerian economy which is solely dependent on the export of crude oil has taken a downward trend with serious effect on country's short-term economic and fiscal growth. The decrease in commodity prices and its inflationary effect hence becomes a monetary policy issue. How then can the Central Bank manage monetary policy in order to smooth the commodity price and inflationary shocks in the economy? What is the monetary policy reaction in the face of commodity prices and inflationary effect in Nigeria?

1.2. Objectives of the study

The objective of this study is to evaluate the interaction between monetary policy, commodity prices and inflation in Nigeria. The specific objectives are:

- a. To determine the effect of other macroeconomic variables on inflation in Nigeria
- b. To proffer measures that would spur policy reaction in the face of dwindling revenue and high cost of living due to fall in commodity prices in Nigeria

1.3. Hypothesis of the study

Based on the objectives listed, hypotheses guiding this study is stated as follows:

- i. There is no interaction between monetary policy, commodity prices and inflation in Nigeria
- ii. There are no effect of other macroeconomic variables on inflation in Nigeria

1.4.Scope of the study

This study covers the period from 1980 to 2015, focusing mainly on time series data from the Central Bank of Nigeria's (CBN) statistical bulletin.

2. Literature Review

Studies have been conducted on the interaction effect between monetary policy, commodity prices and inflation. Among scholars include, DeGreorio (2012) who noted that the inflationary consequences of a rise in the prices of commodities denote a significant experiment for monetary policy. According to the author, rising commodity prices leads to a rise on inflation which affect economic activities negatively. An inflationary rise that occurs as result of a positive demand shock in the economy requires monetary policy tightening for effective stabilisation. However, the implications of commodity price shock are clear cut. A commodity price shock generates mostly wealth effect, which affects aggregate demand and exchange rate if the economy is a commodity net importer with relevant demand for the commodity locally (De Gregorio, 2012). As crude oil prices plummeted to 43% during the course of 2014, Frankel (2014) noted that this is good news for oil importing countries, and for countries like Nigeria, Venezuela, Russia, and other oil exporting countries, it is a bad news. The continuous drop in the prices of oil could be attributed to the recent United States (US's) shale energy boom, while others cite the Organization of Petroleum Exporting Countries (OPEC's) failure to agree on supply restrictions. The price of iron ore also is down, so are gold, silver and platinum prices. And the same is true of sugar, cotton and soybean prices (Frankel, 2014). According to the author, since the beginning of the year 2014, most dollar commodity prices have fallen. Even though there are other factors affecting prices of commodities, the slump in oil price indicates that macroeconomic elements are really at work.

2.1. Theory of monetary policy effect on inflation

In the study of monetary policy effect on inflation, scholars have debated for and against reactions of commodity prices with prices of consumer goods. Among the scholars include, Cody and Mills (1991) that were of the view that the most obvious reason adduced is the fact that commodities are traded in auction markets. Adams and Ichino (1995) noted that under rational expectations, the price today will contain all available information and therefore, future prices are expected. In this case, Verheyen (2010) noted that when there is availability of new information, it leads to commodity price changes and final goods prices react quite sluggishly, probably as a result of menu cost or contract restriction. Cheung (2009) assert that a rise in price of commodity might be an indication of a general rise in the world's demand for a finished product due to inflationary pressure. Another line of argument for a slower response of final goods prices according to Verheyen (2010) can be established by

focusing on price reduction approach. Garner (1989) argue that while commodities are inputs in process of production, they affects costs of production and also consumer goods inflation. Verheyen (2010) noted that this argument is correct only with the assumption that most of the increase in input costs is spread to prices of consumer goods. However, Moosa (1998) raises the objection, insisting that raw material costs are little portion of the entire costs of production. Blomberg and Harris (1995) noted connection between commodity prices and inflation via the use of commodities, especially gold, as an inflation hedge. According to Frankel (1986), individuals may buy commodities when anticipating a price rise in order to avoid depreciation of money.

2.2. Empirical literature

Anyanwu and Kalu (2014) ascertain the impact of Central Bank of Nigeria (CBN) money supply on the growth of Nigerian economy from 1994-2012. Applying SPSS for estimation their findings indicate that change in money supply impacts on CBLA and the output positively during the period under review.

Scrimgeour (2014) estimates commodity prices response to monetary policy surprises in the United States using a Standard VAR model approach. The study reveals that a 10 basis-point surprise increase in interest rates leads to a fall in the price of commodity by 0.6%.

Kuhanathan, Sanvi and Lyes (2013) apply Markov-switching models to show that there is an implicit impact of commodity markets on short-term interest rates for US, the Euro area, Brazil, India, Russia and South Africa economies over the period from January 1999 to August 2012. Applying the VAR models, the study reveal that short-term interest rates respond to commodity volatility shocks on all the countries.

Anzuini, Lombardi and Pagano (2012) investigate the interaction between commodity prices and monetary policy for the US economy using a standard VAR model approach. The results reveal that monetary expansion affects broad commodity price index and all of its components. They note that while these effects are significant, they do not, however, appear to be overwhelmingly large.

Okwo, Eze and Nwoha (2012) examine the effect of monetary policy outcomes on macroeconomic stability in Nigeria 1985 to 2010. The regression result show that none of the variables used in the study are statistically significant. The result also indicate an insignificant effect of monetary policy, GDP, private sector credit, net credit to the government and inflation in Nigeria.

3. Methodology of the research

In order to evaluate the interaction between monetary policy, commodity prices and inflation in Nigeria, we adopts a Vector Auto Regression (VAR) approach. We apply the standard Choleski decomposition method to our estimated unrestricted VAR models. The VAR process based on normally distributed errors (Gaussian) has frequently been a popular choice for describing macroeconomics time-series data. The main aim behind the application of the Choleski decomposition to our VAR regressions gears towards estimating vector autoregressions with residuals uncorrelated. The Choleski decomposition requires a variable ordering since it gives different results based on different ordering. This ordering of variables is in line with Walsh and Wilcox (1995), Friedman and Kuttner (1993). The triangular VAR form is the sigma and restrictions on A0 respectively. The triangular system is based on a specific ordering of the p variables and thus on an underlying assumption of a causal chain. This model can be extended to the case where there are k lags (2 lags in our case) of each variable in each equation. The model is summarized in the reduced-form VAR model as follows:

$$\boldsymbol{Y}_{t} = \boldsymbol{\alpha}_{o} + \sum_{i=1}^{n} \boldsymbol{\beta}_{i} \boldsymbol{Y}_{t-i} + \boldsymbol{u}_{t}$$
(1), where \boldsymbol{Y}_{t}

is a 5*1 vector of variables (INF, CPE, MPR, INDP, OILP), *where*: INF = Inflation CPE= Commodity Product Export MPR = Monetary policy rate INDP= Industrial production OILP= Crude oil price

All variables are in normal form. β_i are coefficient matrices of size 5×5 and u_t is the prediction error (one step ahead) with variance-covariance matrix Σ , α_o is the intercept. The structural equation for the model is stated as follows:

$$INF_{t} = \pi_{0} + \pi_{1}CPE_{t-1} + \pi_{2}MPR_{t-1} + \pi_{3}INDP_{t-1} + \pi_{4}OILP_{t-1} \dots (2)$$

$$CPE_{t} = \varphi_{0} + \varphi_{1}INF_{t-1} + \varphi_{2}MPR_{t-1} + \varphi_{3}INDP_{t-1} + \varphi_{4}OILP_{t-1} \dots (3)$$

$$MPR_{t} = \sigma_{0} + \sigma_{1}INF_{t-1} + \sigma_{2}CPE_{t-1} + \sigma_{3}INDP_{t-1} + \sigma_{4}OILP_{t-1} \dots (4)$$

$$INDP_{t} = \gamma_{0} + \gamma_{1}INF_{t-1} + \gamma_{2}CPE_{t-1} + \gamma_{3}MPR_{t-1} + \gamma_{4}OILP_{t-1} \dots (5)$$

$$OILP_{t} = \beta_{0} + \beta_{1}INF_{t-1} + \beta_{2}CPE_{t-1} + \beta_{3}MPR_{t-1} + \beta_{4}INDP_{t-1} \dots (6)$$

3.1. Variance decompositions and Impulse Response functions

For this research work, it showed the proportion of variance of the forecast error INF that can be attributed to variation to each of the exogenous variables. A Monte Carlo simulation (with one hundred draws) from the unrestricted VAR is used to generate the standard errors for the impulse response and variance decomposition coefficients. The confidence bands for the response function are 90% intervals generated by normal approximation. There is no agreement on an clear standard for significance used in a VAR framework; Sims (1987) however suggests that for impulse responses, significance can be crudely gauged by how much functions drifted from zero, whilst Runkle (1987) suggests a probability range above 10 percent for variance decompositions.

3.2. Sources of data

This study utilizes data which include, Commodity Product Export (CPE), this consist of commodities other than oil, oil price, industrial production and monetary policy rate, in this case, it is used as monetary policy instrument and inflation from the Central Bank of Nigeria's (CBN) statistical bulletin.

3.3. Estimation Procedure

Unit root test

To test for stationarity or the absence of unit roots, this test is done using the Augmented Dickey Fuller test (ADF) with the hypothesis which states as follows: If the absolute value of the Augmented Dickey Fuller (ADF) test is greater than the critical value either at the 1%, 5%, or 10% level of significance, then the variables are stationary either at order zero, one, or two. The Augmented Dicky Fuller test equation is specified below as follows:

$$\Delta \hat{u}_{t} = \beta \hat{u}_{t-1} + \sum_{i=1}^{k} \Delta \hat{u}_{t-1} + \varepsilon_{t}$$
(7)

Cointegration test

In time series analysis, we often encounter situations where we wish to model one non-stationary time series (Y_t) as a linear combination of other non-stationary time

series $(X_{1,t} + X_{2,t} \dots X_k, t)$. In other words: $Y_t = \beta_1 X_{1,t} + \beta_2 X_{2,t} \dots \beta_k X_k, t + \varepsilon_t \dots (8)$

A non-stationary time series regression generates a spurious results except if the linear combination of the variables eliminates the stochastic trend and produces stationary residuals.

 $Y_{t} = \gamma_{1}X_{1,t} + \gamma_{2}X_{2,t} \dots \gamma_{k}X_{k}, _{t} \Box I(0) \dots (9)$

This therefore indicates that variables underconsideration are cointegrated. This test procedure was advocated by Johansen (1988) and Johansen and Juselius (1990).

4. Analysis of the findings

4.1. Descriptive analysis

The descriptive statistics of the variables used in this study are shown in Table1 below.

	INF	CPE	MPR	INDP	OILP
Mean	20.76528	111.9620	5.921291	4520.877	9355.382
Median	15.40000	113.8373	6.573750	1980.375	4708.637
Maximum	72.80000	130.9065	11.06417	16032.28	33623.09
Minimum	3.200000	87.07899	0.316667	91.60000	1696.301
Std. Dev.	16.82570	9.472599	3.065399	5565.467	9719.218
Skewness	1.450876	-0.556441	-0.088774	1.097717	1.120407
Kurtosis	4.413586	3.292296	2.047902	2.724848	2.802645
Jarque-Bera	15.62758	1.985912	1.407021	7.343465	7.590295
Probability Sum	0.000404	0.370480	0.494845	0.025432	0.022480
	747.5500	4030.633	213.1665	162751.6	336793.7
Sum Sq. Dev.	9908.649	3140.554	328.8835	1.08E+09	3.31E+09
Observations	36	36	36	36	36

 Table 1: Descriptive statistics result

Source: Authors own computation from the Eviews result

The table1 above shows the descriptive result for the variables under consideration which include, INF, CPE, MPR, INDP and OILP.The result indicates that all the variables under consideration have positive mean value which ranges from 9355.382 to 5.921291 with a 36 observations. The highest standard deviation of 9719.218 is recorded by OILP while the least standard deviation of 3.065399 is recorded by MPR. The result of the skewness coefficient of the variables shows that two variables, CPE and MPR are negatively skewed, the values are less than zero while the skewness coefficient of the other variables, INF, INDP and OILP are skewed positively. The kurtosis coefficient of the three variables INF (15.62758), INDP (7.343465) and OILP (7.590295) are all leptokurtic, while the kurtosis

coefficients of the variables CPE (1.985912) and MPR (1.407021) are mesokurtic. The estimation above indicates that the Jarque-Bera probability for the variables shows that the error terms are normally distributed.

4.2. Correlation

The relationships among the studied variables depicted in the model above were tested using correlation matrix and the result presented below:

	INF	CPE	MPR	INDP	OILP
INF	1.000000	0.178841	0.188516	-0.082333	-0.126692
CPE	0.178841	1.000000	0.446303	0.117274	0.109027
MPR	0.188516	0.446303	1.000000	0.544819	0.504025
INDP	-0.082333	0.117274	0.544819	1.000000	0.960319
OILP	-0.126692	0.109027	0.504025	0.960319	1.000000

 Table 2: Correlation matrix

Source: Authors own computation from the Eviews result

The correlation result above shows that our focal variables CPE and MPR all have positive relationships with the INF and the variables, INDP and OILP are negative.

4.3. Unit root test

In order to assess the time series properties of the data, unit root tests were evaluated. The results of the Augmented Dickey Fuller (ADF) tests are as follow:

Variable	ADF TEST				
	I(0)	Prob.	l(1)	Prob.	
INF	-3.061862	0.0389	-5.661320	0.0000	
CPE	-3.503415	0.0138	-6.181071	0.0000	
MPR	-1.600512	0.4717	-5.647697	0.0000	
INDP	-0.437098	0.8879	-5.107374	0.0002	
D(OILP)	0.305854	0.9748	-14.71136	0.0000	

 Table 3: Stationarity test result

Source: Authors own computation from the Eviews result

The tests indicate that that all the variables are stationary and are integrated of order one at 5% level of significance both in ADF test procedures; therefore a cointegration test is conducted.

4.4. Cointegration

To establish whether long-run relationships exist between variables under consideration, cointegration is therefore conducted using the multivariate procedure. The cointegration tests which include two lags in the Vector Auto Regression (VAR) model are stated as follows:

Eigenvalue	Eigenvalue Likelihood 5 Percent 1 Percent Hypothesized							
	Ratio	Critical Value	Critical Value	No. of CE(s)				
0.731006 94.65103 68.52 76.07 None								
0.575258	At most 1 *							
0.364997 20.89346 29.68 35.65 At 0.130793 5.453168 15.41 20.04 At								
						0.020010 0.687242 3.76 6.65 At most		
*(**) denotes rejection of the hypothesis at 5%(1%) significance level								
L.R. test	indicates 2 col	integrating equat	ion(s) at 5% sign	ificance level				

Table 4: The cointegration test result

Source: Authors own computation from the Eviews result

The result of the cointegration test indicates that there are at most two cointegrating equations. Specifically, the result test suggests that all the variables have a long run equilibrium conditions with INF. This evidence of cointegration among the variables implied that at least one direction of influence could be established among the variables.

4.5. The VAR models results

Using variance decomposition and impulse response functions, we analyze dynamic properties of the VAR models. The table below displays the impulse responses of the INF, CPE, MPR, INDP and OILP. The x axis gives the time horizon and the y-axis shows the percentage variation in the dependent variable away from its base line level. The solid line in each graph is the estimated response while the dashed lines denote the one standard error confidence band around the estimate. It is interesting to note that the error bands are typically symmetric around the median.

From the impulse response graph presented in Figure 1, the response of the INF to one standard innovation is positive to its own shock in the short run; it fluctuates and then became stable and continues its positive trend along the horizon in the long run. The impulse response of the INF to one standard innovation in the CPE indicates a lower response of negative shock in the initial period with little fluctuation along the horizon and then stabilizes in the long run. The result conforms to Verheyen (2010) study of the US economy which noted an immediate and significant rise of prices to an exogenous increase of the Commodity Research Board (CRB) index. The response of the INF to one standard innovation in MPR shows a little fluctuation in the short run, but steadily continues its positive trend, then fluctuated along the horizon in the long run period. The result conforms to Verheyen (2010) findings that a reduction of commodity prices and consumer prices after a restrictive monetary policy, i.e. a raise of the in the interest, commodity prices decrease immediately (and significantly), consumer prices decline significantly not until one year. The impulse response of INF to one standard innovation in OILP indicates a short run response negatively and it continues along the horizon in the long run. The response of the INF to one standard innovation in INDP indicates a similar response in both short and long run duration.



Figure 1: Impulse response function Source: Authors own computation from the Eviews result

Taking now a look at the other impulse response functions, a response of the CPE function increases in the short run but maintains a positive trend along the horizon in the long run. The impulse response function of the CPE to one standard innovation in INF shocks indicate a negative response in the short run and continues to fluctuate along the horizon in the long run positively. Boughton and Branson (1988) noted that commodity prices could be interpreted as a leading indicator of consumer price inflation, in other words, turning points in commodity prices frequently preceded turning points in inflation. The response of the CPE to its own shock and to that of MPR indicates a similar response; it shows a positive response in the short and continues on a positive note along the horizon in the long run. The impulse response of the INTR to INF shock indicates a positive response of the MPR to its own shock, and to CPE show a similar response, indicating positive response in the short and then declines negatively along the horizon in the long run. The response of the MPR to its own shock, and to CPE show a similar response, indicating positive response in the short and to negatively along the horizon in the long run. The response of the MPR to its own shock, and to CPE show a similar response, indicating positive response in the short run and continues on a positive note along the horizon in the long run. However, the response of INDP and OILP to their own shocks indicates a positive response in both short and long run.

4.6. Variance decomposition

The variance decomposition provides complementary information on the dynamic behaviour of the variables in the system. It is possible to decompose the forecast variance into the

contributions by each of the different shocks. When calculated by the structural shocks, as in the present case, the variance decomposition provides information on the importance of various structural shocks explaining the forecast error variability of INF. Table below shows the variance decomposition over the short term period (1-2 years), medium term (3-4 years) and over the long term (5-10 years). The tables are shown below:

	Period	S.E.	INF	CPE	MPR	INDP	OILP
	1	10.40960	100.000	0.000000	0.00000	0.000000	0.00000
ſ	2	12.9176	92.64116	1.355664	2.45566	0.447687	3.099821
	3	14.8668	70.7907	2.12174	24.34804	0.348465	2.391050
	4	16.04449	60.84671	1.82205	33.52864	1.089261	2.713327
	5	16.28861	59.2743	3.08042	33.65714	1.063648	2.92443
	6	16.58607	57.17362	4.98076	32.50604	1.594260	3.74531
	7	16.71571	56.4346	6.18605	32.06596	1.62473	3.688567
	8	16.80688	55.83253	6.52354	32.05645	1.71094	3.876525
ľ	9	16.82314	55.7337	6.539363	32.03992	1.77895	3.908043
	10	16.83077	55.68699	6.534349	32.08859	1.785435	3.904640

Table 5: Variance Decomposition of INF

Source: Authors own computation from the Eviews result

The result from the table above shows that the variance decomposition of the INF to itself indicates that it accounts for the most of the variability over all periods; it ranges from 92% in the short run to 55% in the long run. The shock of INF to CPE shows a decreasing pattern from the first quarter, ranging from 0.1% in the short run to 6.5% in the tenth period. Pindyck and Solimano (1993) noted that the uncertainty associated with high and volatile unanticipated inflation has been found to be one of the main determinants of the rate of return on capital and investment. The shock of the INF to MPR indicates a decreasing pattern in the short run from 2.4%, it increases to 24.35% in the medium run and continues increasing to 32% in the long run. The hypothesis of a fast reaction of commodity prices in comparison to consumer prices states that as commodity prices react instantaneously, it results to a reduction in interest rates after a tightening of monetary policy (Verheyen, 2010).The shock of INF to INDP and OILP show a decreasing pattern from 1st quarter with a range from 0.4% and 3.0% to 1.7% and 3.9% in the long run period respectively.

Period	S.E.	İNF	CPE	MPR	INDP	OILP
1	6.94735	1.81034	98.18966	0.00000	0.000000	0.000000
2	7.23519	3.40308	95.9937	0.08753	0.32975	0.18591
3	7.70286	3.639641	93.47883	0.461300	0.979221	.441002
4	7.87986	3.85054	93.03019	0.459925	1.275601	1.383742
5	8.058682	4.470750	91.07021	1.715161	1.23380	1.510078
6	8.19940	4.789223	89.01733	3.458389	1.273647	1.46141
7	8.28497	4.825541	88.08192	4.288145	1.371239	1.433157
8	8.33964	4.787791	87.51191	4.85255	1.386931	1.46081
9	8.38235	4.78479	87.06693	5.284790	1.384269	1.47921
10	8.407897	4.79076	86.84947	5.47019	1.411659	1.477912

Table 6: Variance Decomposition of CPE

Source: Authors own computation from the Eviews result

The predominant source of variation in CPE forecast errors indicates that it is its own shock. The variation ranged from 98% to 86% over the ten-year period. The innovations of CPE to INF and MPR account for the forecast error variance ranging from 1.8 to 4.7% and 0.8 to

5.4% over the ten year period respectively. This result corroborates with the findings of Verheyen (2010) that changes in commodity prices no longer dominate the evolution of the Federal Funds Rate. Hence, monetary policy has responded less to commodity price developments, probably knowing that the quality of the signals sent by commodity prices has deteriorated (Verheyen, 2010). The result indicates that CPE shocks explains though not dominant proportion of the forecast error variance of the INDP and OILP both in the first and last quarters; it indicates almost 1.41% and 1.47% respectively of the variations.

Period	S.E.	INF	CPE	MPR	INDP	OILP
1	1.38404	0.28378	4.60175	95.11447	0.000000	0.00000
2	1.700779	2.16218	14.8187	82.6101	0.02476	0.38411
3	1.915242	2.597618	30.23708	65.4010	0.81246	0.951822
4	2.05447	2.92288	37.0466	56.8368	2.26056	0.93314
5	2.132889	3.095986	40.10304	52.85752	2.13808	1.805364
6	2.18311	3.03548	41.4911	50.9233	2.04274	2.507281
7	2.20758	3.053921	42.40990	49.8657	2.107124	2.563350
8	2.231597	3.268061	43.0300	48.80424	2.30642	2.591189
9	2.25537	3.45659	43.63161	47.7858	2.45191	2.67399
10	2.27633	3.517026	44.1502	46.96334	2.62134	2.74806

Table 7: Variance Decomposition of MPR

Source: Authors own computation from the Eviews result

The variance decomposition of the MPR shows that among all the variables, its own shock explains about 82% to 46% of the forecast error variance during the period under review. The result from the table also shows that CPE explains about 4.6% and 44.1% of the variations. According to Lo (2008), Efficient Market Hypothesis reasoning suggests that commodity prices should respond relatively quickly to news about interest rates. The result reveals that OILP explains about 2.7% of the changes in the MPR, while INF explain about 3.5% of the changes in the MPR. The variance decomposition of MPR to OILP and INDP explains about 2.6% and 2.7% of the variations in the long run. Like other financial market prices, commodity prices are relatively flexible, and adjust quickly in response to shocks. Any effects of monetary policy announcements on commodity prices likely occur within a short period of the announcement, in contrast with retail prices, which are stickier (Scrimgeour, 2014).

Period	S.E.	INF	CPE	MPR	INDP	OILP
1	1139.120	0.49695	0.06680	37.4584	61.97779	0.000000
2	1449.391	1.426656	0.110100	51.04426	43.90953	3.509451
3	1789.246	1.06733	0.47773	56.13130	34.42513	7.898507
4	2025.51	1.091102	0.560833	59.70671	29.5222	9.119156
5	2211.32	0.94956	1.133367	59.28433	29.20153	9.431209
6	2368.312	0.93612	1.97207	58.2121	28.90546	9.974169
7	2528.848	0.966799	3.315884	56.5739	28.6629	10.48047
8	2685.61	0.948952	4.80272	54.9945	28.38213	10.8716
9	2848.160	0.958799	6.508097	53.2381	28.12743	11.16751
10	3016.619	0.985677	8.285364	51.5843	27.7544	11.39013

Table 8: Variance Decomposition of INDP

Source: Authors own computation from the Eviews result

From the table above, the shocks of INDP to itself ranged from 61% to 27% over the ten-year periods. One will also note the increasing contribution of the MPR to INDP shock

over time which ranges from 37% to 51% over the ten year period. Omini, Ogbeba and Okoi (2017) noted that output growth of the manufacturing subsector of the Nigerian economy was 1.25% in the first quarter of 2015, which indicated an 18.80% lower than 20.05% it recorded during the first quarter of 2014. The shock of INDP to CPE and OILP show different pattern from decreasing in the short run and responding positively with 8.2%, 18% and 11% respectively over the ten year periods.

Period	S.E.	INF	CPE	MPR	INDP	OILP
1	2392.444	0.011858	0.04077	33.99272	9.656463	56.29819
2	3400.57	13.1448	1.23694	47.15952	5.621870	32.83681
3	3802.120	10.56952	1.108881	46.90896	15.1243	26.28824
4	4039.84	9.646802	1.28201	47.85116	16.97158	24.24844
5	4374.621	8.653938	2.400249	48.6544	17.51184	22.7795
6	4613.369	7.781460	2.808302	49.62039	17.73737	22.05248
7	4827.417	7.13703	3.562674	48.98199	18.7266	21.59165
8	5053.62	6.58628	4.76353	48.30882	19.36281	20.97856
9	5311.494	6.09405	6.37022	47.41622	20.05875	20.0607
10	5574.32	5.663463	7.945729	46.4965	20.5449	19.34929

Table 9: Variance Decomposition of OILP

Source: Authors own computation from the Eviews result

From the result of the variance decomposition of the OILP obtained, own shock constituted the predominant source of variations for variables in the model. Apart from own shock, the most dominant variable is MPR. All through the ten-period horizon, it maintained an average significant influence of 33% to 46%. McCarthy (2015) noted that oil price fall as a result oil Saudi Arabia's oil output expansion accounted for one third of the annual retail price index inflation decline of 1986 from 5.7% to 2.4% in the United Kingdom in the year 1985 to 1986. According to the author, the response of monetary policy to oil price shock, is that there is uncertainty regarding transmission effect of such shock to the economy, but a flexible inflation targeting would provide appropriate framework to conduct monetary policy in this situation. The next most significant variables is INDP which maintains an average of 9% to 20% throughout the ten periods.

5. Conclusion

The commodity prices response to monetary policy and its effect on inflation is an important aspect of monetary mechanism, as commodity prices help to determine a wide range of producer and consumer prices. The study noted four different channels that monetary policy affect commodity prices. The study utilized an unrestricted Vector Auto Regression (VAR) and Cointegration approach for evaluation. From the results obtained, the Unit root test indicates that all the variables are stationary and are integrated of order one at 5% level of significance both in ADF test procedures. The cointegration test result indicates at most two cointegrating equations. From the impulse response graph above, the response of the INF to one standard innovation is positive to its own shock in the short run; it fluctuates and then became stable and continues its positive trend along the horizon in the long run. The impulse response of the INF to one standard innovation in the CPE indicates a lower response of negative shock in the initial period with little fluctuation along the horizon and then stabilizes in the long run. The response of the INF to one standard innovation in MPR shows a little fluctuation in the short run, but steadily continues its positive trend, then fluctuated along the horizon in the long run period. The impulse response of INF to one standard innovation in OILP indicates a short run response negatively and it continues along the horizon in the long run. The response of the INF to one standard innovation in INDP indicates a similar

response in both short and long run duration. The variance decomposition result obtained shows that the shock of the INF to itself indicates that it accounts for the most of the variability over all periods; it ranges from 92% in the short run to 55% in the long run. The shock of INF to CPE shows a decreasing pattern from the first quarter, ranging from 0.1 % in the short run to 6.5 % in the tenth period. The shock of the INF to MPR indicates a decreasing pattern in the short run from 2.4%, it increases to 24.35 in the medium run and continues increasing to 32% in the long run. The shock of INF to INDP and OILP show a decreasing pattern from 1st quarter with a range from 0.4 % and 3.0% to 1.7% and 3.9% in the long run period respectively. The study therefore recommends that the Federal Government's attention should be focused on non-oil agricultural commodities for future and stable economic growth in Nigeria. Equally, a further study should be conducted in this area of research focusing on the dynamics of commodity markets as it affect mono-product export economies.

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Bio-note

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DEVELOPMENT OF MIGRATION POTENTIAL IN HUNGARY FROM 2000 UNTIL TODAY

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Abstract: Hearing the words "international migration", two things might come to our mind. One of them is the emigration process and the other is the wave of refugees. In our study, we examined the changes of the number of employees emigrating from Hungary from 2000 until today. Nowadays, the examination of the migration potential is an important topic in Hungary, since the rate of Hungarian emigrants started to grow after 2006 and the rate of growth became even faster after 2010. The reason of the acceleration was the opening of the Austrian and German labour market. The actuality of the topic is based on the fact that international emigration merges the labour market's processes, influences the given country's employment level, moreover it has an influencing role on the rate of wages. Emigration from a given state has several reasons: natural disasters, war, marginalization, economic reasons, etc. In our study, we examine emigration caused by economic reasons. We have to take into consideration that measuring emigration processes is a difficult task. due to the lack of data. The reason of the deficiency is that those who leave the country, often forget to report their leaving. From 1 March 2013, only the permanent foreign settlement should be reported towards the administration (District Office, Consulate). Earlier, temporary (more than 3 months) settlement was also obligatory to be reported. Many of the leaving Hungarians do not report their leaving, however working abroad for more than 3 months should be reported towards social insurance organizations and tax authorities. I would like to emphasise that my migration potential presentation does not show a direct correlation with the actual migration. However, this study might show the expected movement rates and the composition of emigrants.

Keywords: migration, migration potential, Hungary, emigration

JEL classification: R23, O15, J61

1. Introduction

Hearing the words "international migration", two things might come to our mind. One of them is the emigration process and the other is the wave of refugees. In our study, we examined the changes of the number of employees emigrating from Hungary from 2000 until today. Nowadays, the examination of the migration potential is an important topic in Hungary, since the rate of Hungarian emigrants started to grow after 2006 and the rate of growth became even faster after 2010. The reasons of the acceleration were the opening of the Austrian and German labour market and the fact that however the number of the population and the number of the working age population have risen, the economic growth could not keep pace with it, could not provide enough workplaces.

At first, people changed their homes within a given country; many of them moved to towns, looking for better opportunities. Later, it was not enough and people started to leave their motherland and find work abroad.

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International migration affects the given foreign country in several ways, for example it merges into its labour market processes, influences its employment level as well as its wages. Emigration has many causes, like natural disasters, war, exile, economic causes, etc. In our study, we examine emigration caused by economic reasons. Measuring emigration processes is a difficult task, due to the lack of data. The reason of the deficiency is that those who leave the country, often forget to report their intention of leaving. From 1 March 2013, only the permanent foreign settlement should be reported towards the administration (District Office, Consulate). Earlier, temporary (more than 3 months) settlement was also obligatory to be reported.

I would like to emphasise that my migration potential presentation does not show a direct correlation with the actual migration. However, this study might show the expected movement rates and the composition of emigrants.

2. Method

I was examining one particular segment of international migration, so at first, I would like to explain the notion of emigration. Emigration can be divided into two groups: permanent and temporary. Permanent emigrants leave their country for good, they settle down abroad and the chance of returning home is minimal. In this case, residence exceeds 12 months. It is different in almost every country, for example in Italy and Belgium even 3 months is considered critical, while in the Netherlands, 6 months is accepted.

The other group of emigrants are the temporary emigrants. Unlike the permanent emigrants, they keep up the chance to return home. Those people are also in this group who are part of a foreign household, they are called commuters (Table 1).

Emigration				
permanent temporary				
does not plan to return comes with moving		commuting		
Based on the database of ho (Immigration, Statistical Of	National labour research (MEF)			

Table 1: Types of international emigration and database connected to them

Source: Own editing

Unconventionally, there are certain overlaps among the groups, as in the case of recording statistical data, a person can be considered an individual migrant, although in most cases migrants travel to the destination country with their whole family. For the interpretation of the categories, another important aspect is that there is no exact definition of the expression "migrant".

Another classification should be mentioned, since there is a difference between temporary and permanent migration. Those people who stay less than 3 months (because of visa commitment) in the destination country are regarded as visitors. The second group involves short-term migrants, who move from their temporary habitation to another country and stay there for more than 3 but less than 12 months, except for those people who are travelling for medical treatment, to visit their doctors, their family or going on holiday. The third category involves long-term migrants, those people who stay in the destination country for more than 12 months (Figure 1).





After reviewing the time periods, it can be useful to examine the reasons of migration. There are voluntary and forced migrations. In the case of voluntary migration, migrants leave their countries because of economic reasons. Contrary to voluntary migration, there can be some persecuting act behind forced migration regarding religion, politics, ethnics, language, nationality etc.

Based on the different types of emigrants, the database can be found at different places. There is no official database for permanent emigration, since host countries do not make statistics from them. There are a very few information in the host countries (they provide information in different sections with different frequencies) about the number of Hungarian residents there, thus, the overall number of people cannot be collected in this way.

According to Mirror Statistics, the movement of migration is limited to the temporary/commuting type, based on the reported information. About the temporary emigrants, we are informed from different labour market researches. According to the World Bank (2011), 462 thousand Hungarian (nearly 5% of the population) moved to a foreign country, from whom 400 thousand settled down in one of the OECD countries (OECD, 2011). This 85-87% OECD rate is true for each of the past years.

According to the data of the Mirror Statistics (2014), those Hungarian people, approximately 330 thousand, who live in a European country, are younger and more qualified than the national average. In 2014, Germany, Ireland and the United Kingdom were targeted mostly by men, while Italy, Austria, Switzerland and Spain were targeted by mostly women (KSH, 2015).

According to the data (2015) of member states of the EU, the number of Hungarian citizens were 310 thousand in European countries; this number has increased by 48 thousand in the previous year. From the 370 thousand, 41% went to Germany, 23% to the United Kingdom and 15% to Austria. According to the data, by the end of 2015, the attractiveness of Germany decreased compared to the previous years; however, the UK has become a more popular destination. In 2016, the Netherlands, Ireland and Denmark (which were insignificant before) became new emigrational targets.

In opposition, relevant literatures mention approximately 1-2% of Hungarians who live in a foreign country (Blaskó, Ligeti and Sik, 2014; 2011. census; Blaskó and Gödri, 2016). According to mirror statistics, the emigrants staying abroad have a 3-4% rate. One of Hárs' research (2016) examined the member states of the European Union and it concluded the actual situation considering Hungary as well. According to Hárs' opinion, the emigration rate of Hungarians is 3% and only the Czech, the Slovakian and the Slovenian figures are lower. The constantly changing number of commuters is not recorded in Hungary, hence it would be hard to keep count of them from time to time. It would be possible to gain some

information about commuters; however, there is no data of those people who live in a one-man Hungarian household but work abroad. Information on commuters could be gained from Labour researches that say that by the end of 2013, there were 100 thousand commuters (work on a foreign site but registered in a domestic household and the income is present in Hungarian households.).

Obviously, there are overlaps among the groups constantly, and the given data could provide approximate information about the number of members in each group.

According to Dustmann and Weiss (2007), emigration with the purpose of working abroad can be considered temporary, since the goal of these emigrants is to gain experience, besides, usually they have a contract that limits their staying. In many cases, temporary emigration ends completely, if the emigrant comes back to Hungary or if he/she stays for a longer period in the given foreign country.

It is also crucial to understand and to examine the advantages of being a host country. Receiving immigrants could be an advantage for the destination country, if they boost the labour market there. In the case of economic migrants, the qualification of the person is the responsibility of the origin country, so it is beneficial for the host country. Receiving people with extra qualifications and expertise means technological-economic development for the destination country. Another perspective is that economic migrants can have a positive effect on the budget of the destination country: if workers arrive to a country legally, the taxes and social contributions of their income will be paid to the central budget. Since these people live in the country, they will consume there and this is another positive effect. The next significant advantage of immigrants is that they could fill in the blanks in skill shortages.

The migration process also has negative and positive effects on the origin country. Emigration causes a decrease in the number of active population, so as a result, unemployment and social tension will also decrease. Huzdik (2014) also conducted surveys on this topic. His research shows that emigrants support their family staying in the origin country financially (so family members are not inspired to work), which makes the expenses of the social service system decrease. Another positive aspect for the mother country is that the salaries sent home from abroad improves the balance of payments by which reverse currency can be created. Its disadvantage is that migration means tax shortfall for the origin country in the short-term as well as in the long-term, although it could result in increasing life standards for migrants. Another disadvantage for the future is that when a family emigrates, it reduces the number of working-age citizens, which cuts down the economic growth. This is the reason why it would be crucial for the countries to make their citizens stay at home, motivate them and make their own country attractive, so that they would not even think about the possibility of moving abroad.

The return of migrants is beneficial if they come back to their own country with certain advantages. After returning home, the acquired knowledge can be developed, however it is not guaranteed that this knowledge could be applied in their original profession. The return could be a disadvantage if the person uses the earned money to develop his/her life standards (it could lead to certain social tensions).

In conclusion, migration is "good" for the origin country, as it makes easier to make connections with other countries, it increases the incoming working capital (new workplaces can be established), increases the number of qualified people (which is not obtained at the cost of the country), and innovation also increases competitiveness (side by side, disbursement used for unemployment problems could be reduced).

From the aspect of the destination country, migration's positive effect is that highly qualified workers start to work in the country (with which, the Research + Development activity could be intensified), more enterprises can be established (the unemployment rate could be reduced), immigrants could increase creativity, qualified migrants could rise the number of successfully launched programs, and the supply services of personnel could be more efficient if immigrants do well on the labour market.

According to Borjas (1994), migrants' work is highly productive, they can also adapt easily to the labour market of the destination country, which contributes to the economic growth of the destination country.

3. Beginning of migration in the European Union

Based on the data of the relevant literature, it can be stated that the migration wave has a long history in the member states of the European Union. The history of the European migration has five periods (Table 2):

Periods	Migration tendencies	Migration trends		
1945 – 1973	Economic immigration	North-Western Europe from South to East		
1973 – 1988	Family union	The whole Western Europe, opposite trends		
1988 – 1998	Refugees, asylum-seekers	The whole Western-Europe, from East to West		
1998 – 2008	Controlled migration	The European Union from East to South		
2008 - present	Migration potential	The centre of the European Union		

Table 2: Historical periods of migration from 1945 until now in Europe

Source: Personal edition based on the data of Koller (2011)

Each period involves a migration wave that was caused by a certain event. The first period is the second part of the 1940s, when people started to migrate because of World War II (because of the shortage of labour). One part of this period's immigrants was the minority arriving from the nearby countries, while the other part includes those people who had moved from their locations and then returned. Based on the study of Huzdik (2014), the number of migrants in central Eastern Europe is approximately 25 million.

Another important date of this period is the European Integration (1957), which substantially determined the number of emigrants and immigrants of the countries. The essence of the Integration is the free movement of capital, labour force, products and services among the member states (at the same time, this is the principle of the four freedoms). European Integration has helped to open the country borders for the emigrants.

The second period consists of the 1970s and 1980s and it relates to the migration wave from the countries of the third world.

According to Cseresnyés (2005), this period was a migration of several layers of society, since the officers of independent colonies (white-collar workers) returned to their homeland (the Netherlands, Belgium, France and Great Britain) and a part of the population of the colonies followed them as former employees to their mother countries. The main trends based on the descriptions: workers arrived to the United Kingdom from Pakistan and India, whereas to Portugal mostly from the areas of Angola.

The 1970s and 80s was also the period of the migration of guest workers, since certain industrial countries of Western Europe recruited people from the Mediterranean countries. The recruitment of the 70s worked for several years but after the two oil crises of the 1970s that led to recession, unemployment increased. The reaction of the countries of European Community was that the immigration of labour force was prohibited; after that, guest workers started to settle down in the given country, so they became immigrants.

The third period involves the 1980s. During these years, the Eastern-Western migration flow became more intense; new opportunities emerged for the migrants.
The Maastricht Treaty of 1990 was a huge progress, it developed integration even more. Later, the Schengen Area was established, which meant that there was no need to have a passport to cross the borders, an identity card was enough to go through security checking. These factors boosted migration across the given countries.

At the beginning of the 1990s and 2000s, there was a significant increase of migration in the following countries: Italy, Portugal, Spain, Austria, Ireland and the United Kingdom. Based on several researches, approximately 22 million foreigners lived in Europe in 2000.

The results of 2006 are also significant; from the member states of EU15, Polish, Lithuanian, Estonian and Slovakian workers were employed in the member states of EU15 (particularly in Ireland and in the United Kingdom). Based on several studies, mostly the young people (between the ages of 18 and 30) with secondary education moved to a foreign country.

Far away from their mother country, these people were willing to do jobs different from their qualifications. An explanation of this phenomena could be that in their mother country, in the absence of the possibility of employment, they could not see any options to develop their life standards.

The last period started in 2008 and it is currently going on. The willingness to emigrate and immigrate is still present. One of the characteristic features of this period is the emigration of young people, between the ages of 18 and 25. The emigration of youngsters makes the society of the destination country younger. The four most significant destination countries are Spain, Germany, the United Kingdom and Italy. More than 2/3 of immigrants of the EU were moving to these four countries. The biggest number of immigrants moved from Germany in 2008, which caused a negative migration in the country. Romania, Poland and Bulgaria (plus 3 Baltic States) can also be rated as countries of negative migration (i.e. less immigrants than emigrants).

4. The beginning of working emigration in Hungary

In a European Union comparison, since the change of regime (approx. 1990), Hungary belongs to the countries that have a low but positive international emigrant balance. The growth rate of emigration accelerated in the past few years. Working abroad has already started in 2004, however significant changes came after 2008. One of the main reasons of that is from 2008, the rate of unemployment started to increase in Hungary. In the majority of the host countries, the rate of unemployment was lower than in Hungary (in Ireland, 4,5% at the beginning, later 6%, Germany approx. 6%, United Kingdom approx. 4,5-6%). For emigrants, low unemployment rate and high chances of job-finding could be positive (Figure 2).



Source: Own calculation based on the database of KSH (2017)

The other main feature that can be attractive for emigrants is the differences between the incomes of the origin and the host country. However, it must be emphasized that the foreign

salaries should be much higher, since the moving/commuting and the costs of integration should also be financed from the foreign salary. Besides these, the social supply system, the development of educational system and the general political mood in the host countries could be attractive.

Employees, who count as migrants, emigrating abroad are called economic migrants by the literature. In the past few years, the most important destination countries from Hungary were Austria, Germany and Great Britain (TÁRKI, 2016; Galgóczi and Leschke, 2012). As it is shown on Figure 3, the total gross of the three dominant countries decreased throughout the years of 2010-2015, which means that it is not necessarily the neighbouring countries of Hungary that are visited by potential migrants. Furthermore, Figure 3 also shows that the United Kingdom, which is considered the country of emigration and long-term work, became less significant compared to Austria and Germany.



Figure 3: Trend of migration percent in the period of planned migration (in 2010 and 2015) Source: Own calculation based on the database of TÁRKI (2017)

According to the researches of Hárs and Simon (2015), Austria is a destination for migrants with secondary educational degrees, Germany for skilled workers and the UK is a destination country for those who have higher educational degrees or who are overqualified. Another significant coherence is that those people who decides to go to live in Austria or Germany are coming from a family consisting of 5-6 people, while those who are going to Great Britain are coming from a much smaller family, that has 1 or 2 members in one household.

One of the main reasons of emigration is that foreign workplaces provide a higher salary for skilled workers; as a result, skill shortages emerged in Hungary in 2015. At the beginning of the 1990s, economists said that the lack of checking the borders would led to a powerful migration pressure (Layard et al., 1992).

Another reason of work emigration is that with the change of regime, country borders became accessible and it let the international migration process increase (emigration and immigration).

Examining the data of the last 10-15 years, emigration has a minimal significance before the 2000s in Hungary; Hungarian citizens did not intend to move to foreign countries. Nowadays, this rate has changed, the number of those who are willing to move aboard has risen.

After the start of the crisis, unemployment has increased in Hungary and it encouraged the willingness to move abroad. The emigration of Hungarians (especially for a working purpose) started in 2007 and it became more powerful in 2011. From 2013, the intensity of the process decreased a little.

5. Migration potential in Hungary

Before discussing the timeline, it is important to define what migration potential actually means. The notion 'migration potential' shows the percentage of those people who are intended to work in a foreign country and it also shows the number of those who have the intention of emigration.

Detailed analyses of the migration processes are impeded by the limited number of available data. In our calculations, we have gathered data in a special way.

Some parts of the calculations are based on the number of visitors available in host countries, while in other parts we took the number of Hungarian emigrants into consideration from mirror statistics. Mirror statistics creates a matrix from the number of those who moved to developed countries of the European Union and live there for more than one year. In case of missing data, we used the database of EUROSTAT. Because of the lack of relevant data, we cannot draw any conclusions concerning the future; drawing any conclusions would require high professional knowledge.

The period between 1993 and 2016 (Figure 4.) shows that the initial, low percentage of emigration (8%) doubled for 2001 (19%), and it almost tripled for 2005 (22%). The highest rate of migration potential was in 2012 (36%) which decreased to 27% in 2016. According to the data of the last 10 years, short-term and long-term employment have the same magnitude, while emigration has smaller proportion.



Figure 4: Migration potential of the Hungarian population between 1993 and 2016 Source: Own editing based on the data of Sik and Szeitl (2016)

Examining the composition of short-term emigrants, it can be stated that the vast majority of emigrants are young people; the number of older people is insignificant.

71% percent of Hungarian emigrants are up to the age of 45, from which 12% are between the ages of 16 and 25 and 26% are between the ages of 26-35.

In the total amount of emigration, both for short-term and for long-term, young people, those who are under the age of 30, give a 44% majority. It is also an interesting fact that 71% of Hungarian emigrants are under 45 (Figure 5).





Usually, migration potential emerges in those people who are intended to develop their life standards in the future. Those Hungarian citizens, who already own a flat/house and have already achieved high living standards, generally do not wish to live and work abroad.

As for territorial distribution, citizens from Budapest, West Dunántúl and Eastern Hungary are the most likely to leave for a short time. Long-term working in abroad is not necessarily originates in economic reasons, but in family statuses or in lower levels of education.

Compared to other member states of the European Union, Hungarian migration started a little later. After the economic crisis, besides Hungary, people from Romania, Bulgaria and from the Baltic countries, which have a high rate of unemployment, begin to migrate in greater numbers.

Regarding the migration willingness of the member states of the EU, it can be concluded that in 2009, the migration potential of Hungary (29%) was above the EU 's average (17%) (Figure 6). The highest migration willingness was typical of Denmark (51%) and of Estonia, Sweden, Latvia and Lithuania (35-36%). Hungary is in the middle with its 29% rate besides Slovakia, the United Kingdom and France. Bulgaria, Romania, Spain, Germany and the Czech Republic are below the average of the European Union.



Figure 6: Migration potential in the member states of the European Union Source: Own editing based on Special B. (2010)

6. Emigration's effects on the economy

We met a number of studies when processing literature and materials, but one of the best ides was of British economist Paul Collier, a former development director at the World Bank and professor of the University of Oxford. According to him, despite the rapid transformation of our societies caused by migration, the scientific examination of the issue is currently limited to the positive effects of the phenomenon.

According to Coller's writings, we can say that mass immigration has the greatest impact on host countries, which primarily means a social cost. According to the researcher, the advantage of Western civilization, comparing to the developing countries, can be the success of political and social institutions. Institutions, rules and norms are the most important fundamentals of a society, and for these it is always appropriate to develop a certain social model. Of course, this social model is different in every country, but each model has the same purpose: creating a proper social structure.

However, in addition to social impacts, the economic effects of immigration are more important, since if we only consider that the real wages of a given country are reduced due to immigration, then large changes can be observed in the economic structure. When real wages are reduced, it means that immigrants are willing to do the same job for less money,

and this fact increases the income of their employing companies. It means that immigrants have a very good effect on companies, while they mean a risk to local workers. This is true for workers emigrating from Hungary to different countries, but on the basis of surveys, we can say that it is true for workers who earn less money.

7. Effects of migration in Hungary

Migration can have political and economic effects on Hungary, which later can have serious political benefits for the country. Students going abroad and workers returning to Hungary can have a great influence on the political development of the country. This theory is supported by a foreign survey carried out in Mali and Moldova. This study also demonstrates that those who return to the home country from abroad tend to take part in different elections more actively, and they vote more, but naturally the effects of migration are country-specific. When talking about migration, we can conclude that there is a serious economic impact on the so-called "brain drain" phenomenon in Hungary. It is a proven fact that more talented people tend to move abroad. This is also supported by the fact that recently in Hungary, there has been a serious shortage of professionals in hospitals, since skilled workforce (university students) has emigrated from the country, and this causes serious economic disadvantages in Hungary.

8. Examining the number of emigrants based on different parameters

The databases of our surveys were provided by the Labour Force Survey of Hungary, and they cover a large number of outgoing travellers. In our study, we are going to examine the age group, qualifications and residence analyzes.

Firstly, it was important to compare commuters and local workers in Hungary as differences can already be found here (Table 3.)

·	2004	-2007	2008-2016		
Denomination	Domestic worker	Emigrant, commuter	Domestic worker	Emigrant, commuter	
Average age (years)	39,7	38,2	41,8	36,1	
Rate of women in the active population (%)	45,8	23,4	47,2	26,4	
The proportion of workers with primary education in the active population (%)	14,8	5,6	11,9	9,4	
The proportion of skilled workers with secondary school education in the active population (%)	56,1	70,2	52,1	64,1	
The proportion of workers without a secondary school education in the active population (%)	8,8	5,4	9,9	9,7	
The proportion of workers with high-level education in the active population (%)	20,3	18,7	22,7	28,1	

Table 3: Comparison of domestic workers and emigrants based on indicators:

Source: Own calculation based on the database of KSH (2018)

Table 3 shows that the average age of Hungarians emigrating from Hungary has decreased from 38 to 36 years, which means that younger people are going abroad. Compared to employees remaining in Hungary, it can be stated that while between 2004 and 2007 the average age difference was only 2 years, between 2008 and 2016 this number raised to 4. When examining the gender ratio, it can be seen that while 46% of working people in Hungary are women and only 23% of the emigrants were women between 2004 and 2007. These rates increased in both categories between 2008 and 2016, as the proportion of women working in Hungary in the active population is 47%, while the proportion of women among the emigrants is 26%.

We have also completed qualification studies to establish that the proportion of primary school graduates decreased in Hungary, while the number of workers with secondary (vocational or non-vocational) and high-level education increased. The proportion of non-qualified emigrants with primary, secondary or high-level education has increased. The greatest increase can be seen among graduates with high-level education which can be explained by the growing number of young graduates working abroad.

From our data it can be stated that nearly two-thirds of commuters/emigrants have at least a vocational qualification. In many cases it is typical that people travelling abroad from Hungary have a job that requires less qualification than they have. Among the emigrants there are many who do physical work. These jobs are typically in the commercial or service sectors, and in many cases these jobs do not require professional skills, they can be carried out by unqualified physical strength. This is why these jobs are attractive for young, unskilled Hungarian people. However, it is very rare among the respondents to make some professional progress abroad.

In the following, we would like to present the age group analysis. We used for the calculation the officially available Labour Force Survey data. From our calculation it can be seen that in comparison with the year of 2004, by 2013 a significant increase can be seen in all age groups. The highest growth rate was between 31 and 39 which suggest that after graduation many young people think that they would rather emigrate from Hungary for better circumstances.

All in all, we can say that emigrants are between the age of 25 and 40 with the highest proportion of people between 25 and 35 (Figure 7).



Figure 7: Age group survey of emigrants from Hungary Source: Own calculation based on the database of KSH (2018)

9. Emigration's effects on Hungary

Emigration in Hungary (and in all sending countries) means a risk for the size and composition of the population. Of course, there are changes in the proportion of education, experience, age, productivity and consumer behaviour. It has a negative effect on the size a structure of available workforce, average productivity, aggregate consumption, savings and this way on budgetary payments and transfers. On the other hand, emigration may change the behaviour of the non-migrant population and companies. Naturally, effects appear differently in composition and time.

Of course, emigration has both positive and negative effects on Hungary. Positive effects are the followings:

- ✓ lower social spending in the country;
- ✓ if underprivileged (unemployed and uneducated) workers are leaving the country, then the average productivity of Hungary is increasing ;
- ✓ if they leave jobs that are over-supplied in Hungary, then fitting problems can be solved;
- ✓ sending money back to the family members in Hungary can increase domestic living standards, more resources can be used in education and investments;
- ✓ foreign work experience can be used in Hungary, and it can be transferred to the domestic workforce;
- ✓ the relationship regarding trade between the two countries is developing.

Of course, there are negative effects too that Hungary has to face because of emigration:

- ✓ with the emigration of young people the average age in Hungary is growing,
- \checkmark some areas may be aging because of the emigration;
- ✓ the sustainability of social welfare system is in danger (healthcare, pension system);
- ✓ if university graduates go abroad, then average productivity is decreasing in the country;
- ✓ "brain drain" by foreign companies;
- ✓ decreasing tax revenues;
- ✓ number of founding families is declining in Hungary.

Naturally, when examining the impacts, individual macroeconomic indicators should be taken into consideration. In our calculations we analysed the following indicators:

- ✓ Rate of unemployment and rate of activity: since emigration reduces the available workforce on the farms, job opportunities of non-emigrant people are increasing. This can positively influence activity in those groups where inactivity is due to bad employment opportunities. This means that without emigration the unemployment rate would be higher and the activity rate would be lower. This effect may be moderate if emigration causes adaptation problems in the labour market i.e. the knowledge and experience of emigrants cannot be replaced on the domestic market.
- ✓ Savings: emigration of employees with higher productivity and higher earnings can substantially reduce the aggregate savings. This can be balanced by sending money back to the home country by emigrants. Remittances of long-term emigrants may be under the level of savings they would have accumulated in domestic employment.
- ✓ Sustainability of supply systems: emigration of the young population can deepen the problems of aging societies. The number of payments for the social health care and the size of average payments can also be reduced, while the size of the retired population is increasing. To sum up, sustainability of care systems becomes more risky. This means a relatively high risk in Hungary as the number of active people is declining which is caused by emigration too.
- ✓ Effects on the budget: due to the lower unemployment and the higher activity rates social spending can be reduced. However, the emigration of highly-skilled and well-paid workers has a negative effect on tax revenues and on the balance of the

supply systems as well. In the long run, the impact on the budget may be more negative.

 Effects on trade: emigration changes trade relationships too. Migration and foreign trade can be substitutes and supplements, so commercial effects of emigration are not clear.

Summary

As a summary, we can say that very few studies have been done on emigration so far in Hungary, so we thought we would prepare an overview study on this subject. The databases of our survey were known materials published since the change of regime (the change of regime in Hungary marks the era in which the Hungarian state became a democratic state quit with the one party regime and its cultural and ideological relations, and transformed peacefully into a democratic, republican European state. The change of regime is essentially linked to the year 1989, since the most important events occurred in this year regarding proclamation of the Republic of Hungary, death of János Kádár), based on which we found that emigration from Hungary in recent years has reached a certain level where it already has a great effect on economy.

Due to the nature of data sources it is easier to examine international migration in the host countries, and most of the literature focuses on the effect of migration in the host countries, too. We can find fewer writings about the effects of migration on the sending countries, especially on Central and Eastern European countries, although more and more analyses have been made about this topic over the last few years.

In our analysis, we are focusing on the possible causes, characteristics and consequences of emigration from Hungary, and our main focus is on the domestic labour market. Because of database problems mentioned before, the data we used in our paper come from the Labour Market Survey of Hungary.

Based on our calculations we found that about 3% of the Hungarian population are currently working abroad. According to our analysis, one of the main territorial units of emigration has been Budapest and its surroundings in recent years. Various demographic surveys show that most of the emigrants are men (53% of those who are leaving the country), and they come from one or five to six-member households. Emigration from two or three-member households or single-parent families is negligible. Those who are living abroad are from younger (mostly single) and educated age groups. Based on data from 2016, the proportion of graduates in the United Kingdom is the highest among the target countries (36%). Skilled workers leaving Hungary generally prefer Germany or Austria.

Doing our research, we did not take the number of those who study abroad into account (because of the lack of data), however, based on studies, it is likely that the majority of (Hungarian) students learning abroad are planning their life abroad.

According to the correlations of our research, the most effected migration layer is the layer of young people (75% of emigrants are under 40), singles (64% of emigrants are not married), skilled workers and graduates.

Our opinion is that the emigration will continue until the wages in Hungary won't reach the the Western European levels. This is not easy to do because many companies has chosen Hungary because of the cheaper workforce and there is a risk that they will move their factories to other countries. Many people left Hungary because of better carrier options and also the benefits of the Western and Nordic welfare states are attractive. We can also notice that many children wouldn't born if their parents couldn't have extra social help in Great Britain for example. Some people also mention about the stable law system and the reliable political system which they face in their new homeland. Doing a research about this can be a next step for us.

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TRADING RULES ON A SMALL STOCK MARKET

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Abstract: In this article, the results of an extensive study of the weak form efficiency of the lceland stock market are presented. This study almost covers the market's entire history, with the research starting at the beginning of 1993 and ending in July 2017. Four trading rules based on 70-day moving averages were constructed and compared with the passive investment strategy of buying the market index. All of these trading rules provided significantly better returns than the passive strategy, even when considering trading costs. This result indicates that the lcelandic stock market did not show weak form efficiency, and past returns predicted future returns during the period examined.

Keywords: Icelandic stock market, trading rules, weak form efficiency.

JEL classification: G12, G14, G17.

1. Introduction

An efficient stock market is one in which all information is incorporated into stock prices. For the market to be that efficient, all information must be free and available, and no trading costs must exist (Malkiel & Fama, 1970). A weaker and more sensible definition of market efficiency is when the price of a security represents information to the point that the marginal benefit of gathering and analysing new information is the same as the cost of obtaining it (Jensen, 1968). Therefore, stock price movements are random and uncertain and follow a random path, which has been named the random walk (Fama, 1995).

Stock markets are normally classified into three groups on the basis of their efficiency: weak form efficient, semi-strong efficient and strong form efficient. A weak form of efficiency means that stock prices reflect all information regarding their movements and trading volume. Therefore, past stock prices' movements do not predict their future direction (Eom, Choi, Oh, & Jung, 2008). The semi-strong form of stock market efficiency means that all public information is already reflected in stock prices. Therefore, studying company annual reports, the markets in which companies operate, financial ratios and similar information is of no benefit (Givoly & Lakonishok, 1979). Finally, the strong form of stock market efficiency means that all information, even information only known to insiders, is already reflected in stock prices. Therefore, no one – not even company insiders – can generate abnormal profits when trading stocks (Seyhun, 1986). Most stock markets are assumed to be both weak form and semi-strong efficient. The larger the market and the higher the number of investors trading in the market, the more efficient that market should be (Rizvi, Dewandaru, Bacha, & Masih, 2014).

When performing technical analyses on a stock, the analyst looks for predictable patterns in stock price movements, which can be used to generate profits and better returns. Therefore, technical analyses – if profitable – contradicts the assumption that stock markets possess the weak form of market efficiency (Roberts, 1959). Trading rules are based on simple rules applied to beat the stock market, i.e., generate better returns than the market average. These trading rules are often based on simple moving averages, momentum, Bollinger bands, relative strength indexes or other similar technical indicators. Therefore, investing in stocks and applying simple trading rules in those investments should not yield abnormal

returns, which are returns higher than the market average in an efficient stock market that is at least weak form efficient.

In this article, the weak form efficiency of the Icelandic stock market is studied. This study examines whether any information was contained in the previous development of stock prices. Four simple trading rules are applied, and their performance is compared with a buy and hold strategy. These trading rules were based on the development of the Icelandic stock index and its moving average. Trading rules that generate abnormal returns indicate that the Icelandic stock market is not weak form efficient.

2. The Icelandic stock market

Trading Icelandic stocks stared in 1985 when a private enterprise, Hlutabréfamarkaðurinn hf., began to buy and sell stocks, an effort that proved to be successful. In 1986, the Icelandic Stock Exchange was founded. In the beginning, the exchange was housed and linked to the Icelandic central bank and only bonds were traded. Not until 1990 were stocks registered and traded on the exchange (Guðjónsdóttir, 2000).



Figure 1: Number of registered companies on the Icelandic Stock Exchange (right-hand axis), total market capitalization and annual turnover in billion ISK (left-hand axis) Source: Iceland – NASDAQ

Figure 1 charts the number of registered shares on the exchange and indicates its total market capitalization and annual turnover from 1991 to 2016. In figure 2, the development of the main stock index (ICEX) is charted. These two pictures show an interesting story. The market started in 1991 but was extremely small that year, when only two shares were traded. The stock exchange was a success and the number of registered shares increased gradually, until it reached a peak in 1999–2000 of 75 shares being bought and sold on the exchange (Magnússon, 2010). The trading volume was very small in the beginning and increased gradually every year during that period. The market generated good returns in the beginning and the average annual return from 1993 to 2000 was approximately 20%. Therefore, the 1991–2000 period can be described as successful for this small market. In 2000, the market peaked briefly at the beginning of the year but declined sharply thereafter and again in 2001. Annual turnover on the exchange temporally peaked at 197 billion ISK in 2000, or approximately 1.6 billion euros. In 2001, the market experienced a

brief decline. Trading volume declined, but that downturn was short-lived. The number of registered shares also started to decline that year, which proved to be longer term in nature. The number of registered shares on the exchange declined from 75 in 2000 to 26 in 2005. The reasons for this decline were numerous. During that period, an excessive credit boom occurred in Iceland and credit was cheap and plentiful (Gunnlaugsson, 2017) (Gunnlaugsson & Saevaldsson, 2016). Therefore, shares in many companies were bought by leading investors and/or investing companies, thus these shares were delisted. In addition, a number of mergers occurred, which reduced the number of traded stocks. Finally, the number of listed stocks was probably too high and some of the smaller companies had little interest. Thus, their owners saw no point to listing their shares on the exchange (Jónsson, 2009).



Figure 2:. Development of the Icelandic stock index (ICEX) for 1993–2017 Source: Iceland – NASDAQ

In 2003, the great Icelandic financial bubble started. Two of the three largest banks were privatized in 2002 and 2003, thus initiating financial liberation and the credit boom that followed. The Icelandic stock market experienced a rapid boom from 2003 to 2007. Although the number of traded stocks declined, annual turnover increased more than 450% from 2003 to 2007. The market generated very good returns and increased more than 50% for three years in a row, i.e., during 2003–2005. During that period, the market was characterized by the dominance of trading of financial stocks. The vast majority of trading (more than 80%) was in bank stocks and other financial institutions. As a result, the market became very monotonous and did not represent the Icelandic economy (Graham, Peltomäki, & Sturludóttir, 2015).

The crash of 2008 completely changed the Icelandic market. The three largest banks were restructured in October that year and their shares became worthless. Their shares had dominated the market in both trading volume and market capitalization. Because of this crash, trading volume declined more than 99% between 2007 and 2010, when it was only 25 billion ISK, or approximately 240 million USD. The market declined sharply, and the ICEX was down by 94.4% in 2008.

Since this crash, the market has been in a slow but steady recovery. Trading volume has increased and the number of traded stocks has increased. Returns have been reasonable, but the market is just a shadow of what it was before the crash of 2008.

A chart of the development of the stock market shows that long, consecutive periods have existed during which the index generated positive returns and shorter periods when returns

have been negative. This history indicates that trading rules based on simple technical indicators might have been profitable and might have generated significantly better returns than the market index.

3. Previous research

Technical analysis is built on finding trends in stock price movements. Most trading rules, or technical trading strategies, are based on technical analysis and are normally simple and easy to apply. These trading rules are often implemented on simple moving averages, Bollinger bands, momentum, relative strength index or other similar technical indicators. Therefore, investing in stocks and applying simple trading rules to those investments should not vield abnormal returns. Most research that studied trading rules based on technical analysis found that they did not yield better returns on the US stock market (Fama & Blume, 1966) (Jensen & Benington, 1970). Recent studies have had different findings. One study on the US Dow Jones stock index found that simple trading rules provided better returns than the market average (Brock, Lakonishok, & LeBaron, 1992). In an extensive study of Asian stock markets, the main findings were that trading rules resulted in excess returns in some markets (Bessembinder & Chan, 1995). A study on the UK stock market found that trading rules generated better returns but not when taking into account trading costs (Hudson, Dempsey, & Keasey, 1996). An extensive study of the Malaysian stock market found that a few trading rules provided excess risk-adjusted returns (Ling & Abdul-Rahim, 2017). No articles have been published that studied the weak form efficiency of the Icelandic stock

No articles have been published that studied the weak form efficiency of the icelandic stock market. Similarly, no papers have been written that studied the performance of trading rules on this small market. The research published on the Icelandic stock market has indicated its inefficiency. An extensive study of this market during 1993–2003 found that it did not display the semi-strong form of market efficiency. Value stocks, i.e., stocks which are inexpensive based on the market capitalization/equity (M/B) ratio, provided higher than average returns. The same applied to stocks which were cheap, i.e., had low market capitalization/earnings (P/E) ratios. A portfolio of those stocks provided abnormal risk-adjusted returns (Jónsson & Gunnlaugsson, 2004). A study of the calendar effects on the Icelandic stock market during 1993–2003 found no relationships between months of the year and returns or between days of the week and returns. Returns were on average abnormally high before holidays and, in particular, on the last trading day of the year (Gunnlaugsson, 2003). A study on the performance of the Capital Asset Pricing Model (CAPM) on the Icelandic stock market during 1999–2004 found that this important model works well on this small market and the beta coefficient, which measures systematic risk, explained returns better than it did for most other stock markets (Gunnlaugsson, 2007).

4. Methodology

Data were obtained from the Icelandic stock exchange. The data contained the daily value of the ICEX from the beginning of 1993 until 31 July 2017. This index is a conventional stock index now composed of 8 stocks. The weights of the stocks in the index are based on their market values. Data on the risk-free rate were received from the Icelandic central bank. Four trading rules were constructed and tested. They were based on a 70-day moving average which was calculated as follows:

$$MA_{t} = \frac{1}{70} \sum_{i=1}^{70} P_{t-1}$$

where P_t is the daily value of the stock index and MA_t is its 70-day moving average. Thus, equation 1 calculates the average value of the stock index for the previous 70 days. The

trading strategies were tested from the beginning of 1993 until the end of July 2017. Every month, i.e., in the first trading day of each month, a trading decision was made depending on whether the value of the stock index on the last trading day was higher or lower than its 70-day moving average. The trading rules were as follows.

- Trading rule 1. (TR 1): Buy the stock index when its current value is higher than the 70-day moving average. If it is lower, then invest in risk-free assets.
- Trading rule 2. (TR 2): Buy the stock index using leverage (double) when its current value is higher than the 70-day moving average. If it is lower, then invest in risk-free assets. The borrowing cost was set at the risk-free rate plus 2%.
- Trading rule 3. (TR 3). Buy the stock index when its current value is higher than the 70-day moving average. If it is lower, then short sell the index and invest the proceeds at the risk-free rate.
- Trading rule 4. (TR 4). Buy risk-free assets when the current value of the index is higher than the 70-day moving average. If it is lower, then short sell the index and invest the proceeds at the risk-free rate.

As an example, let us assume that it is the first trading day of July 2016. On the last trading day of June, the stock index closed at 1776.66. At that time, the 70-day moving average was 1847.57. Thus, the previous value of the index was lower than the moving average. Therefore, the stock index is not bought when all four trading rules are applied. By applying trading rules 1 and 2, the funds available are invested in risk-free assets for one month. However, under trading rules 3 and 4, the stock index is shorted for one month and the proceeds are invested in risk-free assets. Then, this process is repeated on the first trading day in August.

The return from those four trading rules was compared with the market index, which is a passive investment strategy. Those four strategies are similar but at the same time different. They all have in common that decisions are made on the first trading day of the month and are based on the same principle, i.e., whether or not yesterday's stock index value was lower or higher than the 70-day moving average. The first trading rule simply buys the index if it is on an uptrend, i.e., when it is higher than the moving average. If not, the money is invested in risk-free assets, which are short-term Icelandic T-bills. The second trading strategy is based on borrowing and, thus, has an equity ratio (equity/assets) of 50% at the beginning of every month when the index value is higher than the moving average. The third rule applies short selling when the market is lower than the moving average and buying the index when the market is higher. Short selling occurs by borrowing a security that is then sold and returned. When it is returned, it is bought back at the market price. If the value of the security declines, the short seller has earned a profit. However, if the price increases, the short seller has a loss. In this study, the money obtained from short selling and the original equity was invested in the risk-free rate. Finally, the last trading rules are based on short selling the index when it is lower than the moving average and buying risk-free assets if it is higher than the moving average.

If the Icelandic stock market was weak form efficient, those strategies would not yield abnormal returns, which are returns higher than what is expected for a certain amount of risk. In addition, those returns should not be significantly higher than returns from simply holding the market, i.e., buying the market index during the entire period.

5. Results

In table 1, the main results of the study are shown, and greater detail is provided in Appendix 1. As the table and the appendix indicate, all four trading rules provided significantly better returns than the market average. Trading rule 3, which was based on shorting the market when it was in a downtrend (lower than the 70-day moving average) and buying the market

when it was in an uptrend provided the best annual return of 36% on average. The second-best performance was from trading rule 2, which called for buying the index with leverage when the market was in an uptrend and investing in a risk-free asset when the market showed a downtrend. Trading rules 1 and 4 provided similar returns around and a little higher than 20% per year, which is a very good long-term return. The difference between the market index and the trading rules was surprising and large – the lowest difference was 17.9% per year between trading rule 4 and the market index and the highest was 33.9% between trading rule 3 and the market.

When the risk is examined and measured using the standard deviation, the findings indicate that trading rule 1 was the least risky and the only one that was less risky than the market index. This finding is expected because this rule is the one for which the stock market index and risk-free assets were the only possible options, and both have very low standard deviations in their returns. The riskiest strategy was trading rule 4, which has the highest standard deviation, indicating the high risk associated with shorting the Icelandic stock market. Table 1 also shows the Sharpe ratio, and its formula is as follows:

$$\frac{R_p - R_f}{\sigma_p}$$

where R_p is the average return, R_f is the average risk-free rate and σ_p is the standard deviation of the annual returns. This ratio measures the excess return in relation to the total risk. The higher the Sharpe ratio, the better this measure is of risk-adjusted return. The market index is the worst performer, according to the Sharpe ratio, which is negative and indicates that the average return for the Icelandic stock market was lower than the risk-free rate during this period. Trading rule 1 has the highest Sharpe ratio and, thus, is that best performer with respect to risk-adjusted returns.

Table	1: Average	return, st	tandard	devia	tion o	of returns a	and Sharpe	ratio of th	e ICEX	and four
trading	g rules, from	January	/ 1993 t	o July	2017	′ .				
					-					

	Market index	TR (1)	TR (2)	TR (3)	TR (4)
Geometric mean	2.1%	22.5%	34.8%	36.0%	20.0%
Standard deviation	33.8%	19.4%	44.5%	73.9%	85.9%
Sharpe ratio	-0.17	0.75	0.60	0.38	0.14

Source: Iceland – NASDAQ

One of the main problems and abnormalities when examining returns and trading rules on the Icelandic stock market is the spectacular decline in 2008 of the market. That year, the market declined by 94.4% and was almost completely decimated – all returns since the market's inception were wiped out. Therefore, 2008 is an outlier and dominates the performance of all trading rules relative to the market average. Therefore, the performance of the four trading rules was compared with the market from 1993 to 2017, with 2008 excluded in that study. In table 2, the results of the four trading rules and the market are compared, excluding 2008. The findings are interesting. Trading rules 1, 2 and 3 all provided significantly better mean returns than the market average. Only trading rule 4 had a worse return. That trading rule was based on shorting the market when in a downtrend, indicating that only shorting the market was not enough to beat its returns if the only other investment option was a risk-free asset. The best performer was trading rule 2, which called for leveraging the market index with borrowings when in an uptrend and higher than the moving average.

A comparison of the strategies' risks showed that two strategies were less risky than the market average – trading rules 1 and 4. These rules were based on investing in risk-free

assets for a considerable length of time, thus yielding lower risk. When the Sharpe ratio was studied, trading rule 3 was the best performer even though it did not have the highest return. The reason was its relatively low risk as measured by its standard deviation and relatively good return.

Table 2: Average return, standard deviation o	f returns and Sharpe ratio of the ICEX and four
trading rules, from January 1993 to July 2017	, excluding 2008.

		j = 0 , extert			
	Market index	TR (1)	TR (2)	TR (3)	TR (4)
Geometric mean	15.7%	23.2%	37.1%	29.0%	12.3%
Standard deviation	25.8%	19.6%	44.8%	23.8%	16.1%
Sharpe ratio	0.30	0.78	0.65	0.89	0.27

Source: Iceland – NASDAQ

6. Discussion

It is obvious that following these trading rules would have been very profitable relative to the market average. How profitable is demonstrated by the fact that 100 dollars invested in the market index would have resulted in only 168 dollars in July 2017. However, if 100 dollars was invested in the most profitable trading strategy, i.e., trading rule 3, that investment would have increased to approximately 219,000 dollars! However, would it have been possible to execute these trading rules? How often did one have to trade? In addition, were the trading rules profitable when trading costs were included? The answer to the first question is no for trading rules 3 and 4. Short shelling the stock index was normally not available on the Icelandic stock market. The market is small, there are few players in the market, and short selling was never widely available. During certain periods, especially from 2003 to 2007, the market was very active and its leading banks and players made short selling available to institutional clients. However, those years are an exception, making the application of trading rules based on short selling, as in trading rules 3 and 4, impossible or impractical during the entire period covered by this study. In contrast, applying trading rules 1 and 2 was possible during almost the entire period. The only exception was the great market turmoil in the latter half of 2008 and the first months of 2009. During that period, the banking system was more or less non-functional, and borrowing to leverage stock positions was not possible, thus excluding trading rule 2. However, investing according to trading rule 1 was possible during the entire period.

How often did you have to trade when applying the four trading rules? All of the trading rules were based on the same principle: buying or selling at the beginning of the month depending on whether the previous value of the stock index was higher or lower than the 70-day moving average. Doing so requires 58 trades during the entire period, which is on average 2.3 trades per year. The average cost per trade would have been between 0.5% and 1.0%. Thus, at most, the performance of the trading rules would reduce the annual return by 2.3% per year. Considering the vastly superior performance of the trading rules, it is safe to assume that they provided much better returns even when accounting for trading costs.

7. Conclusion

This study shows that the behaviour of the Icelandic stock market has been interesting. There have been long periods of positive returns, during which month after month of returns have been positive, and shorter periods of negative returns. Therefore, trading rules based on following the market trend have been extremely profitable and have beaten the market by a wide margin, even considering trading costs. What are the reasons for this phenomenon? One likely explanation is that few players exist in this small market. Those players are mostly pension funds, a small number of other institutional investors and a number of speculators. Their behaviour has been similar, and they have bought and sold stocks on similar occasions, which has resulted in long periods of positive returns and shorter periods when the market has declined sharply.

As previously stated, studies in other countries indicated that smaller stock markets are less efficient than larger ones. By all measures, the Icelandic stock market is a small market, and one would expect it to be inefficient. This paper proves the market's lack of efficiency. Therefore, it is fair to assume that the Icelandic stock market has not been weak form efficient.

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Bio-note

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	Market index	TR (1)	TR (2)	TR (3)	TR (4)
1993	-12,0%	9,0%	7,9%	31,8%	30,1%
1994	24,9%	24,8%	45,8%	23,6%	3,4%
1995	34,1%	34,1%	65,8%	34,1%	5,1%
1996	59,3%	59,3%	131,9%	59,3%	5,1%
1997	14,7%	41,0%	75,5%	69,7%	28,7%
1998	9,8%	13,9%	18,1%	16,3%	9,5%
1999	47,4%	42,6%	82,0%	36,7%	3,5%
2000	-19,3%	10,4%	8,4%	44,9%	44,9%
2001	-11,2%	19,9%	28,3%	57,3%	45,9%
2002	14,3%	14,6%	18,4%	12,3%	6,0%
2003	56,4%	56,4%	122,4%	56,4%	5,0%
2004	58,9%	61,0%	125,0%	62,5%	6,6%
2005	64,7%	50,7%	100,2%	36,4%	-1,2%
2006	15,8%	35,7%	55,6%	9,6%	6,8%
2007	-1,4%	5,1%	-6,9%	79,2%	52,5%
2008	-94,4%	9,3%	3,6%	381,9%	436,0%
2009	-18,0%	15,0%	13,1%	27,5%	31,8%
2010	14,6%	7,6%	2,2%	0,2%	0,6%
2011	-2,6%	-5,3%	-16,1%	-10,1%	0,1%
2012	16,5%	25,8%	46,1%	34,1%	13,1%
2013	18,9%	16,8%	24,3%	13,4%	3,8%
2014	4,1%	13,6%	18,5%	22,2%	15,1%
2015	43,4%	34,7%	64,9%	25,7%	-0,6%
2016	-9,0%	-3,4%	-13,9%	0,4%	11,4%
2017*	4,8%	4,5%	4,0%	3,7%	2,9%
	Market index	TR (1)	TR (2)	TR (3)	TR (4)
Geometric mean	2,1%	22,5%	34,8%	36,0%	20,0%
Standard deviation	33,8%	19,4%	44,5%	73,9%	85,9%
Sharpe ratio	-0,17	0,75	0,60	0,38	0,14
*to 31. July					

Appendix Performance of the market index and the four trading rules 1993–2017

IMPACT OF BOARD STRUCTURE ON FIRM PERFORMANCE IN THE NIGERIAN MANUFACTURING SECTOR

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Abstract: In this study, the impact of board structure on firm performance is empirically examined using a large cross section of 50 manufacturing firms in Nigeria and the panel data estimation technique. Both the random and fixed effects methods are adopted to provide robust estimates from the pooled data for the firms over a ten-year period (2005-2014) and the estimations are performed using two measures of firm performance and three measures of board structure. The empirical results from the analysis show that board structure has a significant impact on performance of manufacturing firms in Nigeria. The main source of the impact is through board independence and faintly through board size. However, board composition seems to exert very little effect on firm performance for the sample in the study. Also, firm size is shown to be an essential factor in explaining the general behaviour of firm performance and the pattern of effect that board structure has on firm performance. The effect of size is observed by controlling for it in the performance estimations. The study shows that firm size tends to improve the effect of board structure on performance, apart from EPS. The optimization of board size and composition is desirable for performance especially in a setting like Nigeria with diverse firm characteristics.

Keywords: board structure, manufacturing firms, ROA, earnings per share.

JEL classification: G32, L6, L25.

1. Introduction

Operations and management of modern business organizations have continued to become broader and more encompassing as more strategic firm advantages are devised. In turn, the conflict between remote shareholders and knowledgeable managers of firms has become prominent in modern organizational theory (van Ees, et al, 2003). These modern business practices bring more attention to corporate governance where the long-run conditions of the firm are situated. Although effective corporate governance has been identified to be critical to all economic transactions especially in emerging and transition economies (Dharwardkar George and Brandes, 2000), market institutional conditions that reduce informational imperfections and facilitate effective monitoring of agents, at varying levels of agency interactions, impinge on the efficiency of investment (Kyereboah-Coleman, 2007). This has again caused issues in corporate governance to assume the centre stage for enhanced corporate performance. However, whether the board characteristics will influence firm performance is still raging and questionable in academic and applied research.

In Nigeria, for instance, many firms have continued to operate effectively in spite of inclement economic conditions and the secret has often been linked with the organizational structure at the corporate management level. In the same vein, crashes that have been observed in many firms (especially financial firms) have often been directly linked with failing corporate governance (Sanda et al, 2008). The germane upshot of these diverse outcomes therefore lies on the patterns and directions of corporate handling of firms in relation to its overall performance.

The impact of board structure on firm performance has received considerable attention in economic and finance literature in recent years. This increased attention has been motivated by the financial scandals that happened to the financial sectors of most economies in the middle part of last decade that led to significant collapse of the financial markets around the world. Though the financial crises had major impacts on the financial sector, many other sectors of the economy received their fair share. The nature of the crises was such that both financial and market indicators dropped considerably in terms of their levels while performance in terms of value and profitability reached their lowest ebbs (Ogbechie and Adi, 2014). Several authors (e.g., Johnson et al., 2000; Mitton, 2002) present evidence indicating that board structure is of financial instability. For Francis, Hasan and Wu (2012), effective board structure not only tends to limit 'expropriation by managers' when projected returns drop but could also provide a useful shield against excessive scrutiny of overall corporate governance during periods of crisis. Thus, the board structure is an essential fiber for the operational and governance success of a firm.

Corporate governance as discussed up till now has been shown to demonstrate its influences on firm activities on various facets. It is generally accepted that boards of directors play a fundamental role in corporate governance and that the structure of the board matters (Jensen 1993). However, the board as a factor also comes in more generalized format. For instance, there is no consensus as to what the optimal board structure or composition is (Dalton et al. 1998).

Nigeria, realizing the need to align with the international best practice identifies board composition and operation as the major weakness in the current corporate governance practice in Nigeria. Hence, the release in 2003 of the code of corporate governance in Nigeria by Security and Exchange Commission (SEC) and Corporate Affairs Commission (CAC) was aimed at improving corporate governance in firms operating in the capital market. The Code was further modified and updated in 2008 following the looming crises, especially in the banking and other financial sector participants. The Central Bank of Nigeria (CBN) also released the code of corporate Governance for Bank in Nigeria, in 2006, to accommodate the Post Consolidation era.

Although previous corporate laws in Nigeria attempt at protecting the often-violated shareholders' right, the SEC release on the Conduct of Shareholders Association in Nigeria (2007), more than ever before, was designed to ensure that association member uphold high ethical standard and make positive contribution in ensuring that the affairs of public companies are run in an ethical and transparent manner and in compliance with the code of corporate governance for public companies.

Based on the foregoing, the broad objective of this study is to analyse the dynamic linkages between corporate performance and board structure in the Nigeria manufacturing sector by examining firms listed in the Nigerian Stock Exchange. Specifically, the study aims at analysing the impact of board composition on performance of the Nigerian Manufacturing firms.

2. The Model and Methodology

The study examines the impact of board structure on corporate performance. The study derived its theoretical framework from the Principal-Agent Theory of Jensen and Meckling (1976) which investigate the incentives faced by each of the parties and the elements entering into the determination of the equilibrium contractual for characterizing the relationship between the manager (i.e. agent) of the firm and the outside equity holders (i.e. principals) (Jensen & Meckling, 1976).

The study adapts a version of Fich and Shivdasani (2004) model which relates firm performance with some indicators of board structure. Thus, implicitly we have:

1

$$y_j = \alpha_k + \beta_k x'_k + e_j$$

Where y_j is the dependent variable *j* representing each of the measures of performance, α_k is the constant parameter, x'_k is the vector of corporate governance measures including board structure with gradient β_k and e_j is the error term in equation *j*. Basically, two measures of board structure are adapted viz a viz: board size and board composition (Coles, et al, 2001; Bhagat and Black, 2000). The study also adopts two measures of corporate performance as entrenched in the literature; they are return on asset and profit margin (Dedman and Lin, 2002; Brickley, Coles and Jarrell, 1997).

Following Fich and Shivdasani (2004) that relate board structure to corporate performance indicators we proceed to present the following empirical models in that relate four measures of corporate performance (ROE, ROA, EPS and PRM) with board structure variables which inform the use of four empirical models in equations 2 and 3.

 $ROA_{it} = \Omega_0 + \Omega_1 BS_{it} + \Omega_2 BCOMP_{it} + \Omega_3 BIND_{it} + \Omega_4 CEO_{it} + \Omega_5 SIZE_{it} + \Omega_6 EPS_{it} + U_{1t}$ (2) $EPS_t = \lambda_0 + \lambda_1 BS_{it} + \lambda_2 BCOMP_{it} + \lambda_3 BIND_{it} + \lambda_4 CEO_{it} + \lambda_5 SIZE_{it} + \lambda_6 EPS_{it-1} + U_{2t}$ (3)

In the set of models above, returns on assets (ROA) is indicative of the internal efficiency of the firm in terms of operational and managerial activities. These measure shows how the resources of the firm are being put to use as well as the attainment of the basic objective of the firms, namely profit maximization. Earnings per share (EPS) reflects the market performance and the related shareholding benefits accruing from these firms. Indeed, these factors show efficiency of the firms in using shareholders' funds as well as prudence in relating with the owners of the firms.

Board size (BS) is a major indicator of board composition and it reflects the total number of individuals that make up the board for each firm. It has been argued that larger boards tend to inhibit efficiency in decision making as well as attainment of quality decisions for the corporations. Essentially, large boards in our models are expected to have negative impacts on the firm. A caveat in this regard is the fact that a benchmark number has not been presented in this study and hence, the coefficient of the BS variable will be interpreted with caution.

Board composition (BCOMP) shows the ratio of executive to non-executive directors in the board. Due to the technicalities and capabilities involved, it is expected that a board with more executive directors will improve corporate decisions and overall governance mechanism. Hence, a positive relationship is expected between BCOMP and each of the dependent variables. Board independence (BIND) reflects the level of autonomy the board has in relation to the shareholders and the level of autonomy of the various committees of the board. Apparently, more independence of the board is expected to deliver appreciably higher governance effects on the firms and therefore, promote the growth of such firms.

CEO status (CEO) is included to show the status of the Chief Executive in the firm in terms of dual functioning. Recent regulatory propositions have suggested that dual-functioning CEOs tend to undermine or subvert the effectiveness of the board in the companies. These regulations agree that firms that have CEOs as board chairmen do not tend to perform as well as those without such arrangement. Hence CEO status should have a negative coefficient in the regression equations.

All the other variables in the models are control variables. Firm size (SIZE) shows the strength of the firm in terms of asset base and ability to weather unfavourable conditions. Large firms would ideally survive board mismanagement better than small firms. In this regard, firm size is expected to positively affect the performance indicators in the models. In the same vein, debt structure of the firm is expected to have an ambiguous impact on the firm performance depending on the nature of the debt.

Secondary data for 50 non-financial companies in the Nigerian Stock Exchange (NSE) are employed in the study. The data is sourced from companies' Annual Reports and NSE Fact book for the period 2005-2014.

3. Empirical Analysis

3.1 Measures of Firm Performance

The summary statistics of the four firm performance measures are reported in Table1 below. Average return on assets (ROA) for the sample period was highest for the conglomerates and foods, beverages and tobacco sub-sectors with rates of 12.2 and 9.7 percent respectively. These are very impressive rates of return on assets for the sub-sectors and they are higher than all the other countries in the sample. Apparently, these two sectors have highly developed operational management capacities that guarantee optimum management of the firms' assets. These two sectors are also similar in characteristics since they both produce highly consumer related goods with high turnover rate since they are needed on a daily basis. Hence, specialization in production ensures better assets management.

In terms of the other performance variables, the conglomerates sector again has the highest profit margin while the food, beverages and tobacco sector has the highest EPS value on average. These sectors have therefore been shown to be very active in terms of performance indicators and they generally indicate that there is better performance among the firms in the sector. It should also be noted that these sectors also have some of the highest number of sampled firms in the study.

A special statistic of interest in this study is the Jarque Berra coefficients in the summary statistics. It shows the degree of normality, and hence the heterogeneity of the data series. Highly heterogenous series are the precursors for panel data estimation techniques. The J-B values for each of the variables in all the sectors are very high and pass the significance test at the 1 percent level. this indicates that the assumption of normality in the data cannot be accepted: the series for the sectors are non-normally distributed. The implication of this is that the series across sectors are heterogenous and would actually require a panel data estimation technique.

Sector	Variable	Mean	Std	Skew	J-B
Agriculture	ROA	3.9	7.4	1.6	263.6
Agriculture	EPS	0.5	1.8	1.6	50.5
Broweries	ROA	9.2	10.4	2.2	372.4
Diewenes	EPS	1.2	2.6	2.3	71.4
Building motorials	ROA	5.9	10.4	2.2	372.4
Building materials	EPS	0.8	2.6	2.3	71.4
Chamical industrials and point	ROA	5.1	5.7	1.2	205
Chemical, muusthais and paint	EPS	0.7	1.4	1.3	39.3
Conglomorato	ROA	12.2	13.8	2.9	493.7
Congiomerate	EPS	1.1	3.4	3.1	94.6
Construction	ROA	8.8	10	2.1	355.6
Construction	EPS	1.2	2.5	2.2	68.2
Food boyerage & tobacco	ROA	9.7	8.4	1.8	301.2
Food, beverage & lobacco	EPS	1.3	2.1	1.9	57.7
Health care	ROA	7.4	8.4	1.8	301.2
Tleann care	EPS	1	2.1	1.9	57.7
Detroloum	ROA	6.5	7.4	1.6	263.6
Felloleulli	EPS	0.9	1.8	1.6	50.5
Publishing	ROA	5.7	6.4	1.4	230.1
rubiisiiliig	EPS	0.7	1.6	1.4	44.1

Table 4.1: Descriptive Statistics for Measures of Firm Performance

Source: Author's computations

3.1.2 Measures of Corporate Board Structure

In terms of the measures of board structure, the summary statistics reported in Table 2 below shows that board size ranges from 5 to 13 members (in line with the stipulations of SEC). The board size on average is higher for the breweries sector and lower in the agricultural sector. The standard deviations among the variables appear to be quite low, suggesting low variability. This also indicates that the board characteristics among the firms seem to be similar. Each of series also has very low skewness, confirming the results that the series are very similar across the firms (or over time) with low variability. The J-B values for the board independence variable are very high and significant for each of the sectors. These results presents the issues of heterogeneity of the data set among the countries in the sample (see Greene, 2003).

Sector	Variable	Mean	Std	Skew	J-B
	BS	5.2	1.19	0.02	0.18
Agriculture	BCOMP (%)	0.74	0.66	0	0.82
	BIND	0.8	0.26	-0.03	20.4
	BS	12.6	2.86	0.06	0.43
Breweries	BCOMP (%)	0.36	1.6	0	1.98
	BIND	0.9	0.62	-0.08	49.2
	BS	7.1	1.6	0.03	0.24
Building materials	BCOMP (%)	0.55	0.9	0	1.11
	BIND	0.7	0.35	-0.05	27.6
Chamiest industrials and	BS	5.4	1.23	0.03	0.18
Chemical, industrials and	BCOMP (%)	0.73	0.69	0	0.85
paint	BIND	0.9	0.27	-0.04	21.2
	BS	10.2	2.32	0.05	0.35
Conglomerate	BCOMP (%)	0.48	1.3	0	1.61
	BIND	1	0.5	0.07	40
	BS	8.7	1.98	0.04	0.29
Construction	BCOMP (%)	0.56	1.11	0	1.37
	BIND	1	0.43	-0.06	34
	BS	9.6	2.18	0.05	0.33
Food, beverage & tobacco	BCOMP (%)	0.51	1.22	0	1.51
	BIND	0.8	0.47	0.06	37.6
	BS	7.9	1.79	0.04	0.27
Health care	BCOMP (%)	0.79	1	0	1.24
	BIND	0.9	0.39	-0.05	30.8
	BS	6.5	1.49	0.03	0.22
Petroleum	BCOMP (%)	0.41	0.83	0	1.03
	BIND	1	0.32	0.04	25.6
	BS	7.3	1.65	0.03	0.25
Publishing	BCOMP (%)	0.91	0.92	0	1.14
	BIND	1	0.36	0.05	28.4

 Table 2: Descriptive Statics for Measures of Board Structure

Source: Author's computations

3.2 Impact of Board Structure on Firm Performance

The first series of estimates relate to the impact of board structure variables on firm performance variables. The panel data estimation strategy adopted in this section presupposes that the biases in the pooled data could either come from cross sectional heterogeneity or time series (periodic) variations. Hence, the Hausman test of heterogeneity

is initially conducted to determine the best effects model (random or fixed) to be adopted in the analysis. The result of the Hausman test is reported along with each of the estimation tables. The Chi-square statistic values for both equations with size control and without size control are significant. From these results, the statistic provides little evidence against the null hypothesis that there is no misspecification when the random effect model is employed. Hence, the best method to apply is the Random-effect strategy. In this study, we report the both random and fixed effects estimates in order to provide comparison. Moreover, the results are estimated in two variants with one equation controlling for firm size and the other without control. This is to enable the comparison between smaller and larger firms in terms of their corporate performance given different board structure outcomes.

3.2.1 Impact of Board Structure on Return on Assets

The result of the impact of board structure on firms' return on assets is reported in Table 3 below. It can be noticed in the results that both for the estimates with size control and without size control, the Random effects results show more relevant information. For the results controlled for size of firm, the diagnostic statistics are quite high and very impressive. The adjusted R squared value of 0.82 indicates that over 82 percent of the systematic variations in ROA among the firms is explained by the explanatory variables. The F value is also high and easily passes the significance test at the 1 percent level.

Explanatory	With	Control fo	r Size	Without Control for Size			
Variable	OLS	Fixed Effects	Random Effects	OLS	Fixed Effects	Random Effects	
Constant	-0.42	1.77***	-0.42*	0.65	3.50**	0.65	
BS	0.04	-0.15*	0.04	0.07	-0.12	0.07*	
BCOMP	-0.04	0.09	-0.04	-0.04	0.13	-0.04	
BIND	0.22**	0.15	0.22**	0.23**	0.14	0.23**	
DEBT	0.10***	0.06	0.10***	0.09**	0.08	0.09***	
SIZE	-	-	-	-0.08**	-0.14	-0.08**	
Lagged Dep	0.82***	0.27***	0.82***	0.79***	0.27***	0.79***	
R^2	0.76	0.86	0.76	0.76	0.84	0.76	
Adj. R ²	0.75	0.82	0.75	0.75	0.82	0.75	
F	110.5	34.5	110.5	129.5	34.0	129.5	
D.W.	2.39	2.06	2.39	2.42	2.08	2.42	
Hausman Test Summary (χ ²)		27.1 [0.00]		30.9 [0.00]			

Table	3:	Board	Structure	and ROA	
Iabic	υ.	Doard	Olluciulo	and NOA	

Source: Author's computation

The impacts of each of the explanatory variables on ROA are determined by considering the individual coefficients of the explanatory variables in terms of signs and significance. In the results reported, only the coefficient of board composition has a negative sign (which is not in line with apriori expectations) and suggests that larger inside membership in boards could lead to lower returns on assets the firms. The coefficient of BCOMP however fails the significance test at the 5 percent level along with that of board size. These results indicate that neither larger boards nor more inside membership in the boards has any impact on the operational performance of the firm in terms of returns on assets. The coefficient of BIND however passes the significance test at the 5 percent level and is positive. This result demonstrates that board independence has a significant positive impact on firm performance in the Nigerian manufacturing sector. Hence, board independence aimed at

improving performance is actually not a misguided effort as suggested by Choudhry (2011) in the case of financial firms. Moreover, it has been shown by studies like Levine, (2004), and de Andres, Azofra and Lopez (2005) that board independence is required to discipline management of poorly performing firms, which constitutes a strong merit for board independence has merit.

In terms of the other variable, DEBT passes that significance test at the 1 percent level, thereby indicating that higher leverage in the firms may guarantee better performance in return to assets. The lagged dependent variable is also significant at the 1 percent level, this result indicates that past period performance of the firm tends to affect the current period performance level positively.

The second part of the results show the outcome of the relationship when firm size is not controlled for. This can enable us to discover, in an indirect manner, whether the size of firm has a distributive impact on the behavior of firm performance when board structure variables change (see Greene, 2002). The controlled results also possess impressive goodness of fit statistics, although the adjusted R squared value is lower. However, the random effects estimates show that the result with SIZE report better coefficients estimates than the one without size. Only the coefficient of board composition (with the wrong negative sign) fails the significance test even at the 10 percent level. Board size is significant in the results and it has a positive coefficient, suggesting that larger board size will only deliver performance-enhancing effects on the larger firms. Apparently, the size of the firm would also explain its board membership. Essentially, effectiveness and efficiency may only be guaranteed for larger boards when the firm is sufficiently large. The coefficient of firm size itself however has a negative coefficient and passes the significance test. This shows that larger firms tend to report lower ROA across the sample in the study. The debt and lagged dependent variables are also significant and indicate that debt structure of a firm is a strong determinant of its operational performance and that past performances tend to have distributed effects on current performances of the firms regarding ROA.

3.2.2 Impact of Board Structure on Earnings per Share

The last, measure of firm performance in the study is earnings per share (EPS) and the results of the estimates are reported in Table 4 below. For the results controlled for size of firm, the diagnostic statistics are quite high and very impressive. The adjusted R squared value of 0.73 indicates that over 73 percent of the systematic variations in EPS among the firms is explained by the explanatory variables. The F value is also high at 116.2 and easily passes the significance test at the 1 percent level. This shows the hypothesis of a significant relationship between EPS and all the independent variables combined is significant.

Explanatory	Wit	h Control f	or Size	Without Control for Size			
Variable	OLS	Fixed Effects	Random Effects	OLS	Fixed Effects	Random Effects	
Constant	0.41*	2.12***	0.41*	0.73	1.21	0.73	
BS	0.07**	0.10	0.07**	0.08**	0.09	0.08**	
BCOMP	-0.07	-0.02	-0.07	-0.07	-0.04	-0.07	
BIND	-0.06	-0.13	-0.06	-0.06	-0.13	-0.06	
DEBT	0.06*	-0.09	0.06**	0.05*	-0.10**	0.05*	
SIZE				-0.02	0.07	-0.02	
Lagged Dep	0.77***	0.37***	0.77***	0.77***	0.37***	0.77***	
R2	0.73	0.81	0.73	0.74	0.81	0.74	

Table 4.7: Impact of Board Structure on Earnings per Share (EPS)

Explanatory	Wit	h Control f	or Size	With	out Control	for Size
Variable	OLS	Fixed Effects	Random Effects	OLS	Fixed Effects	Random Effects
Adj. R2	0.73	0.78	0.73	0.73	0.78	0.73
F	28.80	28.8	116.2	96.7	27.8	96.7
Hausman Test Summary	19.7 [0.01]				23.2 [0.00	D]

Source: Author's computation

In terms of the particular contribution of each of the explanatory variables to changes in EPS, only the coefficient of board size has the expected positive sign and is significant at the 5 percent level. This indicates that the size of boards is an essential factor in the determination of the market performance of manufacturing firms. Perhaps larger firms ensure more confidence by stock market investors on the firm's shares and so tends to improve its performance in the market. Indeed, none of the other board structure variables has a significant effect on EPS from the results reported in Table 4.7 below. Thus, larger boards may actually improve firm market performance among manufacturing firms. The coefficient of DEBT and lagged dependent variable also pass the significance test, indicating that debt structure is a very potent instrument in driving EPS or market performance of these firms. The results for the non-controlled estimates are very similar to that of the size-controlled estimates. Thus, it can be seen that the SIZE coefficient fails the significance test and indicates that size is not a remarkable factor in the relationship between board structure and firm's market performance. In other words, larger or smaller firms do not have significant impact on how a firm's stock performs in the stock market. The coefficients in the estimates are just like those of the results with size control, suggesting that across firms, the size of boards is the main factor that drives earnings per share.

4. Conclusion and Recommendations

In this study, the impact of board structure on firm performance was empirically examined using a large cross section of 50 manufacturing firms in Nigeria. It was argued in the study that board size matters for adequate firm growth and overall performance. The panel data estimation technique was employed on the pooled data for the firms over a ten-year period (2005-2014) and estimation was performed using two measures of firm performance and three measures of board structure. The empirical results from the analysis show that board structure has a significant impact on performance of manufacturing firms in Nigeria. The main source of the impact is through board independence and faintly through board size. This implies that independent boards are the most important board structure variable in explaining firm performance for the Nigerian firms. when the board is independent from the management, governance decisions are often made from highly impartial perspectives, with the welfare of shareholders as the optimum motivating factor. In terms of size, the results suggest that smaller boards appear to be more efficient than larger ones, especially when such boards have more autonomy. For many firms in Nigeria, large boards generally imply large budgets for maintenance with rather high cost of ego clashes. This can effectively reduce the role of the board in the agency activity of corporate existence.

The results also show that board composition appears to exert very little effect on firm performance for the sample in the study. Apparently, it does matter much who is in the board, as long as the decisions of the board are binding in the firm. In particular, the proportion of internal and external members in the board does not enhance or inhibit its

overall performance. Also, firm size was shown to be an essential factor in explaining the general behaviour of firm performance and also the pattern of effect that board structure has on firm performance. The effect of size was observed by controlling for it in the performance estimations. The analyses clearly showed that firm size tends to improve the effect of board structure on performance, apart from EPS.

A number of measures designed to strengthen the infrastructure of corporate governance as a tool for improved firm performance are noted. First, there should be correct board representation among corporate firms in Nigeria. The optimization of board size and composition is desirable for performance especially in a setting like Nigeria with weak takeover market. The board size of companies should be big enough to display a good spread of monitoring skills of the board and enhance its effectiveness. However, it should be small enough to allow quality communication within the board. Also, arising from the point noted above, manufacturing firms should strive at incorporating governance measures that are value-enhancing. Furthermore, there is no gainsaying from the analysis that there is a clear case for board independence since a clear positive relation between board independence and future operating performance of corporate firms have been established in the study.

Finally, this study mentions issues of board efficiency in passing. In this regard, future research could seek to establish methods to test the efficiency mechanisms of board of directors, or how to build a model of effective board structure and establish mechanism of corporate governance. This would go beyond just limiting to testing correlation between them. Furthermore, the study finds that board size matters in its effectiveness. Thus, there appears to be a particular range of board size beyond which its role as a performance enhancement factor begins to wane. There is need for further research to ascertain in empirical terms the boarders in this regard.

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Bio-note

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THE TELEVISION BUSINESS IN INDONESIA: A COMPARATIVE STUDY OF THE OLD REGIME, THE NEW ORDER, AND THE REFORM ERA

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Abstract: This article compares the television industry in Indonesia during the reign of the Old Order, the New Order, and the Reform Era. A full review of television broadcasting in all eras is still rarely carried out by Indonesian researchers. The author uses qualitative research methods in the form of comparative studies and library studies based on secondary data. In this comparison, the author focuses on eleven aspects of the problem, namely; the system of broadcasting, ownership, the form of broadcasting institutions, objectives, funding, broadcast coverage, control, and supervision, licensing, press freedom, media content trends, and society in relation to the television industry. The author found that although since independence Indonesia has been based on Pancasila democracy, in every era of government there have been differences in TV broadcasting arrangements. The Old Order period was more dominated by the role of government. This situation continued during the first 20 years of the New Order government, but in the last ten years of the New Order, the private sector dominated the TV industry. This dominance has continued into the reform era and treats society as a market and a political object. During all periods, it is the government which determines to license, and the implementation of the Broadcasting Act is not strictly enforced. A less strict attitude in the implementation of the Broadcasting Act indicates that the country is flexible and endeavours to find ways to compromise with stakeholders.

Keywords: System broadcasting, Television broadcasting ownership, Decentralism, Broadcasting purpose, Funding of broadcasting

JEL Classification: K20, N00, P50

1. Introduction

Television has a very important strategic position in the community. In many countries, television is capable of generating substantial revenue for the state. As of 2015 the Chinese TV industry generates revenues of US\$ 17.55 billion (PWC, 2016), in India the figure is US\$ 22.1 billion (Global Forum on Competition, 2013), while in the United States it earns US\$ 1.19 trillion and occupies the most prominent position worldwide (Woods & Poole Economics, 2015). In Indonesia, the TV industry earned US \$ 5.4 billion and has recently increased by 11% to US\$ 6 billion (Marketline, 2017).

The television industry also opens up millions of jobs. In the U.S.A, the television industry absorbed 1.47 million workers (Woods & Poole Economics, 2015). In India, in 2016-2017 1.38 million people were employed (MIB, 2017), while in 2016, China's film and TV industry provided work for 1.1 million employees, of which 79% were in the television industry (Oxford Economics, 2016). In Indonesia, the number of workers absorbed in 2002-2006 was 142,227 (Pangestu, 2008). The number rose rapidly to 647,937 in 2010 (BPS, 2010).

The television business is part of the press system. Television broadcasting institutions do not work independently but are influenced by, and influence, different social systems and are

determined by the political philosophy and policy of the government in which the media operate (Fischer, 1976). Even though they may be in the same democratic system, the regulation of the TV industry may vary from government to government because they have different interests in TV.

In Indonesia, every period of government has implemented regulations differently, albeit based on the same political system, i.e., Pancasila democracy. Pancasila democracy is a democracy based on the principle of consensus and community self-help. Society combines the universal aspirations of democracy with the ideals of Indonesian life inspired by the spirit of kinship, so there is no majority or minority domination. Based on the above description, the author raises the interesting question, what have been the differences in the TV industry during the various regimes in Indonesia?

Investigating Indonesia's broadcasting TV industry is interesting, for two main reasons. Firstly, there have not been many Indonesian researchers who have thoroughly explained the TV broadcasting industry by comparing each period of government. The literature on this subject is sketchy, so to understand the topic we need to read many studies. Secondly, information on the issue can illustrate the nature of the pattern of relationships between government and the private sector in the TV broadcasting industry.

2. Methodology

In this research, the author has a specific purpose of describing the Indonesian television business during the period of government between the Old Order, the New Order, and the Reform Era through comparative and literature studies. There are three stages to achieve the purpose of the study. The first stage is to collect all relevant literature as data sources in the form of documents related to TV business from an economic perspective. Documents related to this issue are not have enough attention from Indonesian researchers. Literature about TV more reveals the influence of TV on the aspects of the theory of uses and gratification and its impact on society.

The second stage is to devise the aspects used to study the research problem. The author uses 11 points were highlighted; namely, the broadcasting system, broadcasting ownership, the institutional categories of broadcasting, the purposes, the funding, broadcasting coverage, control and supervision, licensing authority, the freedom of the press, the trends of media content, and the position of viewers. The third stage is to analyze the television business in each period of government. The last step is to formulate conclusions and write a scientific article.

3. Discussion

Since independence in 1945, Indonesia has had three periods of government, namely the Old Order, the New Order, and the Reform Era. The Old Order was under the leadership of President Soekarno (1945 to 1968). After Soekarno fell from power, the New Order begins, lasting until 1998, with Soeharto as president. The New Order fell following a severe monetary crisis which developed into political unrest with demands for reform. The successor of the New Order is often referred to as the Reform Era.

3.1. The Television Industry in the Old Order

Television broadcasting was present in Indonesia in 1962 when the Old Order came to power. In this period, Soekarno initiated the establishment of a TV broadcasting station, named Televisi Republik Indonesia (TVRI). Initially, the goal of TVRI was to cover the sports of the IV Asian Games in Jakarta, enhancing Indonesia's image internationally (Alimuddin, 2017). TVRI became the personal interest of Soekarno.

The Old Order established TVRI as the only TV station in Indonesia, and it declared this in Presidential Decree 215/1963 and used TVRI as a political medium. Article 4 of the Presidential Decree proclaimed that TVRI was an instrument of public relations in the implementation of mental/spiritual and physical development of the nation and state, especially in the formation of the Indonesian socialist human being. To ensure the achievement of these goals, TVRI was directly managed by the president and directors, assisted by specific officials for TVRI affairs.

As a state-owned channel, TVRI received a budget from the government, but the funding was not sufficient to finance TVRI operations, so the government allowed it to accept advertising. Article 8 of Presidential Decree 215/1963 named three sources of funding for TVRI, namely government subsidies, compulsory contributions from owners of television receivers, and revenue proceeds from TVRI activities, including advertising. Furthermore, the Old Order issued a presidential decree (No. 218 of 1963) including a requirement for the public to pay a license fee.

In 1964, the government pioneered the construction of seven public TV stations in the regions. All regional TV stations were relay stations but could produce their programming based on the central TVRI platform. The government-controlled broadcasting. Hence the television stations did not have much freedom, particularly after the government implemented a 'guided democracy' on July 1st, 1959. The content of television broadcasts was more oriented to the elites, especially the president. Society was more a political target (Panjaitan, 2006).

3.2. Television Industry in the New Order

The New Order lasted from 1966 to 1998, led by President Soeharto. In the first 23 years of the New Order, TVRI was still the only TV station in Indonesia. The granting of five private TV station licenses occurred in the last nine years of the New Order. Soeharto regarded TV as a highly strategic political medium for gaining public support, in addition to preserving the nation's ideology and reinforcing the concept of pluralistic Indonesian society. Formally, the government set three purposes for TVRI, namely promoting national unity, promoting domestic stability, and promoting political stability (Panjaitan, 2006).

On July 8th, 1976, the government bought the Palapa satellite to realize the vision of building community unity. Indonesia was the third nation after Canada and Russia to use domestic satellites for broadcast TV. Despite purchasing the spacecraft, the government continued to build gradually from 7 regional TVRI stations during the Old Order to 29 stations and 395 terrestrial network transmission stations scattered throughout Indonesia. But unfortunately, the broadcasting system was centralized and controlled from Jakarta. The New Order carried out strict supervision and censorship of the press.

In the New Order period, the government continued to subsidize TVRI, while permitting the company to accept TV advertising to cover the shortfall. However, from April 1st, 1981, the government banned TVRI from receiving advertisements, although advertising revenue accounted for 51% of TVRI's budget (Armando, 2011). The prohibition of advertising makes TVRI funds drastically decreased. This situation caused TVRI to begin to lose its audience because it could not produce attractive programs to compete with private TV. In support of TVRI funds, in 1990 the government issued presidential decree No. 40, ordering society to pay license fees as in the Old Order, but this policy was opposed by the community at large. Hence the policy was failing.

In the 1980s, the Indonesian economy grew remarkably, boosting the middle class. They began to watch international TV shows via satellite antennas instead of watching monotonous TVRI broadcasts (Sen and Hill, 2006). Through a parabolic antenna, people could watch 6-20 international outstations. To control parabolic ownership, the Minister of Information issued the open sky policy.

The increasing tendency to watch overseas TV was captured as a business opportunity by businessmen applying for a TV broadcasting license to keep people watching Indonesian TV broadcasts. Interestingly, the proposal was approved, and in 1987 the government issued decree no. 190A/KEP/MENPEN 1987, stating that TVRI had the right to carry public broadcasting (SSU) and limited broadcasting channels (SST). In SSU, people can catch TV signals without specific devices, while to watch SST special tools must be used. To organize SST, TVRI appointed the other party as the agent, under TVRI control. Advertising was allowed in SST, and profits were managed by TVRI to support TVRI operations. Surprisingly, the government granted licenses to Soeharto's family and cronies.

Rajawali Citra Televisi Indonesia (RCTI) was the first TV station to obtain an SST license. RCTI belongs to Bambang Trihatmodjo (second son of Soeharto). The collaboration agreement with TVRI began in 1989, for SST broadcasting in Jakarta and surrounding areas, with the agreement that 12.5% of the profits would be transferred to TVRI. In the first broadcast, RCTI gained 70,000 subscribers and increased by 92.86% in 1990. The success of RCTI in Jakarta made Bambang apply for an SST license for the Bandung area.

Sudwikatmono, Soeharto's cousin, also applied for an SST license through Surya Citra Televisi (SCTV) for the Surabaya and Denpasar areas. Sudwikatmono collaborated with Henry Pribady, an influential individual in the Sudono Salim Group owned by Liem Sioe Liong, a business partner of the Soeharto family. Later, Halimah Trihatmojo (Bambang Trihatmodjo's wife), joined as one of SCTV's shareholders. SCTV was targeting the urban and upper middle class (Rakhmani, 2013).

The success of RCTI and SCTV prompted Siti Hardiati Indrarukmana (Mba Tutut), the eldest daughter of Soeharto to register Televisi Pendidikan Indonesia (TPI) as a TV channel but in an SSU format, and with promised educational programmes as the primary content. To realize its activities, Mba Tutut used TVRI facilities for both production and transmission. In particular, although SSU rights were only for TVRI, the government approved the TPI proposal. Later, TPI was sold to Harry Tanoesudibyo, and the new owner renamed it MNCTV and switch to a profit-seeking.

The license for TPI to broadcast free to air nationally was made by both RCTI and SCTV. In 1990 the state allowed RCTI and SCTV to be a Broadcast Station for Private Television (SPTSU), but the government requested that all stations have their headquarters in Jakarta. Finally, RCTI Bandung joined RCTI Jakarta; SCTV Surabaya and SCTV Denpasar merged into one company, headquartered in Jakarta.

Soeharto also gave licenses to his political and business cronies. On January 30th, 1999, the government issued a permit to ANTV, owned by Aburizal Bakrie in collaboration with Agung Laksono. This commercial TV station targeted young people in urban areas (Rakhmani, 2013). Among his business cronies, Soeharto granted a broadcast license to Lim Sioe Liong, to establish Indosiar Visual Mandiri (Indosiar). The company targeted middle and upper-class audiences in urban areas.

In 1997, the New Order published Act no. 24/1997 on broadcasting, to organize the TV industry. Article 16 of this Act affirmed the centralized system of TV broadcasting which required all TV stations to be in the capital city. According to the Broadcasting Act, there were three forms of broadcasting institutions, namely state broadcasting, private TV broadcasting, and special broadcasting. State broadcasting was owned and financed by the government. Special TV broadcasting included cable TV, subscription TV, closed-circuit TV, video-on-demand services; audio text services; videotext services; multimedia information service, etc. The share of TV broadcasting ownership by the president's family and cronies meant that commercial TV stations did not function as a media control over the government. The New Order had a strong position on the licenses issue, as well as supervising content. In practice, the military and other departments often supervised the media, as well.

3.3. Television Business in the Reform Era

In 1998, the financial crisis hit Asia and affected Indonesia. There was a massive capital flight abroad, and the Indonesian exchange rate dropped drastically almost to Rp.16.000 per 1 USD (Culp, Hane, and Miller, 1999). The economic crisis transformed into political chaos, forcing Soeharto to resign from his post (Ho and Yeh, 2014). After the massive protest, Soeharto declared his resignation and handed over power to the vice-president, Habibie. The new president dubbed his government the Reform Era.

In the Reform Era, the history of TV broadcasting can be divided into two important stages: The Euphoria of Reformation (1998-2002) and the Broadcasting Regulation stage, which began in 2002. In the first stage, people gained political freedom, with greater opportunity to make mass media products and with the policy of censorship removed. In this era, the government awarded five new private TV stations licenses; Metro TV (2000), Trans TV (2001), TV 7 (2001), Lativi (2002), and Global TV (1998). All private TV channels which had been established before the Act of 32/2002 on Broadcasting are often referred to as "Existing Stations/Jakarta TV stations."

Metro TV is a commercial TV owned by Surya Paloh, a press businessman, owner of Media Group. Trans TV is owned by Chaerul Tanjung, a successful entrepreneur. He also bought TV 7 from Jakob Utama, owner of the Kompas Group and changed the name of TV 7 to Trans7. The next TV station, Lativi was owned by Abdul Latief, an Indonesian conglomerate owner. Later, Abdul Latief sold Lativi to Aburizal Bakrie, the owner of ANTV. Under the new owner, Lativi was renamed as TV One, and replaced the main TV program with the news, competing with Metro TV.

Meanwhile, Global TV was given by Habibie to Global Informasi Bermutu (GIB), established by several figures from the Indonesian Muslim Intellectuals Association (ICMI) for an Islamic mission. The granting of the license appeared to be the president's effort to obtain political support from Moslems because of the strong anti-Soeharto sentiment among society. Unfortunately, a year after receiving the license, GIB were unable to operate the broadcasts. Interestingly, GIB shares were then sold to MNC Group owner, Harry Tanoesudibyo. Later, Harry Tanoesudibyo made some changes to Global TV despite violating the rules.

The broadcasting system in the Euphoria of the Reform era tended to be centralized by the owners in Jakarta for their business and political purposes. In this period there were many TV channel owners and media workers who become politicians. Hence the media became partisan. The viewers were treated as markets and political objects. In this era, censorship was removed and control over the media was minimal.

The Euphoria Reform provoked many complaints, such as the dominance of owners from Jakarta who delivered information favouring they're business and political perspectives (Hollander, D'Haenens, and Bardoel, 2009). Regions outside of Jakarta did not receive many economic and political benefits. Also, regional culture faded, replaced by the culture of Jakarta. This situation prompted a desire for better regulation, so the government issued Broadcasting Act No. 32/2002.

In 2002, the government implemented the Broadcasting Act formally, marking the Broadcasting Regulation stage. The principal objective of the Broadcasting Act was to create a diversity of ownership and diversity of broadcast content, as well as to foster economic potential across Indonesia. Since the enactment of the Broadcasting Act, the number of TV stations has increased dramatically to 1,251 across Indonesia (Kominfo, 2016) that comprise of public TV, private TV, pay TV, and community TV category.

A large number of local entrepreneurs who interested in the TV business is understandable because of the huge national advertising expenditure. Between 1992-1997 advertising expenditure continually grew by 23-29%. In 1998 it fell 26.2% due to the monetary crisis but later continued to rise again. Between 1998-1999 it increased 40%, from 1999 to 2000 grew to 23%, and 2000-2001 rose 25% (Setiyono, 2004). The increase continues until 2017 (Figure 1).



Figure 1: Indonesia advertising expenditure (in Trillions Rupiah) Source: Gideon (2018, February); Hendriana (2015); Manan (2013); Manan (2015); Nielsen (2011); Setiyono (2004).

The TV firms from Jakarta tend to control up to 98.8% market share, while domestic TVs only got a 1.2%. Business competition tends to be an oligopoly (Triwibowo and Dhewanto, 2015). There were eight firms have controlled broadcasting, namely MNC, Viva Media Asia, EMTEK, CT Corp, Indigo Multimedia, KKG, Media Indonesia, and Rajawali Citra (Table 1).

No	Name of TV Broadcaster	Established on	Coverage of broadcasting	The Owner
1.	MNCTV (previously/TPI	1991	94.11%	MNC
2.	RCTI	1989	91.17%	MNC
3.	Global TV	1998	85.29%	MNC
4.	iNews (previously SunTV/Sindo TV)	2007	79.41%	MNC
5.	ANTV	1993	88.23%	Viva Media Asia
6.	TV One (previously Lativi)	2002	88.23%	Viva Media Asia
7.	SCTV	1990	82.35%	EMTEK
8.	Indosiar	1995	67.64%	EMTEK
9.	Trans 7 (previously TV7)	2001	88.23%	CT Corp
10.	Trans TV	2001	85.29%	CT Corp
11.	NET TV (previously Spacetoon)	2013	64.70%	Indigo Multimedia
12.	Kompas TV	2011	85.29%	KKG
13.	Metro TV	1999	85.29%	Media Indonesia
14.	R TV (previously B Channel)	2009	82.35%	Rajawali Corpora

Table 1: The National TV Broadcasting Netwo
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Source: Author's calculations, based on Kominfo data, 2016

Based on the rules, the government limited the broadcasting coverage in the local area, except through networking. Consequently, the relay stations belonging to national TV had to

be separated into different entities from the holding company. In practice, however, the local TV stations remained as part of the network. The Broadcasting Act was implemented less consistently because the government issued PP 50 of 2005 granting privileges to existing TV stations regarding ownership and broadcast coverage. They has broader coverage. Hence, the advertiser tends to choose them than local TV station. The average Jakarta TV firms receive 67% national advertising expenditure per year (Rianto and Poerwaningtias, 2013). This situation makes local TV hard to compete because generally, they can only fund 40% of operational costs (Surokim and Wahyudi, 2013).

TV broadcasting supervision is conducted by the Indonesia Broadcasting Commission, but the issuing of permits is still in the hands of the government whose implementation involves many calculations and a great deal of political lobbying.

Based on the above description, the differences in the television industry in the three governance eras in Indonesia can be explained in the following table:

Category	Period of regimes				
	Old Order	New Order	Reform Era		
Broadcasting	Centralistic,	Centralistic, nepotism	Decentralism, some nepotism		
system	monopoly		but mostly market competition		
Ownership	Public TV:	Public TV: State-owned	Public TV: State-owned		
	State-owned	limitation; Commercial	limitation; Commercial TV:		
		TV: Elite and crony	business people; Commercial		
			IV: Community-owned		
Institutional	Public IV	Public IV, Commercial	Public IV; Commercial IV;		
category of		TV, Subscription TV	Subscription TV; Commercial		
broadcasting	Dell'Ind				
Purposes	Political	Public IV: embedding of	Public IV: embedding of		
	purposes	ndeology, gaining	aupport information		
	ideology	information	discomination: Commorcial TV		
	building political	dissemination:	& Subscription TV: profit		
	support) public	Commercial TV &	orientation: Community TV:		
	relations	Specific TV: profit	Information dissemination		
	information	orientation	communication. & social		
	dissemination		integration		
Funding	Government	Public TV: state funding,	Public TV: State funding &		
Ŭ	subsidies,	other legal funding;	other legal income; Commercial		
	license fees,	Commercial TV &	TV: commercials & other legal		
	and TV	subscription TV: TV	income; Subscription TV: TV		
	advertising	advertising & other legal	Advertising & subscription fees;		
		income	Community TV: community		
			license fees & voluntary		
			donations		
Coverage	Nationwide	Nationwide	Local coverage and nationwide,		
			based on networking		
Control &	Government	Government	Indonesia Broadcasting		
supervision			Commission		
Licensing	Government	Government	Government		
authority					
		1			

Table 2: The Comparison of Broadcasting Business in The Old Order, New Order, and

 Reform Era of Indonesia
Category	Period of regimes		
	Old Order	New Order	Reform Era
Freedom of the press	Limited freedom	Limited freedom, applied revocation of license, state censorship	Has freedom, self-censorship, in some cases mass pressure on journalists
The trend of media content	Mostly government, political & elite activities	Elites, public figures, ceremonies, and press releases	Variety, popular issues, mass concerns
The position of viewers	Viewers as an object & political constituent	Viewers as a political constituent and the market	Viewers as a political constituent and the market

Source: Author's own calculations

4. Conclusion

The TV business in all periods of Indonesian regime has a substantial political and economic significance. As a business, TV broadcasting began to evolve in the New Order era and progressed rapidly in the Reform Era. In these two periods, the private sector puts business profit as a priority, but in the Reform period, TV business owners tend to be political players. In all eras, the public tends to be just a market.

In the Old Order, government positions were more dominant, but in the New Order and the Reform Era, the government has tended to accommodate the interests of entrepreneurs. However, no lunch is free, because the government enjoys the advantages of a media which support its power. In other words, businesspeople and the state tend to take advantage of each other. In this context, ultimately the public interest goes unnoticed.

The regulation of the TV industry in all periods has varied, following the political situation at that time. There have been similarities in licensing issues. Governments in all periods have sought to gain political advantage in the broadcasting system which has developed. All Indonesian governments tend to be less assertive in applying broadcasting regulations to all stakeholders. They tend to accommodate TV owners and broadcasters.

Evidence of practical compromises can also be seen in the granting of licenses to private parties in the New Order. Although national broadcasting is the preserve of public TV, the government allows private TV to broadcast nationwide. In the Reform Era, there have also been many practical compromises in the adoption of TV broadcasting regulations. Different treatments regarding licensing procedures, shareholding, and broadcast coverage are evidence of these accommodative methods.

A study focusing on TV business in Indonesia from an economic perspective conducted by Indonesian researchers and academics is rare. Limited data is a significant obstacle because of difficult access to company business. Unfortunately, the government also has limited data. The government does not yet have regulations that require all TV broadcasting companies to open access data to the public. Public access is still limited to companies listed in the stock market, as it is mandatory to make periodic reports. Therefore, business data in this study is still limited to companies that go-public.

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Bio-note

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MOBILE PAYMENTS AND MAJOR SHIFTS IN CONSUMER BEHAVIOUR

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Abstract: Considering the fact that in China, in 2016 solely, the mobile payment volume was around \$5 trillion – half of its gross domestic product, carried out through two main competitors – Alipay and Wechat Pay, it is becoming more and more clearer that companies will invest piles of money in order to process the payments of the millions of potential users. With banking industry shaken by the different modifications of rules and regulations and consumers addicted to latest gadgets, the tech companies may have the pole position in this race. Apple is charging each Apple Pay user with 0.15% per transaction which may not seem a lot, but taking into account that in 2015 iPhone users traded over \$10.9 billion we can see why tech companies are eager to develop payment applications. In this paper are presented briefly the newest means of payment and how are those influenced or not by the mainstream legislation. The most important piece in the gear – end-user – has to keep up with all the novelties in this sector and, as consequence, some behavioral patterns occur. Those are presented further in the text altogether with some trends in financial services that may influence the mobile payments market as we know it.

Keywords: payments, biometric, portal, web rooming

JEL classification: E42, O33, M31

1. Tech companies and their initial undertakings

Since 2007, Apple showed that it's a real trendsetter with respect to innovative solutions and that it has something to say when it comes to mobile devices. Taking into account job creation, research and development investment, product selling and last but not least the annual reports, the company proved to be a key player in the world's economic environment. Looking at the numbers, each and every year, when Q4 comes and the launching of a new iProduct is scheduled, the device's shipments are hiking. With every new product launch and new technology implementation, the company is driving the industry of portables in new directions and dimensions.

Starting with 2007, Apple Inc. led by its visionary Chief Executive Officer Steve Jobs, began to focus on developing portable devices. This was in his opinion an unexploited branch and he managed to improve it. Released in June, the original iPhone was 5 months away from the launching of one of the most coveted phone of that time – Nokia N95 8GB version. It had the specifications similar to Nokia N95 and with a \$599 price, it was even cheaper than the \$749 king of Symbian Operating System (Newsday Tribune, 2015). With thousands of mobile applications ready to be installed, Nokia had the first-mover advantage but also no

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records of its users. This was the main issue that killed a great operating system. With no feedback from the users, Nokia developed application just for the record and not for user's retention. Launched in 2008, Apple's proprietary App Store was the unique place where users could install tailor-made apps. It started with 500 apps but in May 2017 the total number of available apps reached 2.2 Bn. (The Daily Advertiser, 2013) (Costello, 2017). With the launch of the iPhone 2G (first generation iPhone), Apple also introduced to the masses the capacitive touchscreen, a different shift from the existent one at that time - the resistive touchscreen. It was a major improvement because in order to operate the phone you were not required to use a stylus anymore. Another premiere was the use of the SIM card tray. Unlike the existing phones in order to insert the SIM card in the phone, you had to eiect the SIM tray, put the SIM card on it and then insert it back. Both concepts are standard in the industry 10 years after the launch of the first iPhone. Launched in 2010, with a mature technology onboard, the iPad followed a quite upward trend in sales and the company's cash growth increased from \$11Bn to \$39Bn (Bullish Cross. Philip Elmer-Dewitt). Innovative with some solutions. Apple is at the same time reserved when it comes to adopting hardware and software novelties. One example can be given by comparing the 2013 flagship phone of Samsung – Samsung S4 – released in April, with last flagship from Apple – iPhone X – released in October 2017. It took 4 years and a half for Apple in order to implement wireless charging, compared to Samsung. It took also between 2 and 3 years compared to Google's Android Operating System to implement in their proprietary operating systems functions like notification center, personal hotspot etc.

2. Mobile payments – present and future

In 2013, with the launch of the iPhone 5S, Apple managed to shed the light first on mobile security and afterward on mobile payments. iPhone 5S was the first iPhone with an embedded fingerprint reader named Touch ID. Originally showcased as a method of stopping unauthorized use of the phone, this laid the foundation of the Apple Pay platform. In a manner that Alan Curtis Kay (1992) pointed out - 'People who are serious about software should make their own hardware', Apple started to develop a hardware solution. Launched in late 2014, iPhone 6 together with iPhone 6+ were the first mobile phones to embed both software and hardware solution for mobile payments. Both phones came with Apple Pay software preinstalled and had implemented the entire hardware set for a secure payment: NFC - Near Field Communication antenna, fingerprint sensor and a microprocessor that encrypts the transactions. NFC is a wireless technology requiring 4-10 cm to initialize a connection between two mobile device; a standard that extends Radio Frequency Identification (RFID) by combining in one device the interface between a smartcard and a reader (Dospinescu, 2012).

Referring to ecosystems it is worth mentioning that older devices like iPhone 5, iPhone 5S and even old generation iPod touch can also use Apple Pay to make payments but only with the NFC chip embedded in Apple Watch. Basically having an Apple Watch enables a non-NFC capable Apple device to make payments via Apple's dedicated platform. The sole requirement for Apple Pay is to have a device with minimum the 8th version of the Apple mobile operating system – iOS 8 – installed.

Unlike contactless cards, Apple Pay seals the payments covering a set of advantages. For example, when approving a payment, the software converts the card information into a hexadecimal code using the 'secure element' (Santus, 2014). This code can be read only by the point-of-sale. In case of security breach, the card details are safe because hackers can see only a hexadecimal code and not the name and surname of the owner, card number, CVC code etc. The equivalent of this mechanism implemented in the physical cards is 3D Secure, considered to be a high standard of safety of transactions on Internet (Dospinescu, 2012).

According to a study published by PYMNTS.com, conducted in collaboration with InfoScout – a consumer research company – when it comes to mobile wallet adoption, Apple Pay is by far the most used for payments. In 32 months since launch, the usage has risen threefold compared to 2014 as presented in Figure 1.

This is strongly related to bank's adoption of the mobile payment. If in the case of mobile adoption, the increase was almost linear, the number of participating banks expanded from 20 in 2014 to approximately 2500 in 2017 – 304 in Asia-Pacific, 112 in Europe and the Middle East and 2000 in the United States and Canada (Apple, 2017).

With the launch of anniversary iPhone, Apple introduced on their stage another biometric sensor – face recognition – alias Face ID. Facial recognition technology has sparked controversy since its launch when Craig Federighi's face was not recognized when he tried to unlock the iPhone (Richardson, 2017). The main declared purpose of this technology is to improve the unlocking time of the iPhone and to make mobile payments run faster. As we speak, this technology is immature and no data can be analyzed since iPhone X – the only iPhone with Face ID – is just starting to be rolled out in the stores.

Both Touch ID and Face ID technologies will be the pillars of Apple Pay Cash development. Implemented in the late version of iOS 11, Apple Pay Cash is a P2P – peer to peer service which enables users to wire the money via iMessage – Apple's proprietary messaging application. All transactions will be authorized via Touch ID or Face ID.

One might think that the fingerprint recognition and face recognition are the latest trends in the field. Actually, they are not. The implementation of fingerprint technology dates back in 2004 (Germain, 2004) and the topics related to facial recognition were discussed since 1966 by Woody Bledsoe (1966).

Another possible fallacy is to assume that Apple was the first company that introduced NFC payments. When Apple Pay was launched Nokia had implemented NFC for 10 years but only for interoperability among different devices (Microsoft Devices Team, 2012).

The main merit of Apple is not the implementation of biometric sensors in their technologies, or the using an apparent obsolete NFC technology after 10 years of failure. The main merit is that they managed to raise, to mature the software and then to integrate it with hardware, at the end developing a unique mobile payment ecosystem which inevitably induced competition among industry players (Zea et al., 2012).



Figure 1: Percentage of respondents that used the wallet Source: Webster, 2017

3. Major shifts in consumer behaviour

The evolution of technology is also influencing consumer behavior and attitudes. The increasing number of the digitalized consumers is due to the fall of the price for technology; from 1999 to 2003, the computer price index has declined by 20% each year (U.S. Department of Labor, 2015) and is steadily decreasing, allowing the entrance on the market of new consumers. Between 2016 and 2021, the number of internet users will increase with 4 billion, reaching a whopping 6.1 billion high-speed data connections (Cisco, 2017). Moreover, 75% percent of the 8.5 billion people - the population estimation by 2030 - will have smartphone and internet access (Benson-Armer, et al., 2015). In the same time, the consumer's sophistication is also growing, the technology being perceived by consumers as beneficial, hence computers, mobile phones, digital cameras and the internet being considered factors that improve the quality of life (Hoyer & MacInnis, 2008, p. 364). This phenomenon of technology adoption is even more accelerated among younger generations who are highly connected. About 56% of millennials use two or more electronic devices daily in the United States, such as cell phones and the Internet (Hawkins & Mothersbaugh, 2016, p. 61).

The penetration of high-speed internet has brought significant changes of the online consumers and also changed the marketing and the research methods of the consumer. When it comes about the shopping, the consumers have a large gamut of options, because they can shop in the store, on the phone or on the internet. A study conducted in 2016 by Price Waterhouse Coopers shows that more than half of the online buyers are weekly or monthly online shoppers (2016). Not only that online shopping has sky-rocketed, but the consumer is currently shopping and choosing from a larger variety of products compared to the beginnings of the Internet. However, there are products with a higher associated risk for shopping via the internet, such as furniture, building materials etc. For this niche of products, the consumer uses the internet solely for information, preferring to shop in the traditional brick and mortar shop (Hoyer & MacInnis, 2008, p. 208).

In this new digital environment, the consumers constantly move from one channel to another, from online to offline and vice versa. In this context, two new purchase scenarios are common in the digital area: showrooming and webrooming. First scenario refers to customer journey which starts with visits in the traditional stores, but the product is bought online for a better price. The second scenario starts with learning about a product from online ads or social media. After the consumer decided which products are suitable for him, the purchase will be made in store (Kotler & Keller, 2016).

Taking into account the integration of multiple channels, the payment is the last step in creating this seamless customer journey adapted to a nowadays digitalized consumer. Because the consumer has many options, the mobile payments should distinguish from the others, emphasizing the benefits they have like speed, ergonomics, convenience and mainly security - one of the most important criterion. The incentives altogether with other additional services can help the adoption of a certain type of mobile payment. For example, the developers may include an integrated system with discounts and loyalty programs for certain stores (Beutin & Dagmar, 2017).

New payment methods are emerging, as seen in Figure 2, mainly because nowadays digital commerce is no longer limited to smartphones, computers, and tablets. All the devices incorporated with sensors like home appliances, smart homes, smart locks, wearables and so on so forth have a great potential to bring changes in the current commerce but also in the payment system. Consumers are also switching from texting to voice commands, personal virtual assistants like Amazon's Alexa, Siri, Google Now and Cortana being more and more common when it comes to online shopping (Evans, 2017). It was even a mainstream joke when Jeff Bezos – the CEO of Amazon - bought the Whole Foods Market saying that he has bought it by mistake; he just wanted something from Whole Foods and ordered through his

personal virtual assistant. Alexa misunderstood the command and has bought the entire company.



Figure 2: Mobile payment trends Source: Nicolas & Dagmar, 2017, p.7

4. Legislative changes in mobile payments market

In 2007 the European Parliament adopted the Payment Services Directive (PSD) a directive meant to help Single Euro Payments Area (SEPA) by increasing the transparency in transactions and lowering the fees. In 2015, the second PSD was adopted. PSD2 will be in force at national level starting with 2018 and will bring disruptive regulation for the mobile payments market. With the advance permission of the client, retailers will be able to use the bank details of consumers for processing the payments without third-parties; it will be a direct connection between banks and retailers, enabled with Application Programming Interface (API).

The information about the bank accounts will be at the fingertips of the so-called Account Information Service Provider (AISP) which will allow the multi-bank client to see the information from all bank accounts in one aggregated portal (Ramburs, 2017).

All these changes are made to better protect the consumer against fraud and ban the additional costs for payments, hence the companies must ensure the highest levels of security in order to meet the legislative criteria (Jerram, 2017).

Another regulation created by the European Union is General Data Protection Regulation which has the purpose of enhancing the privacy of EU citizens. Payments involve a lot of sensitive personal information about clients and it is imperative for the mobile payments providers to protect the related data (Aisien, 2017).

5. Other trends in financial services

Technology influences the disruption on financial services market. In this regard, there are some trends that will influence this industry, mobile payments market included.

a. Fintech companies are disruptive forces, usually start-ups companies, which innovate an element in the financial services chain.

- b. The sharing trends revealed in other industries, like automotive and accommodation may enter also in this industry. The sharing economy will be enabled by information technology and will connect the capital providers with the capital users.
- c. Blockchain and cryptocurrency
- d. Digital is no longer a novelty in the market, it becomes mainstream. The focus now is on big data analysis.
- e. The data about consumers' needs and wishes are no longer just based on what consumers declare, now the technology gives access to more in-depth information about what consumers want (e.g. analyzing the consumer's online conversations).
- f. The advances in technology and artificial intelligence will replace the interaction with a bank consultant with highly-skilled robots with the ability to learn and share the information with other robots.
- g. The main infrastructure will be the public cloud as many financial companies use cloud-based software-as-a-service applications for business processes.
- h. The cyber-security is one of the main risks for financial companies.
- i. Asia will be the key center of technology-driven innovation.
- j. The regulators will use technology to better monitor and predict potential problems for creating adapted regulations (PWC, 2017).

6. Conclusions

If in the first part it was presented the manner in which the giant players from high-tech industry influenced and continues to influence mobile payments industry, in the second part the focus was on the consumer because it is a reciprocal bond. Not only the end-user has to keep up with technology but also the technology providers should be aware of the users' needs. In order to have implemented a successful mobile payment platform, high-tech companies and banks must work together in order to provide quality services with respect to legislation. It is not enough to bring something new in the market taking into account that users tend to migrate to platforms that are simplifying processes. For this Apple is being highly criticized for the implementation of the controversial Face ID and dropping of the much faster Touch ID payment method in the newest iPhone.

The main takeaway of this paper is that although the mobile payments industry is exponentially growing, is also very volatile, and it is directly influenced by the big tech companies. At least at EU level, once the legislation which made the speech will enter into force the banking sector has to make serious investments in order to stay competitive.

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WHERE DOES CORPORATE SOCIAL RESPONSIBILITY STAND IN RELATION TO SUSTAINABILITY?

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Abstract: The business competitive landscape of today is shaped by new challenges. In order to outperform their peers, companies seek to seize opportunities and manage the risks associated with the challenges that arise. To this adds the pressure of societies on organizations to be more transparent, ethical and responsible. Corporate Social Responsibility (CSR) and sustainability come in response to this increasing demand of societies by being a pivotal tool in the business area. Organizations of the 21st century can no longer ignore CSR and sustainability and should follow the steps of integrating them across all departments as part of their strategic policy. Sustainable organizations are required to direct their interest beyond the economical factor and extend their goals towards environmental and social aspects. By integrating environmental and social concerns in the daily operations of a company, new models of doing business emerge and a synergy with various stakeholder groups takes place. Although a significant amount of attention has been headed towards the conceptualisation of CSR and sustainability, they both remain contested concepts. Therefore, the present paper depicts the effort to follow the emergence and conceptualization of CSR and sustainability from their origins, to introduce the changing meaning of CSR and to bridge the gap between the two concepts. Through literature review, the paper will provide relevant theoretical underpinnings that link CSR and sustainability.

Keywords: Corporate Social Responsibility, Sustainability, Stakeholders, Theoretical Framework

JEL classification: Q01, M14

1. Introduction

Throughout the world, organisations of today are aware of the new role they have, which is to meet the needs of the present generation without harming the potential of future generations to meet theirs. The business environment, and especially the large corporations sector, is now considered to play a major role in taking action in order to reach progress in the field of sustainable development. To this adds the way a company manages to maintain good quality relationships with its employees, but also with its other stakeholders.

The concept of Corporate Social Responsibility (CSR) has managed to attract significant attention not only from scholars and governmental representatives, but also from practitioners that aim to move their organisations towards more than what involves transparency and ethical behaviour. Moreover, new sustainable business models emerge as a way to counter shortfalls at governance, societal and environmental level.

Taken together, both CSR and sustainability are considered one of the main drivers for businesses and numerous organizations have embraced the challenges that CSR and sustainable development brought.

Still, it appears that the two topics lack comprehension among executive managers of companies and raise discussions (Juscius, 2007). Therefore, the present paper will follow to synthesize the knowledge in the fields of CSR and sustainability and determine the link between the two.

2. Corporate Social Responsibility - Emergence

Although CSR has gained more attention from academics and practitioners in the last decades, it is not a new field of study. The origins of CSR date back to the early twentieth century, when capitalism consolidation occurred. Whether a company should undertake both economic and social functions sparked interest at the time to Weber (1922) and Clark (1939). They are considered to be the initial contributors in the field and began the search of denoting the possibility of company executives to achieve a management model that is competitive though responsible economic actions.

Still, the first work about social responsibility belongs to Bowen (1953), considered the founder of the concept, who defined social responsibility as 'the set of moral and personal obligations that the employer must follow, considering the exercise of policies and values desired by society'. Since the fifties, there has been consciousness that companies can impact the lives of citizens and that firms should positively act upon their main social and economic imbalances. Thus, considering the social function together with the economic function in a firm has been underlined.

Social responsibility as a research topic began to gain interest from others since Bowen's work. Drucker (1954) acknowledged the need to consider public opinion in the decision making process of an organization, especially in the case of large companies which are operating in scenarios of social pressure.

Davis (1960) noted that the interests of those parties affected by organizational actions need firm's attention in order to gain support from them. He considered that the organizations that do not worry about the impact of their actions upon the environment might cease to benefit of their stakeholders' trust, which eventually causes the success of a business.

Walton (1967) introduces the idea that social responsibility is voluntary for a business and that its implementation involves relationship improvement with the stakeholders, but also an acceptance of a cost and risk. Other researchers (Wallich and Mcgowan, 1970) stated that the economic and social interests of stakeholders must be balanced by companies.

During the fifties, sixties and seventies social responsibility was referred to as an adjustment process among the business operating environment and the stakeholders, while in the eighties the theoretical dispersion of the concept began to emerge.

A significant amount of work in the field of social responsibility was done by authors who reacted in response to the players that have a stake in the business performance, and led to what is known as stakeholders theory. Freeman (1984) introduced the stakeholder concept, while the power and claims that each party has on the company have been later investigated (Mitchell et al., 1997). The stakeholder concept involves that the firm establishes relationships both with relevant groups, such as owners and shareholders, and alternative parties (suppliers, government, customers, employees, investors, local community, unions, competitors, media) (Bridoux and Stoelhorst, 2014).

The CSR concept is diversified and has been changing over time until today. According to Carroll (1991), CSR theory takes into account four levels built up on a pyramid: economic responsibility, such as being profitable; duty to obey the law; responsibility to be ethical and philanthropic responsibility. The model is still widely discussed today. More recently, Epstein (2008) identified nine areas in which CSR operates: ethics, governance, employment practices, transparency, business relationships, environmental protection, financial return, product value and community involvement.

There are numerous definitions in the literature regarding CSR which range from business strategic repositioning to corporate philanthropic activities (Nijhof and Jeurissen, 2010). CSR designates the way businesses implement social responsibilities by going beyond the economic factor (Khojastehpour and Johns, 2014) and involves a series of corporate activities that aim to ensure stakeholders welfare (Spinkle and Maines, 2010). Parguel and

Benoit-Moreau (2011) defined CSR as a voluntary integration of aspects of social and environmental nature into daily business operations and stakeholder interaction.

Monetary together with non-monetary benefits of CSR initiatives have been determined by scholars. A well built CSR strategy leads to a strong position in the market (Smith, 2003), which further enables companies to gain competitive advantage (Carroll et al., 2010).

CSR acts in favour of an augmented customer relationship, increases customers loyalty (Pivato et al., 2008) and attracts external investments, as investors seek companies that have not damaged their company ethics (Smith, 2003). CSR is considered a proactive process which enables an organization to exercise more leverage over other organizations (Carroll et al., 2010) and its initiatives may determine a business' image and reputation, increase its sales revenue and improve employee engagement (Radhakrishnan et al., 2014).

On the other hand, since modern businesses operate in a competitive environment, their stakeholders have expectations of them performing with minimal financial contraction, which is why CSR has also attracted averse opinions. Thus, the earliest resistant argument includes the co-existence of business and CSR in the context of profit maximization (Friedman, 1970) further discussed as the business not focusing on its core functions, but on non-core functions (Radhakrishnan et al., 2014). Moreover, Visser (2011) criticizes the success of CSR, primarily at the macro level, since environmental and social indicators are declining (biodiversity loss, gap between rich and poor), although there have been improvements at the micro level.

Scholars have also identified the reasons why CSR is implemented in daily business operations and these include customer-related motivations; altruistic intentions; firm's appearance improvement in order to acceding to various stakeholders demands or obtaining employee recruitment and retention benefits (Sprinkle and Maines, 2010). These reasons emerge into a rationale why CSR exists, which is that organizations need to be managed in order to create values and to satisfy the interests of its main stakeholders (Freeman et al., 2010).

MacGregor et al. (2008) outline that CSR implementation can be a starting point in the field of proactive innovation and that it constitutes a guide mark for companies that wish to improve their position in the market, but are typically risk-averse.

The new tendencies on ethical consumption indicate that individuals are more than only consumers, being responsible for the choices they make when purchasing (Vitell, 2015). These led to the new construct of Personal Social Responsibility (PSR), as a key element to upgrade CSR, that integrates ethical/responsible consumption (Lopez Davis et al., 2017). So far, it has been established that CSR focuses on the relationship between business and the general public. In addition, PSR focuses on the behaviour of the individual, stressing the effects its daily decisions have on its social and ecological environment (Lopez Davis et al., 2017). Not only companies will aim for better relationships with their stakeholders through responsible behaviours, but also individuals, who will make decisions based on pursuing greater relationships with their stakeholders (families, community).

Criticism of CSR has also emerged. Banarjee (2007), Mullerat (2009) or Heath (2010) argue that the CSR concept is a rhetoric and an empty promise of delivering more than public relations benefits. Others (Aras et al., 2010) note that the manner in which companies are engaged in CSR-related activities is minimal as compared to the level of publicity for the efforts. Visser (2011) also criticizes CSR and notes that the raison d'être of business is to be in the service of society, in a positive way. This conception unfolds Corporate Social Responsibility, or CSR 1.0 to the new, diversified and integrated Corporate Sustainability and Responsibility, or CSR 2.0.

2.1. Practitioners approach of CSR

In a survey led by Economist Intelligence Unit (2008), 1,254 executives around the world participated, with 53% from firms having at least US\$500m in revenue. The results showed that 53.5 percent of respondents said that CSR is 'a necessary cost of doing business'; 53.3 percent agreed that it 'gives a distinctive position in the market' and 3.8 percent thought that CSR was 'a waste of time and money'.

CSR has also received attention from institutions, initiatives and bodies such as the European Commission (2001) which published the Green Book of CSR, World Business Council For Sustainable Development (WBCSD) or Global Reporting Initiative. Although focused on sustainable development, WBCSD (1999) has identified CSR as a constituent component of sustainability and has defined it as the 'commitment of business to contribute to sustainable economic development, working with employees, their families, the local community and society at large to improve their quality of life'.

Nowadays, various international organizations, such as European Union, Organisation for Economic Co-operation and Development and International Labour Organization have emphasized the importance of CSR adoption and exhibited a series of ethical and social guidelines. Consequently, organizations that aim to be sustainable cannot ignore CSR any more.

3. Sustainability in the Business Environment

The idea of sustainability has its origins back to the eighteen century being used in forestry. At the time, a quota limited the number of trees that were being cut in order to ensure a sufficient amount of wood supply that would not affect the resources of the forthcoming generations. After the Second World War, the level of awareness of the existing and potential damages upon the ecosystem increased, which led to the establishment of the United Nations Organization in 1945. The organization has worked towards achieving global sustainable development, along with encouraging cross-cultural dialogue, maintaining peace and providing humanitarian aid.

In 1987, the World Commission on Environment and Development published the Brundtland report, named after the former Norwegian prime-minister, which defined sustainable development. The published work was debated in the United Nations General Assembly and referred to satisfying the human needs (shelter, food, clothing) and aspirations (job, improved quality of life). Sustainable development has been defined in the Brundtland report as an ethical concept and "a development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (World Commission on Environment & Development, 1987). There has been an eco-development approach given to the sustainability concept, that is consistent with the environment and resources (Ebner and Baumgartner, 2006). This has led to their protection and to the mission statement of today's sustainability.

Since the Brundtland report was published, other works in the area of sustainable development began to emerge. There has been a focus on companies, and Elkington (1998) wrote that they should not only aim for profit maximisation, but also concentrate on social and environmental issues to the same extent. This approach has developed into what is known as a model of triple-bottom line, meaning that sustainability includes social, environmental and economic dimensions (United Nations Sustainable Development, 1992) which should be treated equally, integrated and balanced as components that support sustainable development (United Nations General Assembly, 2002).

Still, literature has lacked publications in the field of sustainability in the early years of emergence, and only since 2003 there were works published annually (Silveira and Petrini, 2017). Afterwards, since 2009, the number of works related to sustainability increased noticeably reaching roughly 20 publications per year, while the amount of work published

from 2009 to 2015 accounts for 78% of works written on the theme (Silveira and Petrini, 2017).

Ethical values lie at the base of sustainability. Sustainability works towards meeting the needs of the majority of the people (United Nations, 1992), while giving priority to the vulnerable ones that find themselves in special social and environmental situations.

Since the first mention of sustainability, it took several years to commit into practically working towards a sustainable future. Therefore, starting January 2016, United Nations has launched a universal call to action with the aim of improving the lives of future generations through 17 goals, also known as Sustainable Development Goals. The Sustainable Development Goals serve as a handbook and objective for all countries and are included in the Sustainable Development Agenda 2030.

Each goal has a specific target to be reached and in order to achieve that, multiple parties, such as governments, the private sector and citizens need to get together and bring their contribution. The Sustainable Development Goals address aspects such as poverty and hunger eradication, good health and well-being, quality education, gender equality, clean water and sanitation, affordable and clean energy, decent work and economic growth, innovation, reduced inequalities, sustainable communities, responsible production and consumption, climate action, life below water and on land, peace, justice and partnership for the goals (United Nations, 2016).

The 2030 Agenda recognizes the role of the business environment in contributing to sustainable development and starting 2016 it organized the Sustainable Development Goals Business Forum with the aim of better understanding the links between social values and business efforts to improve the quality of life in the local communities and obtain long term bottom line benefits. More than that, it even developed a guide for businesses on how to implement them (United Nations, 2015) also known as the Sustainable Business Goals Compact. The aim of the guide is to provide support to companies on aligning their strategies with the path of sustainable development and help measure and manage their contribution. It involves five steps: understanding the Sustainable Development Goals, defining priorities, setting goals, integrating, and reporting and communicating. Although it is developed with a focus on large enterprises, small and medium enterprises are also encouraged to use it and adapt it accordingly.

The European Union has also recognized the role of sustainability and its importance and committed to monitor the evolution of Sustainable Development Goals throughout the Community in areas such as reliable food production, climate change, sustainable management of natural resources and balanced development among community members. When relating sustainability to the business environment, it appears that the operationalisation of the notion remains inconsistent (Özkaynak et al., 2004), in spite of an increased attention in the speciality literature. Dyllick and Hockerts (2002) are among the authors that have shown interest to the field of business sustainability and have defined it as 'satisfying the direct and indirect needs of stakeholders of a firm without compromising firm's future abilities to satisfy the needs of stakeholders'. Such approach has led to the necessity of other business infrastructures such as new business models and sustainability related practices (Dyllick and Hockerts, 2002) that need to be integrated and connected (Rocha et al., 2007).

In terms of economic paradigms related to sustainability, literature suggests that there are several that can be distinguished. Business sustainability 1.0 evolves from the traditional economic paradigm that only seeks to obtain economic benefits (profits, market share) through minimal costs or efficient processes, and addresses social and environmental issues (Dyllick and Muff, 2015). However, firm's objectives remain headed towards the value creation for shareholders. With a more extended view that not only includes shareholders but also social and environmental aspects, is business sustainability 2.0 that aims for sustainability through specific programs that have their evolution monitored. Furthermore,

business sustainability 3.0 brings businesses even closer to sustainability through a series of key elements that look to address sustainability issues in the society through their products and services. Consequently, this new paradigm approaches society's challenges of environmental and social nature and conveys them into business opportunities (Dyllick and Muff, 2015).

Although during the last decades, practitioners and scholars expressed interest in the field of sustainability there is still a lack of understanding on how organizations can successfully implement it.

3.1. Practitioners approach of Sustainability

Nonetheless, efforts have been made over the last years by practitioners, in particular, to help facilitate businesses direction on the path of sustainability. Such efforts include the activity of World Business Council for Sustainable Development (WBCSD) which gathers more than 200 major businesses that collaborate with the aim of reaching success by considering sustainability, Global Reporting Initiative (GRI) that contributes to a better understanding of sustainability through the GRI Standards or International Standards Organization (ISO) which offers guidance on sustainability matters though ISO 26000.

4. Bringing Sustainability and Corporate Social Responsibility together

Defining widely the concepts of CSR and sustainability has led to various understandings and has attached extra complexity to the terms, especially when used together (Ebner and Baumgartner, 2006). However, the emergence of terms helps filling the gap. Sustainability rooted in the Brundtland report with a social, economic and environmental triple bottom line, while CSR is approached from a social and stakeholders perspective within the organization.

Also, as an active party in the field of sustainability, WBCSD refers to CSR as a constituent of the social dimension of sustainability that supports organisations in being good corporate citizens. Moreover, it considers CSR as "business'commitment to contribute to sustainable economic development, working with employees, their families, the local community, and the society at large to improve their quality life" (WBCSD, 2006).

Some argue that CSR is viewed as part of sustainability (Bhagwat, 2011). However, due to inconsistencies in the operationalisation of the concepts, it is not clear where CSR is exactly incorporated.

Thus, the two concepts have also been overlapped and used synonymously (Elmualim, 2017) where CSR is considered a voluntary action of public interest integrated into the decision making of a process of corporations that honours the triple bottom line of People, Planet and Profit.

Measuring the progress of CSR and sustainability has been a continuous challenge for both scholars and practitioners. Still, a series of indices, also referred to as benchmarks, were developed over the last years with the objective to describe the situation of companies meeting certain requirements. The reasons for establishing such instruments include the creation of benchmark for companies involved in CSR and sustainability activities, as well as a reference for investors that consider their investment decisions based on such aspects. Various frameworks and indices appear to integrate sustainability and CSR dimensions and the major ones include the Global Reporting Initiative (GRI), Dow Jones Sustainability Index (DJSI), ARESE Sustainability Performance Indices (ASPI) or FTSE4GOOG Indices.

The GRI Standards provide the means for companies to measure and present information about their performance through Universal Standards or Topic-Specific Standards. GRI is a free public good which is being used in more than 90 countries by thousands of organizations and was launched in the 1990s. It is carried out voluntarily by companies covering areas such as sustainable development strategy, implementation of international standards for sustainable development and CSR, stakeholder engagement, governance, environmental protection management or ethics and integrity. The DJSI was the first global index, was launched in 1999 and comprises six tracking criteria that include strategy, financial, governance and stakeholder, customer and product, human and process. The ARESE Sustainability Performance Indices launched in 2001 and track companies performance of four criteria: triple bottom line, positive screening approach, risk management and a stakeholder-centred approach. FTSE4GOOD Indices measures the performance of companies around the world being launched in 2001 by London Stock Exchange. It undergoes both a negative selection that excludes those companies dealing with weapons production, substance production or violating social equality principles, and a positive selection that covers environmental sustainability, stakeholder relationships and universal human rights.

5. Conclusion

To harness opportunities, organizations have widely adopted CSR and sustainability practices. Embedding the two constructs enables firms to connect with their stakeholders, contribute to environmental protection and obtain increased profits, generating a virtuous circle of multiple positive effects (Camilleri, 2017). Both strategic in purposes, CSR and sustainability provide an ethical framework that benefit organizations in the long term. The CSR areas identified by Epstein (2008) include the triple bottom line of sustainability, while others (Bhagwat, 2001) discuss about CSR as a constituent part of sustainability. Moreover, various indices such as Global Reporting Initiative, refer to CSR and sustainability aspects separately, while WBCSD considers CSR as a component of the social dimension of sustainability that contributes to a better corporate citizenship. Nonetheless, one of the most well-known frameworks of CSR until now probably remains the Pyramid of CSR proposed by Carroll (1991) created on four definitional parts: economic, legal, ethical, and philanthropic expectations that society has of organizations. While the triple bottom line approach suggests sustainability as being the balance between three pillars; environmental, economic and social, CSR could be seen as part of the social dimension of sustainability. However, both CSR and sustainability have been and still are ongoing concepts where different approaches continue to emerge. Thus, the link between CSR and sustainability still remains unsettled due to the contested nature of the concepts, which highlights once again the need for a common basis in their conceptualisation.

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